Investing in the Early Years: Closing the gap between what we know and what we do

Fraser Mustard
Thinker in Residence 2007
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Fraser Mustard

Dr. Fraser Mustard, Companion of the Order of Canada, Founding President and Fellow, The Canadian Institute for Advanced Research (CIAR), has had a diverse career in the health sciences, research and the private sector. After earning his MD from the University of Toronto and Ph.D. from the University of Cambridge, Dr. Mustard moved from the medical faculty of the University of Toronto to help establish the new school of Medicine and Health Sciences at McMaster University.

In 1982, he took on the task of creating and establishing a unique Canadian institute, The Canadian Institute for Advanced Research. The institute's programs have had a major focus on science, technology, innovation and economic growth and the effect of economic change on the social environment and the health and wellbeing of individuals and populations.

Dr. Mustard has been a leader in Canada in examining the socioeconomic determinants of human development and health. A particular emphasis has been on early childhood and the role of communities. He co-authored a report for the Government of Ontario on early learning (The Early Years Study) with specific community recommendations. Recognition of this has led Dr. Mustard and his colleagues to emphasise to all sectors of society the crucial nature of the early years in providing a healthy and competent population.

Dr. Mustard is involved with governments in Canada and Australia, the World Bank, the Inter-American Development Bank, UNICEF and the Aga Khan University in Pakistan in emphasising the enormous importance to society of early childhood development.

Dr. Mustard has received numerous awards for his work including the Companion of the Order of Canada, the Order of Ontario, the Izaak Walton Killam Memorial Prize in Medicine, the Gairdner Foundation International Award for Medical Research, the International Society on Thrombosis and Haemostasis Robert P. Grant Medal. He received the most prestigious Starr Award from the Canadian Medical Association in 2002.

Dr. Mustard currently leads The Founders' Network, which links together 1,000 or more individuals in the private and public sector in Canada and other countries who helped him build CIAR. A number of these individuals are involved with the Founders' Network in applying the knowledge from the institute's programs in their communities. He is Chairman Emeritus of the newly incorporated Council for Early Child Development and Parenting.

It gives me great pleasure to present the report of our eleventh Adelaide Thinker in Residence, Dr. Fraser Mustard, Investing in the Early Years: Closing the gap between what we know and what we do.

Dr. Mustard is a noted authority on the socioeconomic determinants of human development and health. He has received many awards and honorary degrees, including the Gairdner Foundation International Award, the Canada Council Izaak Walton Killam Memorial Prize, and the William J. Dawson Medal of the Royal Society of Canada. He is a Companion of the Order of Canada and a Laureate of the Canadian Medical Hall of Fame.

In late 2006 and early 2007 Dr. Mustard brought his credentials as a world leader in early childhood development to South Australia.

Throughout his residency, Dr. Mustard highlighted the importance of early childhood development and strengthened partnerships, promoted innovation in parenting programs, built strategic legacies and enhanced Australia's reputation as a committed leader in early childhood development with the people of South Australia, and I commend his report to those among us who share his vision.

I thank Dr. Mustard for sharing his time, his insight and his commitment to early childhood development with all South Australians. Ensuring that our children develop to reach their potential as healthy and competent members of our vibrant, inclusive and innovative society is a priority for the Government of South Australia.

Dr. Mustard's contributions have left a lasting impression on policy directions in our State and have supported the objectives of South Australia's Strategic Plan, particularly with regard to expanding opportunity.

As a result of Dr Mustard's influence, both through his residency here in Adelaide and through his wider body of work, our State is even better positioned to provide the very best start for all South Australians. Ensuring that our children develop to reach their potential as healthy and competent members of our vibrantly diverse and innovative society is a priority for the Government of South Australia.

I thank Dr Mustard for sharing his time, his insight and his commitment to early childhood development with all South Australians, and I commend his report to those among us who share his vision.

Mike Rann
Premier of South Australia
April 2008
My work as an Adelaide Thinker in Residence took place in two stages – in October and November 2006 and in February and March 2007. The objective of my residency was to increase interest and understanding across all sectors of the South Australian community about the crucial importance of the early years in developing a healthy and competent population.

In my report I draw urgent attention to the new knowledge that is emerging about early brain development and its effect on lifelong behaviour, learning and health. I recommend that this knowledge be spread as widely as possible to all people whose work affects outcomes for very young children. This includes, of course, parents and community caregivers.

The recommendations I have made for South Australia cover the need for improvements and change in the work of universities and TAFE and the need to raise the standard of education and training for staff in all disciplines that affect the development of infants and young children.

Recognising the economic and social value that derives from providing the very young with the foundations for a healthy and successful life is essential to South Australia’s future. My final recommendation examines the possibility of setting up an independent council for early child development and parenting in South Australia that would not be subject to the short-term imperatives of the electoral cycle.
1. Neuroscientific research and teaching
   • The Government of South Australia should work with the universities and related institutions to establish a program or institute in human development based on developmental neuroscience and the related biological pathways that set trajectories in health, learning and behaviour. This program should support research to ensure optimum development of all children in the early years of life. It should also help existing child and family-related disciplines to present this new understanding.

2. Measuring children’s development in South Australia
   • Given that 25% of children from all backgrounds show poor development at the time of school entry, the State has to have the Australian Early Development Index (AEDI) in place as an outcome measure to assess how well families and communities are achieving equity in early child development.

   • The Government of South Australia, in cooperation with the AEDI partnership, should carry out an annual AEDI assessment for all children entering the school system in all communities, and make the findings available in aggregate to those communities. This will help communities to work towards equity in early child development.

   • The Government of South Australia should carry out an annual AEDI assessment for all children entering the school system in all communities, and make the findings available in aggregate to those communities.

3. Taking steps towards improvement
   • South Australia should continue with its policy of putting in place universal integrated early child development and parenting programs linked to the primary schools that begin early in infancy; that are of high quality, and that continue into the early years of school.

   • The early child development and parenting centres should be capable of starting to work with parents and infants shortly after birth, if not during pregnancy. The centres’ program should help parents ‘learn parenting by doing’.

   • To make it possible for parents to be involved in these centres in the early years, South Australia should have a policy to allow parents with a new child at least 18 months parental leave, with income support (at least 80%). The first six months should be maternity leave and the next twelve months should be parental leave that can be shared between the mother and the father.

   • Early child development and parenting centres must, where appropriate, provide non-parental care when parents have to work or take education programs.

4. Changing Government programs and policies
   • The Government of South Australia should establish a policy for the continuing support and funding of high-quality early child development and parenting centres with a schedule for these centres to cover all of the State in ten years.

   • Once the Government has set the appropriate legislation and schedule for the development of the centres, the post-secondary institutions, along with the Government, will need to have a strategic plan for providing relevant education and training for existing and future centre staff. At present, in early childhood settings, there are too few staff with appropriate education and training.

   • The Government should establish an early child development applied research program with the universities to work with communities to assess the AEDI outcome measure and help the Government of South Australia and communities improve AEDI outcomes by recognising the need to take action when children are young.

5. Educating child development staff
   • All students graduating from university and TAFE programs that relate to child development and families should be educated in developmental neurobiological science relevant for their work.

   • The South Australian Neuroscience Institute (SANI) should strengthen its base in developmental neuroscience, including work in the gene environment interaction (e.g. epigenetics, microRNAs).

   • The universities should establish education programs for all staff working in early child development in order to ensure that they have a common knowledge base about experience-based brain development that is relevant to their work.

   • Because brain development in the period before formal education sets a child’s capability to take part in formal education, the university faculties of education should ensure a sharing of this understanding by introducing new knowledge about experience-based brain development for all students for primary and secondary education programs.

   • The Government should provide incentives for the universities and TAFE to better integrate their programs for people working in child development and education.
Summary of Recommendations

• In view of the importance of early child development for the future economy and quality of South Australian society, the Government should set up a program for all public servants to ensure understanding of what experience based brain development means for their work and the strategic goals of South Australia.

6. Involving the community
• The Government should set up community boards in association with the Department of Education and Children’s Services to develop and implement early child development and parenting programs linked to or part of primary schools.
• All staff engaged in community based early child development programs should be well educated in the cultural diversity of Australia. Programs must have staff members who reflect the cultural characteristics of today’s Australian society.

7. Sensitivity to the needs of Aboriginal families
• It is important for the Aboriginal community to help establish early child development and parenting centres sensitive to their language and culture. The centres should include non-Aboriginal families. These centres should provide programs that start at the birth of the child, if not during pregnancy.
• The Department of Education and Children’s Services should ensure that the early child development and parenting centres are culturally sensitive, have Aboriginal staff, and attempt to introduce infants (birth to seven months) to their Aboriginal language and English in the centres.

8. Supporting vulnerable families
• The early child development and parenting centres should be able to have children in their program who are caught in family disruption and dysfunction and in the care decisions of the justice system. The child’s official care provider (for example, foster parent) should be included. Centres should also work with homeless parents from all cultures to provide stability for early child development.
• The courts should have the power to assign vulnerable children to the centres with their designated care provider.

9. The views of young South Australian public servants and students
• The Government of South Australia should set up a program for all public servants of all ages to ensure they have a good understanding of early child development and human development in respect to health, learning and behaviour and how this relates to Government programs and their work in Government. The young public servants could be leaders to do this in the Government of South Australia.
• A youth representative should be on the proposed Council for Early Childhood Development and Parenting.

10. Integrating the data
• The data from the AEDI assessments should be integrated into a State data system for health and education and social indicators. All the individual data must be confidential and not used to label anyone.
• The Government of South Australia should establish a linked integrated data system from the work of its various departments that relates to physical and mental health, early child development, education, behaviour and socioeconomic factors. This could be modeled on the program established by the Government of Manitoba with the University of Manitoba more than 15 years ago. The findings from the integrated database should be publicly reported on an annual basis.
• Assessments of development and education of children should be population based for the age cohort not just school based.

11. The value of investing State resources in early childhood
• As the Government of South Australia invests in early child development and parenting centres, they must take steps to improve the necessary infrastructure and provide adequate sustained funding to ensure an incremental increase in the number of these centres over the next five to ten years.
• In keeping with the ideal of public education, the Government of South Australia must develop an integrated budget for each early child development and parenting centre with one set of guidelines and one set of accountability measures. At the present state of development, annual AEDI assessment of children in each centre will be a critical outcome measure.

12. Establishing an independent body
• Members of the South Australian community should consider establishing a council independent of the Government of South Australia to help set up child development and parenting initiatives. This could be called the South Australia Council for Early Child Development and Parenting, linked with the Canadian Council for Early Child Development and Parenting (a group in South Australia is taking preliminary steps to see if they can establish such a council).
Human societies have varied throughout history in their understanding of and attitude towards the development of young children and the future quality of societies. Five hundred years ago, Erasmus, a Dutch humanist and theologian, said, ‘One cannot emphasise too strongly the importance of those first years for the course that a child will follow throughout his entire life’. During the 20th century, studies by Piaget, Vygotsky and others started to describe factors influencing early child development and its importance for future development of individuals. During this period it was generally assumed by most societies that early childhood development was handled by families, particularly mothers. It was also recognised by some that the social environment was important. This led to the statement, ‘it takes a village to raise a child’, and some communities established early child development programs such as those at Reggio Emilia in Italy.

Today the exponential growth in knowledge in the neurosciences and biological sciences has shown how brain development in the early years can set trajectories that affect health (physical and mental), learning and behaviour for life. The new understanding about early child development and its effect on human development has ramifications for most university disciplines, including health sciences, economics, developmental psychology, education, other social sciences, and for government departments concerned with the economy and the health, wellbeing and competence of its citizens (quality of human capital) and our attempts to establish tolerant, healthy, pluralistic, democratic societies.

We now know about how experience in the early years affects brain development and how the development of the brain and biological pathways in this period influences health, learning and behaviour throughout the life cycle. Understanding what we know about developmental neuroscience in the early years has implications for all our initiatives to monitor and improve human development.

The challenge for all societies is to close the gap between what we know about the determinants of early child development and what we do. This Thinker’s report will discuss how the Government of South Australia is trying to close that gap, and will make recommendations to further this.

Throughout this report, I will use some terminology that is different from the terminology used in a number of Australian and South Australian reports on early childhood. For ‘early education and care’ or ‘early learning’ the terminology used in this report is ‘early child development’. The reason for this is that this term embraces the new understanding that early child development includes the concept of early brain and biological pathway development, which can set trajectories for physical and mental health problems, as well as learning and behaviour throughout life. Since early brain development has effects on future health and behaviour, it is better in my opinion to use the term ‘development’ to reflect this, rather than ‘early learning’. For these same reasons, I don’t like to use the terms ‘daycare’ or ‘child care’, however, in this report in order to ensure the readers’ understanding when I use the term non-parental care ‘child care’ is included – ‘long day care’ or ‘child care’ terms are used in South Australia.

Throughout the report, I will make reference to a number of appendices. The appendices are essential components of my report and can be found, along with electronic copies of my report, on the Adelaide Thinkers in Residence website www.thinkers.sa.gov.au.
How does experience in early life affect brain development?

To achieve reasonable equity in the competence, capabilities, coping skills, health and wellbeing of populations will require societies to apply the new understanding of how experience in the early years of life affects the development of the brain and related biological pathways that set trajectories that affect health (physical and mental), learning, and behaviour throughout the life cycle and can contribute to social and economic inequities and violence in societies.

Experience in the early years:
• affects gene expression and the function of sensing neurons and the development of neural pathways
• shapes emotion and regulates temperament and social development
• shapes language and literacy capability
• shapes perceptual and cognitive ability
• shapes how we cope with our daily experiences
• shapes physical and mental health in adult life
• shapes physical activity and performance (e.g. skiing, swimming).

The brain is composed of billions of neurons and trillions of nerve connections (synapses). The neurons in an individual all have the same genetic coding and are shaped for their different functions by sensory experiences. Experience transmitted to the brain in early life by the sensing pathways is key for the development of the architecture and function of the brain.

In the hierarchies of neural circuits that support complex behaviour, cognition and other functions of the brain, there are sensitive periods for the development of neural circuits at lower levels in the hierarchy. The pathways that perform more fundamental functions tend to lose their plasticity before the pathways that form for higher level functions. The sensitive periods or plasticity for most lower level neural pathway circuits end relatively early in life, often by 4 years of age. In contrast, sensitive periods for some high level circuits remain open (plastic) for a longer period. Therefore, early learning (brain development) begets later learning (later brain development), and, as Heckman (2000) states in his papers, ‘skills beget skills’.

A brain function that is affected by early life experience and affects individuals throughout life is what is often referred to as stress or the behaviour emotional pathway. Called the Limbic Hypothalamus Pituitary Adrenal (LHPA), this pathway works as a stress, emotional and behaviour ‘thermostat’. It is vital for everyday existence and we are now learning how the development of this pathway and its function in early life affects cognition, emotions and behaviour and risks for diseases (physical and mental) throughout life. Touch is a very important sensory stimulus in the early years in respect to the development and function of the LHPA pathway.

Biologists have accepted the hypothesis that the interaction between genes and their environment can affect the function of the genes. Today there is an explosion in knowledge about how the function of normal DNA can be altered by experience. The pathways by which sensory experience mediates brain function have major implications for our understanding of experience based brain development in early life and the effects on health (physical and mental), learning, and behaviour. There is new neurobiological evidence about how experience can affect gene function. Thus, development is affected not just by genetics but also by nurture. Studies of the pathways that regulate and control normal genes and the effect of experience will be a key area of research in this century.

The early years including the in utero period are critical and sensitive for the development of neuron function and neural pathways. The neurons and pathways involved in emotions and behaviour, and language and literacy are very sensitive to the early period of brain development. The early neural pathways are not as plastic as some of the other pathways that form later. The brain architecture and function that forms early is hard to change by the time the children are in the school system. Drugs and social support can be used to help manage some of the behaviour problems such as addiction and mental health problems that manifest in later life. However, it is difficult to fully reduce the burden of these problems in later life.

This new knowledge about the environment and the brain and human development affects most disciplines within our universities (health sciences, education, economics, psychology, law, social sciences and the humanities).

A difficult challenge for post secondary education institutions is how to introduce this new framework of understanding within the existing discipline structures to educate students about developmental neurobiological science and the effects on health, learning, and behaviour. The difficult issue is to build the interdisciplinary capability to link and integrate the new knowledge with the social sciences.

South Australia has a unique advantage in having established the South Australian Neuroscience Institute (SANI) involving the three universities and other institutions. This is a potential base for linking developmental neurobiological science with all disciplines concerned with population health, human wellbeing, behaviour, learning and competence. Another organisation, Healthy Development Adelaide (HDA), can also contribute to the integration of knowledge from neurobiological science with health, learning and behaviour. Linking both these organisations in a human development program or institute linked to the universities with a focus on developmental neuro- and biological science and on how the trajectories in health, learning and behaviour are set in early life could make a major contribution to assisting all university disciplines to incorporate this new knowledge into their teaching.
Chapter 2

How well are children in South Australia developing?

Recommendation 1:1
The Government of South Australia should work with the universities and related institutions to establish a program or institute in human development based on developmental neuroscience and the related biological pathways that set trajectories in health, learning and behaviour. This program should support research to ensure optimum development of all children in the early years of life. It should also help existing child and family related disciplines to present this new understanding.

In light of this new knowledge about neural and biological pathway development in the early years, countries are trying to establish ways to measure early child development that reflect neural and biological pathway development. A primary goal of these studies is to measure development during the early period of life. In both Canada and Australia, we have national longitudinal studies of children and youth, which provide a population based measure of child development across all social classes. In both countries, children of age four to five years in the lowest socioeconomic category have a higher proportion with poor development than in the highest income group. In both countries, children of age four to five years in the lowest socioeconomic category have a higher proportion with poor development than in the highest income group.

In Canada, the children who showed poor development at the time of school entry were classified as vulnerable. The authors of the Canadian study concluded:

One of the surprising findings was that the relationship between childhood vulnerability and family income was not as strong as previously believed – 37.1% of children from the lowest income quartile were classified as vulnerable and in the highest income quartile, 24.2% were classified as vulnerable.

These data are similar to those from the Australian longitudinal study and refute the stereotype that the majority of children with developmental problems are from poor families. In Canada, while 37% of children from lower socioeconomic backgrounds did poorly, 63% of the children in this income bracket did well. An important point from this research in Canada and Australia is that any program to improve early child development should be universal, not targeted.

In Canada we developed a macro measure of child development that could be used in communities in relation to children entering the primary schools. This measure is referred to as the Early Development Instrument (EDI) in Canada and in Australia as the Australian Early Development Index (AEDI). This measure is a crude macro-assessment of brain development and function at the time of school entry. The measures are all related to the development of brain architecture and function:

- physical health and wellbeing
- social competence
- emotional maturity
- language and cognitive development
- communication skills and general knowledge.

When plotted against the socioeconomic status of the children and their families, the community based EDI results for Canada and the AEDI results for Australia showed the same socioeconomic gradient for poor early child development as the population data from the national longitudinal studies of children and youth in Canada and Australia. In Canada, in a detailed study of all districts in British Columbia, the EDI results showed significant community variation. In these studies they were able to link the EDI results for children at school entry with their Grade 4 tests in reading and mathematics. The percent failing Grade 4 in Vancouver public schools correlated with the EDI scores of the children when they entered the school system. A preliminary analysis of the AEDI results for communities in South Australia also shows that schools in districts with a higher percentage of children with poor AEDI scores did not do well in the Grade 3 tests in reading, writing and numeracy. In districts with fewer vulnerable children, the Grade 3 test scores were better. This evidence indicates that the quality of early child and brain development at the time of school entry affects school performance.

Recommendation 2:1
Given that 25% of children from all backgrounds show poor development at the time of school entry, the State has to have the Australian Early Development Index (AEDI) in place as an outcome measure to assess how well families and communities are achieving equity in early child development.

Recommendation 2:2
The Government of South Australia, in cooperation with the AEDI partnership, should carry out an annual AEDI assessment for all children entering the school system in all communities and make the findings available in aggregate to those communities. This will help communities to work towards equity in early child development.

Recommendation 2:3
The Government of South Australia should, in partnership with the universities, establish a database that allows the AEDI results to be linked to children’s health status and their educational performance. In Manitoba, Canada, these data should not be about individuals but about communities.
Chapter 3

How can we improve the development of our children?

Given what we now know about experience and early brain and biological pathway development, what can families and society do to improve outcomes?

The evidence from studies in different parts of the world shows that quality early child development programs beginning early in life, including the in utero period, and involving parents, substantially improve child development outcomes. The evidence from all these studies is compatible with what we now know about experience based neurobiological pathway development in the early years.

For example, the Abecedarian project in North Carolina (Campbell & Ramey, 2002) showed that children starting at four months of age placed in a full year early child development program involving parents did much better in school in language and mathematics than children not placed in this program.

In addition, they found that when the two groups of children (early child development program and no early child development program) were randomly split at school entry so that one group went into an enriched school program for Grades 1 to 3, and the other group went into the standard school program, the children who received the greatest benefit from the enriched school program were those that had been given the early child development program from four months of age to school entry. These children showed the highest literacy and mathematics scores at the age of 21.

The children given the early child development program but not the special school program also did fairly well at age 21 but the effect was not as strong. The children not given the early child development program but placed in the enriched school program showed a small increase in literacy and mathematics competence but the effect was basically lost by age 21.

The data from this and other studies shows clearly that programs that enhance early child development enhance school performance and that school based programs by themselves cannot, from a population perspective, significantly enhance skills in language and mathematics for children that have had poor early child development.

Countries with early child development programs that begin in the very early years (birth to age two) have the highest population scores in literacy and numeracy. These findings are compatible with what we now know about early child and brain development and language and literacy.

In reviewing all the evidence, including studies from the social sciences, education, epidemiological and developmental neuroscience, the economist Jim Heckman (Nobel Laureate in Economics in 2000), from the University of Chicago, has stated:

We cannot afford to postpone investing in children until they become adults; nor can we wait until they reach school age – a time when it may be too late to intervene. Learning is a dynamic process and it is most effective when it begins at a very young age and continues throughout adulthood. (Heckman, 2000)

His conclusions are presented in more detail in Chapter 11. Government policies in language and literacy generally fail to appreciate that development in the first years has major effects on the development of language, literacy and numeracy in the present school programs.

In a recent review of early child development, Ludwig and Sawhill (2006), in their paper from The Brookings Institution, outlined three important principles to improve early child development:

• intervene early (at least at the time of birth)
• intervene often
• intervene effectively.

When we prepared the Ontario Early Years Study (McCain & Mustard 1999), we came to the same conclusion when reviewing all the evidence and recommended to the Government of Ontario that it should set up early child development and parenting centres for children from birth to age six, linked to or part of the primary school system. If possible, mothers should be involved in these centres when they become pregnant.

The Government of South Australia has set out a program for early child development centres involving parents. This is reviewed in Chapter 4. The recommendations for these centres are similar to what we have recommended for the province of Ontario and for Canada as a whole.

In its announcement for setting up Children’s Centres for early child development and parenting, the Government of South Australia stated that the goal is to enhance early child development, which is to be available for families and children from birth until they enter the early years of school. These centres will:

• identify and respond to the development needs of young children and their families
• provide high quality early child development programs and non parental care as required for children from birth to age 8
• provide access to early childhood, health and family expert professionals
• link families with young children with children’s services
• encourage community involvement in early child development
• reduce isolation for parents and young children
• provide parents with opportunities to participate in programs with other parents in the community
• support working parents and those who want to study
• provide a convenient and accessible location to learn more about parenting and young children’s learning and development
During the first two to three years of life, the greatest experience for stimulation of brain development comes from the primary caregivers, usually the parents and, from time to time, a close relative. Parents can pick up and learn parenting skills by working with their infants and toddlers in a properly staffed, high quality early child development program with other parents and their children. Thus, the staff in an early child development and parenting centre must be well educated and skilled to work with the infants, toddlers and young children, as well as the parents.

Parental involvement with young children in these centres raises a fundamental issue about the policies on parental leave, particularly for women who are working. These policies should be relevant to experience based brain development and the role of both parents in the early years.

**Recommendation 3:1**

South Australia should continue with its policy of putting in place universal integrated early child development and parenting programs linked to the primary schools that begin early in infancy, that are of high quality, and that continue into the early years of school.

**Recommendation 3:2**

The early child development and parenting centres should be capable of starting to work with parents and infants shortly after birth, if not during pregnancy. The centres’ programme should help parents ‘learn parenting by doing’.

**Recommendation 3:3**

To make it possible for parents to be involved in these centres in the early years, South Australia should have a policy to allow parents with a new child at least 18 months parental leave, with income support (at least 80%). The first six months should be maternity leave and the next twelve months should be parental leave that can be shared between the mother and the father.

**Recommendation 3:4**

Early child development and parenting centres must, where appropriate, provide non-parental care when parents have to work or take education programs.

Chapter 4

**What changes to Government programs and policies are needed to promote early child development?**

It is important that government policies change so that working parents with young children do not become consumers of daycare services but join an integrated child development program that incorporates education, the community, and the State’s human development initiatives.

Early child development programs are not babysitting services for working parents but are the first tier of education and development programs that set the foundation for future success.

Since an early child development and parenting centre is basically designed to enhance early child and brain development which flows naturally into education, it does not make sense to charge fees for families with young children joining these centres.

In Australia there are many programs that provide support for families with young children. They range from daycare to small, integrated programs involving parents supporting early child development from birth to Grade 1. In the school system, both the Commonwealth Government and the Government of South Australia play different roles in the early child development period.

External assessors of these various programs have pointed out that Australia’s complex multi-layered system of funding and provision of programs for early child development inhibits attempts by communities to create integrated programs that are linked to or part of the primary schools. Although some of these programs are very good, they present families with young children with a poorly integrated and confusing collection of programs for early child development.

The report of the South Australian Government’s Inquiry into Early Childhood Services, The Virtual Village: raising a child in the new millennium (2005), recommended that the Government of South Australia implement a whole-of-government approach to early child development initiatives to create order out of what can best be described as chaos.

It is clear that when the Government of South Australia announced its program for establishing 20 Children’s Centres for early child development and parenting in association with the primary schools, many community groups were anxious to help in establishing these integrated programs.

In the brochure published jointly by the Department of Education and Children’s Services, the Department of Health and the Department for Families and Communities, they state that in the Children’s Centres: qualified early childhood staff work with families and their children to provide quality learning and care to support children’s development, health and wellbeing.
Recommendation 4:1
The Government of South Australia should establish a policy for the continuing support and funding of high quality early child development and parenting centres with a schedule for these centres to cover all of the State in ten years.

Recommendation 4:2
Once the Government has set the appropriate legislation and schedule for the development of the centres, the post secondary institutions, with the government, will need to have a strategic plan for providing relevant education and training for existing and future centre staff. At present, in early childhood settings, there are too few staff with appropriate education and training.

Recommendation 4:3
The Government should establish an early child development applied research program with the universities to work with communities to assess the AEDI outcome measure and help the Government of South Australia and communities improve AEDI outcomes by recognising the need to take action when children are young.

Recommendation 4:4
The Government should establish with the Council of Australian Governments (COAG) an effective ‘whole-of-government’ approach for policies related to the funding, evaluation and accreditation of early child development and parenting centres.

Recommendation 4:5
The early child development and parenting centres should be accessible, available and affordable for all families with young children.

Recommendation 4:6
The Government should develop a strategy to bring quality daycare programs into the early child development and parenting centre initiative.

Recommendation 4:7
The Government should improve the effectiveness of the whole-of-government approach to early child development by working towards better integration of the work of the different ministries and government departments.

Recommendation 5:1
All students graduating from university and TAFE programs that relate to child development and families should be educated in developmental neurobiological science relevant for their work.
How should we staff the early child development and parenting centres?

Recommendation 5:2 The South Australian Neuroscience Institute (SANI) should strengthen its base in developmental neuroscience, including work in the gene environment interaction (e.g. epigenetics, microRNAs).

Recommendation 5:3 The universities should establish education programs for staff working in early child development in order to ensure that they have a common knowledge base about experience based brain development that is relevant to their work.

Recommendation 5:4 Because brain development in the period before formal education sets a child’s capability to take part in formal education, the university faculties of education should ensure a sharing of this understanding by introducing new knowledge about experience based brain development for all students for primary and secondary education programs.

Recommendation 5:5 The Government should provide incentives for the universities and TAFE to better integrate their programs for people working in child development and education.

Recommendation 5:6 In view of the importance of early child development for the future economy and quality of South Australian society, the Government should set up a program for all public servants to ensure understanding of what experience based brain development means for their work and the strategic goals of South Australia.

Chapter 6

How can communities promote early child development?

During my residency, I visited a range of metropolitan, outer metropolitan and regional communities. I was impressed with the understanding of these communities about the importance of early child development for the future long term health, learning and behaviour of young children.

They varied in their understanding of developmental neuroscience. Many individuals with limited formal training were doing an excellent job in early child development. Some were operating what are called daycare centres that were better described as early child development and parenting centres because of their understanding of early child development and the way they operated their programs and involved parents.

In moving towards a more integrated early child development program with qualified staff, it is important that the Department of Education and Children’s Services makes it possible for the competent individuals who have had limited formal education to upgrade their skills and understanding of developmental neuroscience and early child development.

A high quality postgraduate program in early child development with a strong base in developmental neuroscience and biological science will be required. It might be modeled after some of the initiatives of SANI in collaboration with an inter-institutional early child development program.

It is important in establishing these early child development and parenting centres that there is good community involvement. In Port Augusta I had several meetings with a group of key early childhood professionals from a range of disciplines and other meetings with community members. These groups contributed to a paper entitled The equity of opportunity for all young children: Port Augusta (Appendix 3 on www.thinkers.sa.gov.au). In this paper, they promoted a model of integrated early childhood development programs using a 'hub and spoke' model, with one centre (the hub) connected to satellite units (the spokes) in each of the primary schools. The paper recommended the establishment of an enabling committee to represent the diverse demographic characteristics of the Port Augusta community and to guide and support development. The multidisciplinary group that developed the paper would like to set up an incorporated organisation with an early child development board to facilitate the establishment and operation of the early child development programs for their community.
The Port Augusta paper proposed:
• a flexible program with flexible operating hours (not just 9am to 5pm)
• yearly AEDI to measure outcomes of the program
• centres of excellence in early child development attracting new skilled staff
• upgrading the skills of existing individuals in early child development
• staff that is well prepared to be sensitive to the culture and diversity of the community, particularly the Aboriginal community
• increasing the awareness of all families with young children about the importance of the early years.

One issue that was repeatedly raised in meetings with the communities was the differences in policies and funding by the various government departments and their programs. For example, the centre based program for early child development is the responsibility of the Department of Education and Children’s Services but home visiting is the responsibility of the Department of Health. While both programs have the potential to achieve improvement for children, this improvement would be even greater if the separate responsibilities were integrated. Also, some departments have primary responsibilities other than early child development.

Some staff in the Adelaide based government departments did not understand experience based brain development in the early years and its effect on health, learning and behaviour, while the staff working in some communities did. The Government of South Australia should take steps to close this gap in understanding in its public service.

Recommendation 6:1 The Government should set up community boards in association with the Department of Education and Children’s Services to develop and implement early child development and parenting programs linked to or part of primary schools.

Recommendation 6:2 All staff engaged in community based early child development programs should be well educated in the cultural diversity of Australia. Programs must have staff members who reflect the cultural characteristics of today’s Australian society.

One of the valuable interactions I had as Thinker was with the Aboriginal Roundtable group. The Roundtable was established to work with me during my exploration of early child development and the Aboriginal community. I asked the group the specific question, ‘What would it take for Aboriginal people to be partners in their communities in early child development and parenting centres?’ Their response is a paper entitled Aboriginal Roundtable response to: “What would it take for Aboriginal partnership in Early Child Development and Parenting Centres?” for Fraser Mustard (Appendix 2 on www.thinkers.sa.gov.au).

One of the important points in the Roundtable participants’ response is that they would like to see early child development and parenting centres that can help prevent children from being taken away from their families. They see one of the roles of the children’s centres as supporting parents to be better parents. All the evidence from Canada’s and Australia’s Aboriginal populations is that our policies of taking children away from their families have been extremely disruptive for children and damaged the development of many children. Thus, one of the goals of culturally sensitive early child development and parenting centres is to involve the Aboriginal families, beginning if possible at pregnancy, and certainly after the child is born. This is also true for families from other cultures.

The group emphasised that government programs (services) are built on the dominant English culture with Aboriginal participation on non-Aboriginal terms. They made the point that they have survived in Australia for 60,000 years and cannot easily give up Aboriginal principles to take part in children’s centres that ignore their culture and history. If their children are to become socially included members of a pluralistic, modern, democratic state, the centres for early child development must be culturally and language sensitive. The Aboriginal Roundtable we worked with would be prepared to take part in early child development and parenting centres if they began at an early age, were sensitive to their culture and involved staff with Aboriginal backgrounds.
The health of Aboriginal children is extremely important for early child development. Participants made the point that you can’t teach a sick child. Poor child health can influence the development of brain function. All early child development centres should be closely linked with the health care system to ensure there is early diagnosis and treatment of problems such as middle ear infections that affect hearing development. It also means that all staff in the early child development centres should receive a thorough education in how illness affects the sensing pathways (e.g. vision, sound, touch etc.) in the early years affects later development.

One of the features of early child development that interested the Aboriginal Roundtable was that exposure to two languages in the first seven months of life made it possible to easily master both languages with no accent. They appreciate that their language is an important factor for sustaining key elements of their culture. The other factor is that if you develop the brain structures for two languages early in life, it is relatively easy to learn a third and fourth language later on in life. As we move to building pluralistic democratic societies, we will have to learn how to respect and better integrate cultural and language differences.

The Roundtable participants wanted the Aboriginal community to be involved in decision making and in the work of the centres. There should be a strategy for ongoing discussion between the centre staff and the Aboriginal communities to enhance the work of the early child development programs. The governance strategy should include members of the Aboriginal community. In my meetings with metropolitan and regional Aboriginal communities in Port Augusta, and at the Kaurna Plains School in Elizabeth, I saw excellent sites that could involve both the Aboriginal community and the non-Aboriginal community in a program led by Aboriginal people and based on Aboriginal culture and philosophy.

**Recommendation 7:1** It is important for the Aboriginal community to help establish early child development and parenting centres sensitive to their language and culture. The centres should include non-Aboriginal families. These centres should provide programs that start at the birth of the child, if not during pregnancy.

**Recommendation 7:2** The Department of Education and Children’s Services should ensure that the early child development and parenting centres are culturally sensitive, have Aboriginal staff, and attempt to introduce infants (birth to seven months) to their Aboriginal language and English in the centres.

How can the Government work with Aboriginal communities and families to improve outcomes for their children?

The early child development and parenting centres in communities can, if properly managed, be effective institutional means to ensure good early child development for all young children regardless of socioeconomic background and parenting structure.

At present, when the courts have to deal with family problems, they end up separating the child from its parents. When this happens in Canada, the young children are left in limbo and the Canadian family court judges recognise that the young children may be damaged permanently. If early child development and parenting centres are established in communities, the courts can recommend that the child be part of an early child development program with whatever caregiver is assigned by the courts. This could be a very powerful way of breaking cycles of poor early child development when there is family disruption.

In the case of homeless parents, often single mothers with young children, it is important to provide a residential base for the homeless parent and child and an accessible early child development and parenting centre for the child and parent.

Professionals working in health care who are involved with pregnant women and mothers with young children should be fully integrated with the early child development and parenting centres. If the centres can involve women when they are pregnant, then the people with the health background can work with the centre staff to ensure the mothers understand the importance of high quality prenatal development. During infancy and the toddler stage, they can provide support for the families and centre staff when the children become ill.

Another important role for early childhood development and parenting centres is supporting parents who have mental health problems, such as depression, and providing interaction with their young children. It is important that the early child development and parenting centres can provide the support and guidance necessary for these parents in early child development. Mayo House in Adelaide has a very good program for mothers with depression. The Lady Gowrie Child Centre’s Through the Looking Glass program offers an excellent program for mothers with attachment issues. Port Augusta has an excellent program for young children with development and behaviour problems. These programs should be closely linked with or be part of early child development and parenting centres.
We now recognise how adverse experience based brain development in the very early years can lead to mental health problems, alcohol addiction and drug use. It is important that the staff in the centres as well as the home visiting staff understand this. The centre’s staff must work with the vulnerable families and the courts to prevent the kind of environments that cause faulty development of the brain.

Recommendation 8:1 The early child development and parenting centres should be able to have children in their program who are caught in family disruption and dysfunction and in the care decisions of the justice system. The child’s official care provider (for example, foster parent) should be included. Centres should also work with homeless parents from all cultures to provide stability for early child development.

Recommendation 8:2 The courts should have the power to assign vulnerable children to the centres with their designated care provider.

Chapter 9

How can the Government support vulnerable families to improve outcomes for children?

How can young professionals promote early child development?

The Government of South Australia’s Office for Youth established a Policy Action Team drawn from government and universities to interact with the Adelaide Thinker in Residence on early child development. All members of the group were under 30 years of age and worked independently on this subject. In its final report (2007), the Policy Action Team made a number of important points:

- there should be a universal program for early child development associated with the primary schools
- the Government of South Australia should provide sufficient funding to develop and sustain early child development centres
- there should be universal education and training in early child development, and community understanding of the early years should be cultivated
- the universities should create a South Australian institute of human development
- early child development and its relationship to health, learning and behaviour should be part of the curriculum of South Australian high schools
- education and training should be available for the upskilling of existing health care professionals and early childhood educators in areas of neuroscience and early child development
- the community needs to be made aware of the needs and services associated with early child development
- an independent South Australian early child development council led by an ombudsman for children and families should be established to advocate for healthy early child development

The Policy Action Team concluded that ‘we should not underestimate the power that the early childhood picture has to change the world for all South Australians. We look forward to working with you to change the world!’

It is important that the older generations in South Australia appreciate that this sample of the next generation appreciates the significance of good early child development programs for the future of South Australian society. Therefore, a key issue is whether the Government of South Australia can ensure the same level of understanding of this subject among all members of the public service.

Recommendation 9:1 The Government of South Australia should set up a program for all public servants of all ages to ensure they have a good understanding of early child development and human development in respect to health, learning and behaviour and how this relates to Government programs and their work in Government. The young public servants could be leaders to do this in the Government of South Australia.
Chapter 10

How can we measure how well our children are doing?

Recommendation 9:2 A youth representative should be on the proposed Council for Early Childhood Development and Parenting.

There is a need for a good population based measure of child development.

There are population measures of development that begin with the birth of a child. Gestational age and birth weight of the child are two examples. These measurements are universally collected in all developed countries. The second population measure that can be carried out in countries with public education systems is the assessment of the development of children at the time of school entry. In Canada, this assessment is referred to as the EDI (Early Development Instrument), and in Australia, as the AEDI (Australian Early Development Index). We have not yet established universal development measurements for child development at different stages between birth and entry into the school system, although it is possible that such a technique might be developed for a population based assessment of development in conjunction with immunisation programs at earlier ages.

The AEDI (EDI) is a crude macro-measure of brain development at the time children enter the school system. We now know that this measure provides evidence of how well children will perform in the school system but it is important to emphasise that this is not a diagnostic measure and that it is only valid for population assessments of children, not for individual children.

The AEDI can provide communities with evidence about the quality and coverage of early child development programs in their district, and communities can use this information to improve their early child development programs. In order to take the necessary steps towards improvement, communities should have a council or board for early child development.

A linked population database (Health, Education and Behaviour) can be used for basic and applied research on the factors contributing to inequalities in health, learning and behaviour throughout the life cycle. It is now possible to link the development of some brain and biological pathways in the early years to physical and mental health problems and behaviour and learning in later life. This makes it possible to explore how the social environment can ‘get under the skin’ to influence gene expression at different stages of development leading to future health, behaviour and learning problems. This initiative could provide better linkage between fundamental research in the neurobiological sciences and the social sciences.

In establishing the population assessments, it is important that the assessments be population based not institution based. We often use school based assessments to measure developments in language, literacy and mathematics. Unfortunately, in Canada there are many children in each age bracket who do not take these school tests for a variety of reasons. Without a full population assessment, there are no adequate measures of the development of the whole population in the different age groups.

The size of South Australia and its strong track record in applied research in early child development gives it particular advantages in developing further programs which link research activities and service practice. It is important to pursue such avenues to avoid continuing decline in the State’s research capacity.

Recommendation 10:1 The data from the AEDI assessments should be integrated into a state data system for health and education and social indicators. All the individual data must be confidential and not used to label anyone.

Recommendation 10:2 The Government of South Australia should establish a linked integrated data system from the work of its various departments that relates to physical and mental health, early child development, education, behaviour and socioeconomic factors. This could be modeled on the program established by the Government of Manitoba with the University of Manitoba more than 15 years ago. The findings from the integrated database should be publicly reported on an annual basis.

Recommendation 10:3 Assessments of development and education of children should be population based for the age cohort not just school based.
Why invest in early childhood?

There is consensus among many economists that the quality of human capital is a key factor influencing economic growth and the quality of societies in the complex 21st century. These economists now understand that the impact of early child development on cognitive and non-cognitive functions is important. Heckman (2000, 2006) and others have estimated that in relation to behaviour and crime, the social cost of poor early child development to individuals and society in the United States of America is close to $1.3 trillion per year. For the State of South Australia, the cost to individuals and society is probably about CAD$7 billion (Canadian dollars) per year.

In Canada, the province of Ontario (Centre for Addiction and Mental Health) has estimated that the costs of mental health and substance abuse to individuals and society in Ontario is about CAD$4 billion per year. Based on the fact that the population of South Australia is about one-eighth of the population of Ontario, the cost to South Australian could be around CAD$7 billion per year.

The cost to Ontario’s individuals and society for mental health and substance abuse, crime and violence is about CAD$65 billion per year. The cost of a universal high quality early child development and parenting programs in place in South Australia would be about CAD$750 million.

High quality universal early child development programs could reduce the costs of mental health and crime to individuals and society by more than 50% in 25 years (the time it would take from beginning universal early child development programs to influence the quality and capability of the next generation).

Based on these rough estimates, the cost to put in place universal high quality early child development and parenting programs in place in South Australia would be about CAD$750 million per year if all families with young children took part. If only 50% of the families took part, one could project that the cost to South Australian society and individuals in terms of mental health, addiction, behaviour and crime and violence would be reduced to less than CAD$3 billion per year.

In his World Bank papers on early child development in the developing world, Jacques van der Gaag (2002) made the point that investment in early child development programs enhances the equity and quality of a society, limits social exclusion and is a very important factor in economic growth and prosperity.

Heckman has done extensive work on the quality and competence of the United States labour force and has concluded that a major contributor to the failure to improve the competence of the United States labour force over the last 25 years is a lack of investment in early child development. He has made the point that the period of early child development sets cognitive and non-cognitive characteristics that are important for adult economic productivity. Heckman has linked the new understanding from the neurobiological sciences with his work as an economist. He has emphasised that the greatest return on investment in human development is in the early preschool period of development. The return on investments in today’s schools is smaller than the return on investment in early child development.

Using US data, Heckman concluded that school age remedial programs for children and youth with cognitive limitations have generally had a poor record of success. He also concluded that public job training programs for disadvantaged adults yielded low economic returns. However, he made the point that although investments in older individuals realise relatively less return overall, such investments are still beneficial to individuals and society. In his work with psychologists and development neuroscientists, Heckman came to the conclusion that early childhood experience has a powerful influence on the development of the cognitive, social and emotional capacity and the health and wellbeing of adults that are prerequisites for strong economic productivity in the adult population. He made the point that the success of modern economies depends in part on a well educated and adaptable labour force that is capable of learning new skills so that they remain competitive in a continually changing global market.

In a recent series of articles on the globalised knowledge based economies, The Economist magazine has pointed out the increasing need for talent. It made the point that there is a growing shortage of talent and growing global competition for talent.

A key issue in the battle for brain power and talent is how to fund the early child development centres. The Economist magazine (18 July 1998) concluded:

It is perfectly possible to devise a system that will produce more children and still keep women at work, though it may not come cheap. The principle of free education for school age children is already entrenched throughout the rich world; there would be nothing incongruous about extending it further down the age range. In the Nordic countries, widely available and good quality child development programs, together with generous maternity and parental leave arrangements, have kept birth rates near replacement level even though most women go out to work. Many other rich countries make a nod in this direction by subsidizing child care and giving either tax allowances for children or other direct child benefit.

In their book Children of the Lucky Country, Stanley, Richardson and Prior (2005), bring out the impact of the revolution in the role of women in today’s society and early child development. They outline the strategies that could enhance early child development in today’s changing world.
Why invest in early childhood?

In their paper for The Brookings Institution, Ludwig and Sawhill (2006) state that in their assessment of early child development in the United States:

Preserving the status quo has its own consequences. Specifically, a course of inaction runs the risk that our society forgoes the chance to help all our children realize their full potential and to improve the skills (and consequent competitiveness) of America’s future workforce. Based on the available evidence, we think that present knowledge strongly favors our proposal of stepped-up investments in early education from birth to age ten.

Recommendation 11:1 As the Government of South Australia invests in early child development and parenting centres, they must take steps to improve the necessary infrastructure and provide adequate sustained funding to ensure an incremental increase in the number of these centres over the next five to ten years.

Recommendation 11:2 In keeping with the ideal of public education, the Government of South Australia should incorporate its preschool program into the programs of the early child development and parenting centres and fully fund them for all children from birth.

Recommendation 11:3 One major goal of the early child development and parenting programs should be to reduce by 50% in 20 years the cost of mental health, addiction, crime and violence occurring in later life to individuals and society.

Recommendation 11:4 Another goal of the early child development and parenting program is to ensure that South Australia has the talent base to effectively compete in the globalised knowledge based economies of the 21st century with improved equity in high quality human development and enhanced social inclusion.

Recommendation 11:5 Since the early child development and parenting centres are part of an integrated program for human development (early child development and education), they should be publicly financed.

Recommendation 11:6 To achieve the whole-of-government approach for early child development, the Government of South Australia must develop an integrated budget for each early child development and parenting centre with one set of guidelines and one set of accountability measures. At the present state of development, annual AEDI assessment of children in each centre will be a critical outcome measure.

Chapter 12

How can business and community leaders contribute to early child development?

The 2005 Virtual Village report recommended that the Government of South Australia establish a Children’s Council with responsibility for working on integration and oversight of all early child development services. This Council was not established, but the Government of South Australia did establish a Council for the Care of Children, the purpose of which is to:

• promote the rights and interests of children
• advocate for or on behalf of children
• advise government
• inform the community about the best care and support for children.

The Council’s primary role is to ensure the care and protection of children and support for their families, and it reports to the Minister for Families and Communities.

Recognising that it will take time to establish quality early child development and parenting programs linked to the primary schools and that governments may change every four to five years with different ideologies, in Canada we established a national council for early child development funded by support primarily from the private sector. This was in part to ensure sustained development of early child development programs in Canada over the next 25 years, regardless of changes in governments and their ideology. The role of the council in Canada is to close the gap between what we know and what we do. To help close this gap, the council recruits and trains Fellows from all sectors and communities in Canada.
Recommendation 12:1 Members of the South Australian community should consider establishing a council independent of the Government of South Australia to help set up child development and parenting initiatives. This could be called the South Australia Council for Early Child Development and Parenting, linked with the Canadian Council for Early Child Development and Parenting. (A group in South Australia is taking preliminary steps to see if they can establish such a council.)

Governments in some developed countries have increasingly taken a role working with communities and parents to ensure equity in development for young children in their rapidly changing societies and cultures. This is in keeping with the increasing interest in the rights of the child and the role of society and parents to protect these rights.

South Australia has taken a major step to close the gap between what we know and what we do to enhance early child development. If the full scale of the project can be implemented within ten years, all children entering the school system will have had good early child development involving parents and community. This will lead to a healthy, competent population 25 years from today that can help South Australian society be a leader in adjusting to the changes and opportunities of the 21st century.
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References


Adelaide Thinkers in Residence

bringing world-class thinkers to Adelaide to assist with the strategic development and promotion of South Australia

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