

*Neuroscience and common sense are decisive: the earlier we nurture children's minds and hearts, the better lives they will live as adults. Yet, despite some tentative steps, we still wait too long. International child trauma expert Dr Bruce Perry and Berry Street's Annette Jackson say we might have to look at our own brain responses to understand why.*

*It is not easy to straighten in the oak the crook that grew in the sapling. - Gaelic proverb*

The human brain is responsible for all of the invention, productivity, creativity and humanity of our species over the last 200,000 years. It is a miracle of complexity. In the four years following conception, the major neural networks that an individual will use for a lifetime are created. During that time 86 billion neurons and 800 billion glial cells are 'born', migrate, connect, specialise and interact in astoundingly rapid and efficient ways, allowing the developing child to learn language, fundamental reasoning, relational and regulatory capabilities, large and fine motor skills and a range of other crucial brain-mediated functions. The neurodevelopmental processes of refining and modifying this foundational neural architecture continue through childhood, youth and into adult life, yet at a pace that slows dramatically with each continuing year until roughly age 30.

One of the rules of dynamic systems – such as the human brain – is that the energy (effort) required to influence (change) the system is proportional to the energy (for example, moving parts) in the system. Simply stated, the rapidly organising and developing

brain is easier to change, influence, modify, teach and heal. The remarkably dynamic process of brain development in early life, therefore, offers a unique and fleeting opportunity to influence the health and welfare of the individual.

The primary policy implication of this knowledge is that programs and practices that promote safe, predictable, nurturing and enriched intrauterine and early childhood experiences will be much more likely to promote optimal brain organisation and functioning than programs that seek to influence and change the brain later in life. That is not to say that trying to influence, modify and change the brain later in life is ineffective or a worthless activity – far from it. It is just that early life provides a unique, powerful, efficient and cost-effective opportunity to help children become healthy, creative, productive and humane.

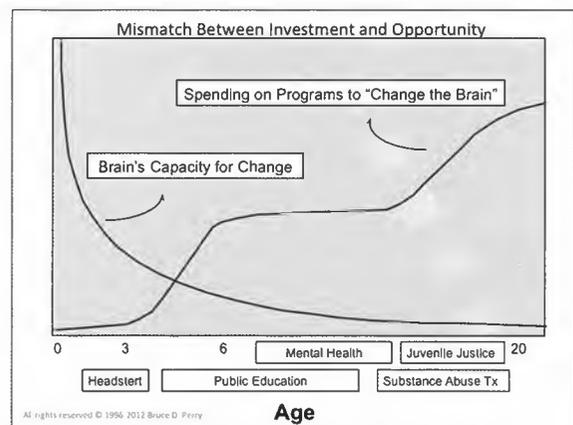


Figure 1. Mismatch Between Investment and Opportunity: This figure was created by Dr. Perry in 1996 to help convey the power of early childhood to shape the developing brain and the lack of policy and investment in programs which target this key time

Yet examination of current early childhood policy, programs and practice in the United States and many other Western nations reflects a woeful lack of awareness and action on this knowledge:

- educational content to teach about the importance of early childhood and brain development is just an 'add on'
- few public education systems (including schools of social work, education, medicine, law enforcement) choose to teach this content in a systematic fashion despite the fact that it informs the most important work in our societies
- programs to support young mothers are underfunded
- early intervention programs for developmentally struggling children are terribly underfunded and access is limited
- the early learning sector attracts only relatively low rates of pay.

We create developmental environments for infants and toddlers that have ratios up to 1 to 12 – when the ratio in 'natural' multi-family, multi-generational groups that were characteristic of 99 per cent of human history is 4 to 1. A majority of childcare settings in the US are judged to be developmentally uninformed and sub-standard. The average young child in the US has six hours of screen time a day. As you all know, we could go on.

### WHERE IS THE MOMENTUM?

Why is this? How can this be? This is not new knowledge – even the neuroscience underlying this awareness has been around for over 30 years. The common knowledge about the vulnerability and power of early childhood has been known for centuries, including in the comments attributed to St Ignatius Loyola: 'Give me the child until he is seven and I will give you the man'.

By the 1980s, well-organised early childhood professional groups were telling us about these things. A pioneer and champion of sensible early childhood policy was Irving Harris, a Chicago businessman, visionary and philanthropist who started the Ounce of Prevention Foundation (an early childhood policy organisation), the Erickson Institute (a special training institute dedicated to early education), and funded the Zero to Three organisation, as well as endowed professorships and programs. Each of these efforts has led to positive, but not pervasive, change.

In the 1990s, the 'I am Your Child' US public engagement campaign resulted in a special edition of *Newsweek*, a one-hour primetime special with Hollywood stars, a White House conference, a Department of Justice multi-year campaign, and hundreds of state and local initiatives (see Figure 1). The corporate sector and other large non-profit organisations joined in. *Proposition 10* in California helped create an ongoing funding for early childhood programs in California. Progress continued: again, positive, but not pervasive.

In the year 2000, James Heckman received the Nobel Prize for Economics. His work on the economic benefits of investing in early childhood programs, especially for at risk children provided a powerful economic argument that many thought would

persuade policy makers. Investing in early childhood saves money! Yet policy makers and politicians have been timid and lukewarm about investing in the kinds of early childhood programming that can save the public coffers \$9 for each \$1 invested. The efforts to use these economic arguments continue.

And here we are in 2013. In the last 15 years dozens of academic centres, foundation and philanthropic funded initiatives, corporate sponsored programs and government consensus projects have been created to continue to promote quality early childhood policy. Yet the promise of an understanding of neurodevelopment and early childhood remains unrealised by our societies. Indeed, some indicators suggest that we are even further from a developmentally informed society than we were 30 years ago. Our current public policies, programs and practices in the Western world remain fundamentally disrespectful of two great inter-related gifts of our species – the remarkable malleability of brain early in life and the power of relationships.

### WHERE DOES VICTORIA STAND?

The current early childhood policies in Victoria reflect the partial integration of these concepts. There are many developmentally respectful programs that have existed for many decades. Such a program in Victoria is the Maternal and Child Health

Service. With almost universal coverage this program supports parents in those first precious weeks and months of this new experience. The value of having access to a nurse who can visit the family at home – who can teach, mentor, support, acknowledge, and scaffold at this time, especially for families with increased vulnerability – should not be underestimated.

In terms of tertiary services, the Victorian Government's *Best Interests Case Practice Model* holds the concept of child development in the context of relationships and a cultural lens as a key element to inform all aspects of practice within child protection, family support and out of home care. Specific program initiatives such as Take Two, Department of Human Services Principal Practitioners, Therapeutic Foster Care, Therapeutic Residential Care, *Cradle to Kinder*, *Stronger Families* and more recently the Aboriginal Therapeutic Home-Based Care initiatives are all examples of purposefully-

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funded, developmentally-informed, trauma-informed programs for many of the most vulnerable infants, children and adolescents.

There are professional education initiatives to support knowledge development in this area such as the Graduate Certificate in Child and Family Practice and the Graduate Diploma in Child and Family Practice Leadership.<sup>1</sup> Other recent initiatives to develop stronger links with infant mental health and child protection include the Introductory Certificate in the mental health of high-risk infants.<sup>2</sup>

Yet with all of this, far more resources in Victoria are spent to change the individual – and the brain – later in life than in early childhood. Public resources spent on reactive substance abuse, health, mental health and youth justice swamp those for preventative services or early childhood programs.

As both participants in and observers of this decades-long process to create developmentally-informed practices, programs and policy, we are frequently asked to comment on 'why' if we know these important things we don't integrate them into education, child protection, mental health, juvenile justice and, even, early childhood policy. The answers are certainly complex and multi-dimensional but here are three (of many) principles of neurobiology that shed some light on this long and winding road.

## PRINCIPLE 1: CHANGE IS THREATENING

The brain functions in a 'state-dependent' fashion (see Table 1). The stress response networks in the brain will activate when the individual is exposed to novelty. There are several consequences of this 'shift'. When someone (or an organisation or legislature) is presented with a new way of thinking or problem

solving, the default response is to reject the innovation. It takes time for the new concepts to become familiar enough to not activate an automatic, knee-jerk, defensive response. Innovative, creative and flexible thinking required to act on the emerging (and somewhat complex) neurodevelopmental concepts over the last several decades has been a challenge. Related to this defensive reaction is that the academic or interest group most threatened by the innovations which challenge their existing frame of reference or perspective will be the most

vocal and hostile to the new ideas. Some of the most vocal and aggressive opponents of the initial public engagement campaigns about brain development and early childhood in the 1990s are now major proponents and advocates. Until the new ideas become familiar and are adopted by the mainstream groups with power and influence, there is little hope that enduring and pervasive policy change can take place.

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Controlling Brain Areas	NEOCORTEX Cortex	CORTEX Limbic	LIMBIC Midbrain	MIDBRAIN Brainstem	BRAINSTEM Autonomic
Cognition	Reflective Rational Abstract	Concrete	Emotional	Reactive	Reflexive
Internal State	CALM	ALERT	ALARM	FEAR	TERROR

Table 1. State-dependent decision-making

When we are under threat, our minds and bodies will respond in an adaptive fashion, making changes in our state of arousal (mental state), our style of thinking (cognition) and in our body's physiology (e.g., increase heart rate, muscle tone, rate of respiration). To understand how we respond to novelty or threat it is important to appreciate that as we move along the arousal continuum – from calm to arousal to alarm, fear and terror – different areas of our brain control and orchestrate our mental and physical functioning. The more threatened we feel, the more 'primitive' (or regressed) our style of thinking and behaving becomes. Novelty – and new ideas – are threatening and provoke concrete and emotional, defensive responses.

## PRINCIPLE 2: HUMANS ARE VULNERABLE TO 'TRIBALISM'

Human beings are social creatures. For 99 per cent of the time we have lived on Earth we have lived in small multi-family, inter-generational groups. We survive by forming relationships within our clan to promote cooperative hunting, gathering, caregiving and more. Our brains have sets of neural systems that allow us to communicate and connect. Yet in this natural world, and to this very day, our major predator has been other humans. When confronted with individuals who do not share the language, dress, customs, 'look' of our clan, the default response is to activate our stress response with the result being a similar categorical "defensiveness" described above. Modern tribalism impedes rational policy development. Liberal versus Labor, Right versus Left, Conservative versus Progressive, psychologists vs psychiatrists, one program competing with another for limited resources. The tendency to cluster – to create 'us versus them' on any topic – impedes rational policy, program and practice development. A high degree of bad-mouthing, undermining, de-valuing and needless competition that occurs in academics, politics and most human organisational endeavor always undermines rapid and rational action on new learnings. The brain-mediated tendency to needlessly compete rather than cooperate contributes to the long and winding road.

## PRINCIPLE 3: HUMAN DECISION-MAKING IS BASED MORE ON EMOTION THAN REASON

All information from the outside world comes into our brain through our senses. They in turn send this information into the brain from the 'bottom-up'. The lower and middle regions of our brain – which are simpler, more emotional, reactive and less capable of abstraction or reasoning – have the opportunity to process and *act* on this incoming information before it even gets up the neocortex – the smart part of the brain. Indeed most of human behavior is not driven by moment to moment rational 'top-down' cognition; most behaviour – including decisions about policy – is elicited, automatic, 'fast' processed and emotional. Even in the face of overwhelming factual content – such as the return on investment in high quality early childhood programs – bright and good people, when in policy or legislative groups, will often fail to act on this information in a rational way. This is always such a puzzle to the hard working and well intended people who work in the front lines with young children – especially young children impacted by abuse, neglect and trauma. The sad reality is that emotion trumps reason in human behavior – including policymaking. And this is more so in highly 'tribalised' systems such as US governance models.



If we are to continue to progress as a species, we will have to find better ways to integrate the fundamental gifts of early childhood into our policies, programs and practices. We have overwhelming evidence that doing this would help express the potential of our children and lead to a healthier, stronger, more creative humane culture. It is our belief that a better understanding of neurobiology will lead to better approaches to systemic change – including policymaking. There is hope from all of the good work over the last 50 years; we are further along the road towards truly developmentally informed societies but we have, to paraphrase the words of Robert Frost, "*miles to go and promises to keep before we sleep*".

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1. La Trobe University with University of Melbourne, Bouverie, the Victorian Aboriginal Child Care Agency (VACCA) and Berry Street's Take Two program.
2. Berry Street's Take Two, Royal Children's Hospital Infant Mental Health Team and Austin Hospital Perinatal Infant Mental Health team.

# IN SIGHT

VICTORIAN COUNCIL OF SOCIAL SERVICE  
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ISSUE 9

VULNERABLE  
CHILDREN:  
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