Building Integrated Connections for Children, their Families and Communities

Building Integrated Connections for Children, their Families and Communities

Edited by

Karl Brettig and Margaret Sims

CAMBRIDGE SCHOLARS PUBLISHING

Building Integrated Connections for Children, their Families and Communities,
Edited by Karl Brettig and Margaret Sims

This book first published 2011

Cambridge Scholars Publishing

12 Back Chapman Street, Newcastle upon Tyne, NE6 2XX, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-4438-3277-4, ISBN (13): 978-1-4438-3277-9

CONTENTS

Part Two: Promising Implementation Strategies

LIST OF ILLUSTRATIONS

FOREWORD

I feel hugely privileged to have visited Adelaide each year since the late nineties and have seen firsthand the amazing services which are being developed – services which really support children and their families in the 21st century.

Conceptualising and developing integrated services that are truly responsive to the needs of children and families has become a global project. Politicians, policy makers and practitioners across the developed world are driving this agenda forward. We all work in seriously divided societies where the most vulnerable communities are still not able to access the resources that more affluent families take for granted. It is essential that we prioritise the needs of our youngest citizens – they only get one shot at being two and three and four and they have no time to waste.

This book makes a major contribution to the debate about how we can make services available to the families that most need them. It also addresses the critical issue of co-producing services *with* children, families and communities so that they feel powerfully engaged in the process. Families don't want to be passive recipients of welfare handouts. They want to be treated as citizens with voice and choice – equal and active partners in developing public services.

History makes it clear that unless early years services are conceptualised as having transformational possibilities they are unlikely to achieve emancipatory outcomes. Karl Brettig and Margaret Sims have gathered together authors with strong vision, passionate commitment and extensive experience of community work. The projects and programs that they describe show that it is possible to restore hope back into communities, and bring about change for every child.

Margy Whalley
July 2011

ACKNOWLEDGEMENTS

Thanks to Ruth, Daniel & Joel for all that you have taught me along the journey and still do, about what it means to be a family. To co-editor Margaret Sims, thank you for your strong commitment to better outcomes for children through research, insightful presentations and inspiring leadership. Thanks also to the team at Salisbury Communities for Children for translating a vision for child and family friendly communities into an emerging reality. To Alan Steven, Director of Community Services at the Salvation Army Ingle Farm, Katrina Shephard and Project Assistants Cathie Bishop, Jacquie Dell, Jane Swansson and Lisa Wynne, thank you for your outstanding contributions towards building better communities for children. Thanks also to partnering agency Lutheran Community Care especially Karen Stott, Kathleen Wilson, Cathy Lawson, Sharon Davis and Helen Lockwood for your high level of commitment to supporting families and working in partnership.

We'd also like to acknowledge the significant contributions of community partners Centacare, the City of Salisbury, Relationships Australia, the Schools Ministry Group, staff from the Department of Families, Housing, Community Services and Indigenous Affairs and the SA Department of Education and Children's Services. Thanks for your outstanding contributions to the teams and partnering service providers at FamilyZone Ingle Farm, First Steps Playtime and FamilyZone Para Hills Parent Centre. Thanks also to Joanne Menadue, Mario Trinidad, Margaret Hunt, Kirsty Drew, Carol Perry, Kaye Conway and all who have been a part of the Salisbury C4C Committee and contributed to the productive discussions we have had around the table. Thanks also to UniSA evaluation team Elspeth McInnes and Alexandra Diamond and to Margy Whalley, Director of Research at Pen Green Research, Development and Training Base and Leadership Centre for her foreword and pioneering work with involving parents in their children's learning. Also acknowledged is the collaborative work of colleagues from C4C sites, Janet Pedler, Michael White, the Children Communities Connections conference team and all who have contributed to this publication.

—Karl Brettig

INTRODUCTION

KARL BRETTIG

Recently in South Australia an eminent UK liver specialist delivered a public lecture on the subject of 'Alcohol – The UK's Increasingly Problematic Relationship with its Favorite Drug'. He began by saying that a while ago he decided to work with a new paradigm. Instead of continuously rescuing drowning people from the river it might be a good idea to have a look upstream and find out how they were getting in there in the first place. He went on to inform the audience that he was not at all qualified to speak about his subject for the evening as he was neither a sociologist nor a social researcher nor a pop psychologist! What he had to say however did make a lot of sense to those who gathered at University of Adelaide Medical School to hear him speak. It is good to specialize and it is also good to develop a holistic integrated approach to working with vulnerable families.

In much of the western world we are seeing something of a meltdown in terms of the capacity of statutory services to deal with the number of child maltreatment cases that are being reported. Over the last 5 years in Australia the number of children on care and protection orders has increased by 47% from 24,075 (from 4.8 to 7.0 per 1,000 children) (AIHW, 2010). The time involved in processing escalating notifications is enormous and often comes at the expense of providing actual support for the families involved. The Australian Centre for Child Protection in recent times has advocated addressing this issue through promoting a public health model of child protection (Scott, 2006) which recognizes that child protection is everybody's business and not simply a matter for the statutory child protection authorities. We need to identify and support children at risk and their families before the trauma of abuse begins.

The 2009-2020 Australian Child Protection Framework incorporated a strategic plan which endorsed a number of initiatives. One of these was to expand the Communities for Children program by realigning existing sites to enhance integration, target the most disadvantaged communities and

establish new sites to test models of integrated service delivery. One initial outcome of this initiative has been the establishment of the adult specialist, family sensitive Communities for Children Plus model of service delivery with workforce development training being provided by the Australian Centre for Child Protection.

Other initiatives include the implementation of 35 integrated and co-located Aboriginal Child and Family Centres and support for existing state children and family centre developments. Key strategies included investigating options for improving information sharing between NGO's and government agencies through a common approach to assessment, referral and support.

In South Australia we had the privilege of having Dr Fraser Mustard as a Thinker in Residence during 2007-2008 with a brief of looking at the development of integrated early childhood services. He described the mosaic pattern of funding arrangements for early childhood services as chaotic and outlined some of the challenges we face (Mustard, 2008, p38).

> Rationalizing the range of programs and services, layers of tradition, and the mosaic of funding patterns of the governments for the support of a variety of activities in early child development will be difficult and requires legislation and specific funding for the children's centres. Different South Australian government departments, federal government, community organizations and non-government organizations support diverse non-integrated programs in early child development. Establishing integrated programs for early child development from this mixture will be difficult and slow.

South Australia is by no means unique in this regard. The United States government began investing in early childhood through the Head Start initiative in 1965 aiming to improve school readiness by enhancing social, emotional and intellectual growth. A recent report (Haskings & Barnett, 2010, p95) concluded that:

> The United States has a complex array of early education and childcare systems. It would be nice to believe that these programs are woven into a cohesive fabric, where strengths of one system are combined with strengths of another and where resources can be combined to reach the individual needs of the families being served. Unfortunately we are far from this level of coordination of effort and resources, with the result being a confusing array of services and programs for families to navigate

> and the constant potential for unnecessary duplication of effort and gaps in availability.

Fraser Mustard went on to identify some of the key issues facing those engaged in the process of developing effective integrated service delivery in his 2008 report, p38:

> In my discussions with Professor Philip Gammage, an early childhood education research fellow to DECS, he outlined some of the issues that have to be addressed to establish integrated early child development programs.
> • There needs to be integration of policies at the level of the ministers and the chief executives.
> • There needs to be excellent communication between the different ministries and within the ministries.
> • There needs to be an approach to ensure quality of staff and parity of status for people working in early child development.
> • There has to be a willingness to avoid disputes over any putative levels of professional superiority, or notions that no part of education, care, health, or family support is intrinsically more important than another.

In attempting to develop a sustainable funding model for effective integrated child and family centres, policy makers and practitioners are encountering significant challenges in terms of how to negotiate this mosaic (Anning et al., 2006, Brettig, 2009). Federal Communities for Children sites developing Child and Family Centres and State Department of Education and Children's Services Children's Centres continue to grapple with the issues involved. Allocation of state and commonwealth responsibilities in terms of co-ordination and resourcing remains a significant challenge. Other challenges include boundary disputes between agencies, changes in staff roles and responsibilities and information sharing protocols.

Parents and caregivers are the first and often most significant contributors to better early childhood development outcomes based on the evidence of the significance of the first 3-4 years of life. The 2007 Federal Government partitioning of early childhood and family support into separate departments added difficulty to the challenge of developing a way forward for funding child and family centres that have a strong focus on both of these areas. The Toronto First Duty (2006) and UK Sure Start (NESS, 2008, 2010, Melhuish et al., 2010) experience has begun the process of establishing their validity as a significant initiative in prevention, early intervention, social inclusion and child protection.

In 2009 the Australian federal Department of Families Housing Community Services and Indigenous Affairs refunded the Communities for Children initiative for three years and in 2011 extended for a further two years until 2014. However, this extension operates in a culture of siloed services in education, health and community/family support services despite significant rhetoric about integrated services. Each discipline has its own peculiar inherent biases and territorial tendencies. Health is becoming more psycho-social in its approach and FaHCSIA and the Department of Education Employment and Workplace Relations more holistic, however much cultural change is still needed. There still seems to be a perception in the community that significant investment in early childhood means the provision of more childcare centres while the development of child and family integrated early childhood service centres is yet to be given priority in the manner of international evidence-based developments such as the UK Sure Start initiative with its roll out of 3,000 children's centres in recent times.

In implementing a National Early Childhood Development Workforce Framework the complex issues encountered in multi-agency and trans-disciplinary service delivery need to be addressed. While an integrated approach is highly beneficial, in many cases it fails to deliver because of a lack of understanding, motivation and skills with regard to what is required to work together in delivering integrated, holistic services.

At Salisbury in South Australia through the Communities for Children initiative we have had the opportunity in recent years to develop several communities that support children and their families during the critical early years. One of these is an integrated early childhood services hub we call FamilyZone at Ingle Farm Primary School which regularly supports 3-400 families and provides a range of predominantly adult focused services with professional and volunteer support for young families. Another is a 'continuous' playgroup which also facilitates music, movement and literacy groups activities for 2-300 families based at the Salvation Army. A third community gathers at Para Hills Primary and is largely run by volunteers and facilitates similar activities for some one hundred children and their families. Training for volunteers is provided through a 6 x 2 days/wk early childhood leadership training course which includes sessions on child development, parenting issues, group dynamics, conflict resolution cultural awareness, communication and statutory requirements including child safe environments and first aid.

Other Communities for Children sites in South Australia have developed similar initiatives though they are all different as diversity is intrinsic to the adoption of a community capacity building approach.

This publication brings together a range of policy makers, researchers and practitioners including contributors from a number of federal Communities for Children initiatives, state Children's Centres and the Australian Centre for Child Protection. It has a focus on developing effective integrated, place-based support for children, their families and communities.

In part one we look at some of the key foundations that underpin effective integrated support. We begin with some of the latest research findings in the field of neuroscience which have had a major impact on policy and service delivery in recent years. This is followed by recent ethnographic research that has led to the development of an innovative family support model by the Australian Centre for Social Innovation. It is a family mentoring model that has been co-designed and co-produced in genuine partnership with families. A look at the principles of community development in supporting families and children is followed by some new research into the effectiveness of child and family hubs. Centres such as these really function as communities, as the title of the following chapter on developing integrated child and family communities suggests. We then look at a vision for integrated early childhood service delivery and the kind of training that is needed to optimise outcomes for families.

In part two we look at a broad range of promising implementation strategies that are being developed in the field. We conclude by looking at some key areas identified by researchers and practitioners for future policy and practice development. It is our hope that this publication will make a worthwhile contribution to improved provision of effective integrated and holistic support for children and their families.

References

AIHW (2010). *Child protection Australia 2008-09*. Cat. no. CWS 35. Canberra: AIHW.

Anning, A., Cottrell, D., Green, J., Robinson, M., (2006). *Developing multidisciplinary teams for integrated children's services.* London Open University Press.

Brettig, K. (2009). *Salisbury Communities for Children*. Report retrieved from http://www.salisburyc4c.org.au/resourcedownloads/SalisburyC4C_2005-2009_Report.pdf

Haskins, R.., & Barnett, W.S. (2010). *Investing in Young Children – New Directions in Federal Preschool and Early Childhood Policy.* National Institute for Early Education Research.

Mustard, Fraser (2008). *Early Childhood Development the Best start for all South Australians*, Retrieved from http://www.thinkers.sa.gov.au/images/Mustard_Companion_Document.pdf

Melhuish, E., Belsky, J., & Barnes, J. (2010). Evaluation and value of Sure Start. *Archives of Disease in Childhood, 95*, 159 - 161.

NESS (2008). *The Impact of Sure Start Local Programs on Three Year olds and Their Families.* National Evaluation Summary Report, National Evaluation of Sure Start Research Team. Retrieved from http://www.dcsf.gov.uk/everychildmatters/research/evaluations/nationalevaluation/NESS/nesspublications/

Scott, D. (2006). Towards a public health model of child protection in Australia Communities, Families and Children Australia, Vol 1, No 1, July 2006.

The National Evaluation of Sure Start (NESS) Team. (2010). *The impact of Sure Start Local Programmes on five year olds and their families.* London, UK: Department for Education.

Toronto First Duty (2006). *Evidence-based Understanding of Integrated Foundations for Early Childhood.* Toronto First Duty Phase 1 Summary Report. Retrieved from http://www.toronto.ca/firstduty/TFD_Summary_Report_June06.pdf

PART ONE:

FOUNDATIONS

CHAPTER ONE

WHAT IS NEUROSCIENCE TELLING US ABOUT SUPPORTING FAMILIES?

MARGARET SIMS

There is clear evidence that what happens to children in the early years of life can shape their lives forever (Irwin, Siddiqi, & Hertzman, 2007, p. 67; United Nations Educational Scientific and Cultural Organisation, 2010). Children growing up in disadvantaged families and communities have poorer outcomes across all health, development and wellbeing indicators. We can see this with indigenous Australians (Steering Committee for the Review of Government Service Provision, 2009). Indigenous teenagers are 4 times more likely to become pregnant than non-indigenous teenagers. The rate of notifications for child abuse has increased 4-6 times faster for Indigenous families than for non-Indigenous families over the past 10 years. Indigenous adults are 13 times more likely to be in prison than non-Indigenous adults, and Indigenous juveniles 28 times more likely than non-Indigenous juveniles.

Differences in outcomes are identifiable when children start school. Children living in the most remote parts of Australia and children living in the most disadvantaged communities are much more likely to be developmentally vulnerable on all dimensions of the Australian Early Developmental Index at school entry (Centre for Community Child Health & Telethon Institute for Child Health Research, 2009). Developmental vulnerability on one or more domains is evident in 23.4% of all Australian children, 31.8% of children from the most disadvantaged communities and 47.3% of Indigenous children.

Heckman (2006) argues that gaps in outcomes between children from advantaged and disadvantaged backgrounds become evident in the early years of life and that these gaps in outcomes continue to widen until about

age 8. After that age the gap remains relatively constant: not narrowing but not widening further.

The importance of early intervention

For decades, early intervention programs have been targeting the early years of children's lives in an attempt to narrow these gaps. Ongoing evaluations of these interventions show they have a significant long-term impact (Penn, 2009; Sims, 2002), indicating that improving learning opportunities in the early years can make a life-time of difference. For example, the Perry High/Scope program offered what is now considered to be a late form of intervention given that it provided quality preschool education in the year before starting school to children who were significantly disadvantaged (Schweinhart, Barnes, & Weikart, 1993; Schweinhart et al., 2005; Schweinhart & Weikart, 1993; Schweinhart, Weikart, & Larner, 1986). The children showed initial gains in IQ that faded after several years at school. However, despite being no different in IQ from children from similarly disadvantaged backgrounds who had not received the intervention, the Perry High/Scope graduates grew up to demonstrate significantly better educational outcomes (more completed secondary school and gained a tertiary qualification, less needed special education services), and better health and wellbeing outcomes (more likely to have a job, more likely to own a home, physically and mentally healthier, less likely to have a teenage pregnancy or to be involved in juvenile delinquency, less likely to offend and be involved in the justice system). Other intervention programs demonstrate that beginning earlier in children's lives (from birth or even during the pregnancy) is likely to result in better outcomes (Karoly, Kilburn, & Cannon, 2005; Olds, Eckenrode, & Henderson, 1997; Reynolds, Temple, Robertson, & Mann, 2001).

Environmental impact on brain development

So how does what is going on in the world around children impact on their outcomes so significantly? Several classic reviews are now available of some of the earlier work in this area (Gunnar & Quevedo, 2007; McCain, Mustard, & Shanker, 2007; Shonkoff & Phillips, 2000). Basically, we now know that stimulation prompts the neurons in the brain to connect and create pathways which transmit the incoming information. Growing up in an enriched environment with a variety of stimulation, enables the young child's brain to become wired with great complexity. The formation of brain connections proceeds through the first years of life

and the child's brain becomes so complex that a process of pruning then occurs (roughly from about the ages of 3 to 12). If those connections are not sufficiently stimulated (used again and again) they will disappear. We see this in a child who has not heard particular language sounds in the early years of life (for example a child growing up in a monolingual home). The child will lose the ability to hear and produce the sounds that have not been heard. Later in life when attempting to learn a second language, the child (adult) will find certain sounds problematic as the ear and tongue cannot hear or produce them.

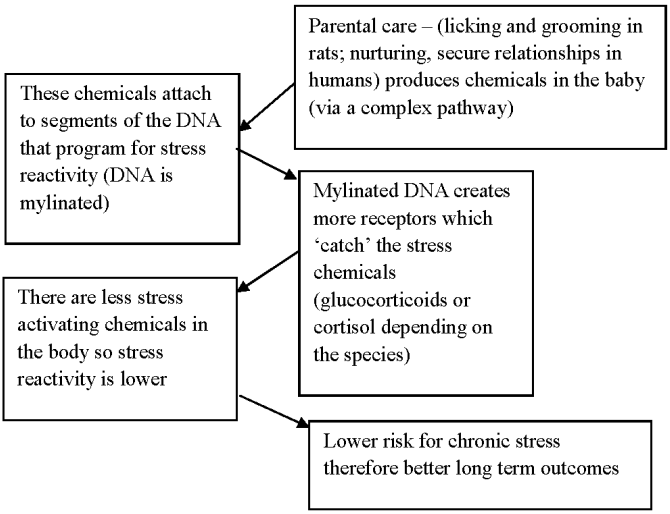
The research suggests that we need to provide our young children with a variety of stimulation, and regular stimulation, to ensure that their brains wire up appropriately. However, we need to consider in what ways that stimulation is offered. We know that when children are chronically stressed outcomes are not good (Evans & Schamberg, 2009; Gunnar & Quevedo, 2008; Luby, Belden, & Spitznagel, 2006; National Scientific Council on the Developing Child, 2010; Paradies, 2006; Van Itallie, 2002; Yashmin, Karten, & Cameron, 2005). Living with family violence and/or child abuse and neglect, for example, results in increased risk of poor outcomes for children (Caspi et al., 2003; Taylor et al., 2008; Tomison, 2002). We are now beginning to understand the biology underpinning this impact (Anda et al., 2006; Carter, 2005; Gunnar & Fisher, 2006; Perry, 2000; Twardosz & Lutyzker, 2010).

What becomes clear from this work is that chronic stress impacts on the physiology and neurology of developing children, increasing the risk of poor outcomes. However, attachment appears to provide protection from the risks associated with chronic stress. In a very early study Gunnar and colleagues (Gunnar, Larson, Hertsgaard, Harris, & Brodersen, 1992) showed that infants who were cuddled when transitioning into childcare showed lower stress reactions (lower cortisol elevations) than infants who were not, even when those who were not cuddled did not show visible signs of distress or appear to need comforting. Since this work there have been many studies demonstrating the importance of loving relationships between children and their carers in moderating stress (cortisol) reactivity (Balbernie, 2001; Gunnar, 2005; Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss, 1996; Sims, Guilfoyle, & Parry, 2006). In my own work, (Sims, 2007; Sims, Guilfoyle, & Parry, 2005) I argue that establishing secure and loving relationships with children is an essential component of quality child care and it is in the context of these relationships that children's stress levels reduce and they are open to learning.

Nature vs nurture

For many years researchers have argued about the relative importance of nature versus nurture in shaping the adult (Rutter, 2006). We now know that both are important. Nature (the genetic code) creates the plans and lays the foundations which shape our outcomes. However, the experiences we have (nurture) shape the way that genetic message expresses itself. This interaction of genetics and environment is called epigenetics. Epigenetic research is helping us understand how relationships impact on long term outcomes (Sweatt, 2009). In his early work with rats, Meaney showed that the "…behavior of the mother towards her offspring can 'program' stable changes in gene expression that then serve as the basis for individual differences in behavioural and neuroendocrine responses to stress in adulthood" (Meaney, 2010a,p.56). The basic argument is outlined in Figure 1:

Figure 1:1: The epigenetic picture



Plasticity of the brain

These epigenetic changes are passed on from generation to generation (Bales & Carter, 2009; DiLalla, Elam, & Smolen, 2009; Kaufman et al., 2004; Meaney, 2010b; Swain, Leckman, Mayes, Feldman, & Schultz,

2005). Meaney (2001) showed that rat pups fostered at birth to a poor rat foster mother grew up to demonstrate excessive stress reactivity, poor health and wellbeing, and themselves, were less nurturing to their pups, who subsequently produced further generations of rats with poor outcomes. In contrast, rat pups fostered at birth with a good rat foster mother demonstrated better outcomes and these better outcomes were inherited by subsequent generations. The impact of the fostering was diluted when it occurred later in the life of the rat pup. We see similar trends in human society. For example, we now know that Indigenous children who have a parent or grandparent who was a stolen child are more likely to have poorer physical and mental health outcomes than Indigenous children who do not have a stolen child in their ancestry (Silburn et al., 2006; Silburn et al., 1996; Zubrick et al., 1995; Zubrick et al., 1997; Zubrick et al., 2005). In addition, there is evidence from a large study in Queensland that the socioeconomic status of grandfathers impacts on grandchildren's cognitive outcomes (Najman et al., 2004).

There is some evidence that epigenetic effects are reversible, so that inheriting a particular DNA sequence that is not mylinated does not sentence an individual to a life-time of high stress reactivity and poor outcomes. Meaney (2010a, p. 64) argues: "parental signals over the perinatal period serve as an important catalyst for epigenetic remodeling of the genome." To help unpack this, researchers have focused on attempting to identify the underpinning biology of secure and loving relationships. Ultimately the aim of this research is to use that knowledge to help shape appropriate supports for those children and families where there are significant risks for poor outcomes (exactly the work being undertaken in Australia by initiatives such as Communities for Children).

Our chromosomes have small caps on the end, rather like the caps on the end of shoelaces (Greider & Blackburn, 2009). These are called telomeres. Telomeres normally shorten as we age. Unduly shortened telomeres are associated with a range of poor outcomes including cancer and premature mortality. Undue shortening of telomeres seems to be associated with chronic stress. Epel and colleagues (Epel et al., 2004) found that women who were caring for a child with significant disabilities had shorter telomeres in comparison to women caring for a child who was not disabled; the shortening was equivalent to 6 years of ageing for every year of chronic stress. More interestingly, such shortening appears to be reversible when social support is provided (Barthel, 2010). Ornish and colleagues (Ornish et al., 2008) indicate that lifestyle changes such as

better nutrition, exercise, and stress management coupled with social support can have a significant impact on telomere length. This improvement seems to arise through an increase in the cellular enzyme telomerase.

Researchers have identified that oxytocin (OT), a neuropeptide hormone, is associated with the establishment and maintenance of caring relationships (bonding): "… early social experiences, such as those between the infant and its caregiver, may also have long lasting effects on the neural systems responsible for later sociality. For example, parental caregiving style, crucial to the formation of secure or insecure attachments, could directly exert long-term effects on social bonding via changes in peptides such as OT..." (Bales & Carter, 2009, p. 255). Stanley & Siever (2010) found higher levels of oxytocin in couples with strong, loving relationships, and lower levels in children and adults who had a history of abuse. An increase in oxytocin levels can lead to an increase in trust in humans (Bartz & Hollander, 2006). It appears that early experiences of abuse or neglect reduce the ability to bind oxytocin which impacts on future ability to share loving relationships and grow social/interpersonal trust.

In summary what we are seeing is that licking and grooming in rats changes the mylination of the stress receptor genes leading to a reduced stress response. Similar changes in the mylination of the estrogen receptor genes leads to a change in oxytocin functioning which is linked to increased maternal caregiving behavior in female offspring. Parallel changes in dopamine genes results in greater sensitivity and responsiveness to infant cues, enhancing caregiving behaviours. In humans we see similar reactions (Meaney, 2010a). Securely attached mothers showed a higher oxytocin elevation when interacting with their infants. Securely attached mothers show increased dopamine-based activation in the reward part of the brain in response to infant cues (either a smiling infant or a crying infant). Insecurely attached mothers only show this dopamine-based brain activation in response to a smiling infant cue but not to a crying infant cue, suggesting that insecurely attached mothers find negative signals from their infants more distressing and do not experience feelings of satisfaction when attending to infants expressing negative affect.

The attachment relationship

Developing the attachment relationship begins from the moment of birth and the development of biochemical/neurological self regulation is dependent on the outcome of this relationship (A. Schore, 2009a, 2009b; J. Schore & Schore, 2008). Infants make eye contact from birth and this eye contact increases their physiological arousal levels (via the sympathetic nervous system). This leads to discomfort and infants need to disengage to allow the parasympathetic nervous system to decrease arousal levels. After a brief period of dis-engagement infants will then seek to re-engage. It is essential that adults are 'in-tune' with the infants' dance of engagement/ dis-engagement. An 'in-tune' dyad, co-regulating arousal levels, supports the development of regulation skills, and ultimately self-regulation, which is reflected in the organisation of the right frontal cortex, in levels of neuropeptides such as oxytocin and levels of neurosteroids such as cortisol, all essential for brain development and social bonding. Many researchers now see emotional regulation as a key component underpinning good outcomes for children (Andrews Espy, Sheffield, Wiebe, Clark, & Moehr, 2011; Graziano, Reavis, Keane, & Calkins, 2007).

Crittenden (2008) argues that the form of attachment developed between an infant and adult is reflective of the environment/context in which they are functioning. In her dynamic-maturational model (DMM) she suggests insecure attachments reflect the adaptation of each member of the dyad to the context in which they are placed, and actually function to reduce the risk of harm. Infant behaviours represent strategies for eliciting caregiving behaviours from their parents. For example, when parents respond contingently to their infants' cries, infants learn to associate their behaviour with the parental response – that is, crying results in comforting. Infants are biologically aroused when they are crying and the comfort they receive lowers their arousal levels. Ultimately infants learn to anticipate comfort will arrive and may stop crying when the parent enters the room. However, when parents fail to respond to infants' signals, or alternatively respond punitively or non-congruently (for example laughing at a crying child) infants learn to hide their distress and to inhibit displays of negative affect. Thus the likelihood of punitive parental behaviour is reduced. When parents respond unpredictably (that is they may comfort some of the time but ignore the crying at other times), infants learn to increase the level and duration of their cries in the hope that this will result in comforting. However, they may display mixed feelings; appearing to be seeking comfort but rejecting it when it is offered. Parents are often

confused by these mixed signals and this tends to increase their non-contingent responses.

Meaney (2010b) concurs. He argues the increased stress reactivity resulting from living in an adverse environment is actually adaptive. Haapasaloa and Tremblay (1994) showed that shy, more timid youth (a trait associated with increased stress reactivity) growing up in poverty in high-crime areas were less likely to be involved in criminal activities than their more outgoing peers. However, whilst increased stress reactivity may be found to function as a protective factor in this particular stressful environment, it does not provide blanket protection. These youth are more likely to experience mood disorders in later life (Pérez-Edgar & Fox 2005). Meaney (2010b, p. 67) concludes: "Moreover, under such adverse circumstances a parental rearing style that favoured the development of a greater level of stress reactivity to threat could be viewed as adaptive. If indeed there is no single ideal phenotype, then it should follow *that there is no single ideal form of parenting* [italics in the original]".

Implications for integrated early childhood services

What does all this mean for those working in integrated early childhood services? I argue the implications are (Sims & Hutchins, 2011):

- Children need to live in environments where they are cared for and cared about (and there is no rule that requires that caring to be delivered solely by one person, ie the mother);
- We can support families to build a network of loving, caring people around children who together will ensure that children do not experience chronic stress, and that unavoidable stress is buffered through high quality relationships;
- We remember that there are many different ways to build loving caring relationships.
- Even apparently negative behaviours are likely to be adaptive and we should not focus on changing these until we understand the purpose they serve and can ensure that purpose is attained in a different way.

The new field of developmental social neuroscience (DeHaan & Gunnar, 2009, p. ix) brings together a range of disciplines to look at the "…neural mechanisms underlying the development of social processes, ranging from the perception of social signals to the expression of complex forms of social behavior. A basic assumption of this approach is that a full

understanding of social development requires a multilevel analysis, wherein both biological and social levels of analysis and their relations are considered". However, such work is only useful if it can be translated into practice. We are only beginning to take that next step.

References

Anda, R., Felitti, V., Brenner, J., Walker, J., Whitfield, C., Perry, B., et al. (2006). The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174 - 186.

Andrews Espy, K., Sheffield, T., Wiebe, S., Clark, C., & Moehr, M. (2011). Executive control and dimensions of problem behaviors in preschool children. *Journal of Child Psychology and Psychiatry, 52*(1), 33 - 46.

Balbernie, R. (2001). Circuits and circumstances: the neurobiological consequences of early relationship experiences and how they shape later behaviour. *Journal of Child Psychotherapy, 27*(3), 237 - 255.

Bales, K., & Carter, S. (2009). Neuroendocrine mechanisms of social bonds and child-parent attachment, from the child's perspective. In M. De Haan & M. Gunnar (Eds.), *Handbook of developmental social neuroscience.* (pp. 246 - 264). New York: The Guilford Press.

Barthel, K. (2010). *Making connections 2010: current concepts in attachment neurobiology.* Paper presented at the 2nd International Association for the Study of Attachment Biennial Conference. Retrieved from http://www.iasa-dmm.org/index.php/iasa-conference/

Bartz, A., & Hollander, E. (2006). The neuroscience of affiliation: forging links between basic and clinical research on neuropeptides and social behaviour. *Hormones and behaviour., 50*, 518 - 528.

Carter, S. (2005). The chemistry of child neglect: Do oxytocin and vasopressin mediate the effects of early experience? *Proceedings of the National Academy of Sciences, 102*(51), 18247 - 18248.

Caspi, A., Sugden, K., Moffitt, T., Taylor, A., Craig, I., Harrington, H., et al. (2003). Influence of life stress on depression: moderation by a polymorphism in the 5-HTT gene. *Science, 301*(5631), 386 - 390.

Centre for Community Child Health, & Telethon Institute for Child Health Research. (2009). *A Snapshot of Early Childhood Development in Australia. Australian Early Development Index (AEDI) National Report 2009.* Canberra: Australian Government.

Crittenden, P. (2008). *Raising parents. Attachment, parenting and child safety*. Cullompton, Devon: Willan Publishing.

DeHaan, M., & Gunnar, M. (Eds.). (2009). *Handbook of developmental social neuroscience*. New York: The Guilford Press.

DiLalla, L., Elam, K., & Smolen, A. (2009). Genetic and Gene–Environment Interaction Effects on Preschoolers' Social Behavior. *Developmental Psychobiology, 51*, 451–464.

Epel, E., Blackburn, E., Lin, J., Dhabhar, F., Adler, N., Morrow, J., et al. (2004). Accelerated telomere shortening in response to life stress. *Proceedings of the National Academy of Sciences, 101*(49), 17312 - 17315.

Evans, G., & Schamberg, M. (2009). Childhood poverty, chronic stress, and adult working memory. [available http://www.pnas.org/content/early/2009/03/27/0811910106.short?rss=1&ssource=mfc downloaded 2 July 2009]. *Proceedings of the National Academy of Sciences, doi: 10.1073/pnas.0811910106* 5 downloaded.

Graziano, P., Reavis, R., Keane, S., & Calkins, S. (2007). The role of emotion regulation in children's early academic success. *Journal of School Psychology, 45*(1), 3 - 19.

Greider, C., & Blackburn, E. (2009). Telomeres, Telomeraqse and Cancer. *Scientific American, October 5*, 6 pages downloaded.

Gunnar, M. (2005). Attachment and stress in early childhood development: does attachment add to the potency of social regulators of infant stress? In C. Carter, L. Ahnert, K. Grossman, S. Hrdy & M. Lamb (Eds.), *Attachment and bonding. A new synthesis.* (pp. 245 - 255). Cambridge, MA: MIT Press.

Gunnar, M., & Fisher, P. (2006). Bringing basic research on early experience and stress neurobiology to bear on preventive interventions for neglected and maltreated children. *Developmental Psychopathology, 18*, 651 - 677.

Gunnar, M., Larson, M., Hertsgaard, L., Harris, M., & Brodersen, L. (1992). The stressfulness of separation among nine-month old infants: effects of social context variables and infant temperament. *Child Development, 63*, 290-303.

Gunnar, M., & Quevedo, K. (2007). The neurobiology of stress and development. *Annual Review of Psychology, 58*(1), 145 - 174.

Gunnar, M., & Quevedo, K. (2008). Early care experiences and HPA axis regulation in children: a mechanism for later trauma vulnerability. In E. de Kloet, M. Oitzl & E. Vermetten (Eds.), *Stress hormones and post traumatic stress disorder.* (Vol. 167, pp. 137 - 149). Amsterdam: Elsevier.

Haapasaloa, J., & Tremblay, R. (1994). Physically Aggressive Boys From Ages 6 to 12: Family Background, Parenting Behavior, and Prediction of Delinquency. *Journal of Consulting and Clinical Psychology, 62*(5), 1044 - 1052.

Heckman, J. (2006). *Investing in disadvantaged young children is an economically efficient policy.* Paper presented at the Committee for Economic Development, Pew Charitable Trusts. January 10, 2006. New York. Paper available at www.ced.org. downloaded 13 April 2006.

Irwin, L., Siddiqi, A., & Hertzman, C. (2007). *Early child development: a powerful equaliser.* (Final Report for the World Health Organisation's Commission on the Social Determinants of Health.). Vancouver, BC: Human Early learning Partnership (HELP).

Karoly, L., Kilburn, R., & Cannon, J. (2005). *Early childhood interventions. Proven results, future promises.* Santa Monica, CA: RAND Corporation.

Kaufman, J., Yang, B., Douglas-Palumberi, H., Houshyar, S., D, L., Krystal, J., et al. (2004). Social supports and serotonin transporter gene moderate depression in maltreated children. *Proceedings of the National Academy of Sciences, 101*(49), 17316 - 17321.

Luby, J., Belden, A., & Spitznagel, E. (2006). Risk factors for preschool depression: the mediating role of early stressful life events. *Journal of Child Psychology and Psychiatry, 47*(12), 1292 - 1298.

McCain, M., Mustard, F., & Shanker, S. (2007). *Early Years Study 2: Putting science into action.* Toronto: Council for Early Childhood Development.

Meaney, M. (2001). Maternal care, gene expression, and the transmission of individual differences in stress reactivity across generations. *Annual Review of Neuroscience, 24*, 1161 - 1192.

—. (2010a). Epigenetics and the Biological Definition of Gene x Environment Interactions. *Child Development, 81*(1), 41 - 79.

—. (2010b). *Maternal care and Gene -Environment Interactions Defining Development.* Paper presented at the The 2nd Biennial International Association for the Study of Attachment Conference. Retrieved from http://www.iasa-dmm.org/index.php/iasa-conference/

Nachmias, M., Gunnar, M., Mangelsdorf, S., Parritz, R., & Buss, K. (1996). Behavioural inhibition and stress reactivity: moderating role of attachment security. *Child Development, 67*, 508 - 522.

Najman, J., Aird, R., Bor, W., O'Callaghan, M., Williams, G., & Shuttlewood, G. (2004). The generational transmission of socioeconomic