

The nature and significance of relationships in the lives of children with and without developmental disabilities

Tim Moore

Keynote presentation at
National Conference of the Early Intervention Association of Aotearoa New Zealand
~ *Quality Practices: New Practices* ~
Auckland, 30th March – 1st April 2009

Abstract

This paper explores the nature and significance of relationships in the lives of children with and without developmental disabilities. It focuses on the importance of parents, caregivers and professionals developing responsive and caring relationships with children, and how these relationships form the basis of development. The paper begins by exploring the central role that relationships play in the development of young children. It pulls together evidence regarding relationships and why these are important – the neurobiology of interpersonal relationships, the role of attachments, and the consequences of lack of responsiveness (neglect), erratic responsiveness, and negative responsiveness (abuse). Children develop through the medium of relationships, and the nature and quality of those relationships have profound developmental consequences.

The paper then explores how these processes apply to children with developmental disabilities. Such children have the same developmental needs as other children, but may have difficulty having these realised because of the nature of their disabilities. However, there is evidence that attachments and relationships are just as important to children with developmental disabilities as they are to other children. The paper looks at some of this evidence, and what the consequences are for children when the relationships they experience are not optimal.

Next, the paper explores some of the strategies that have been developed to help establish positive reciprocal relationships between children and parents, both for children who are at risk and those with developmental disabilities. A number of effective or promising programs and some proven strategies for promoting parental / caregiver responsiveness with children who are either at risk or who have developmental disabilities are outlined.

Finally, the implications of this evidence for early childhood intervention services are explored, and overall conclusions identified.

INTRODUCTION

Every now and then, debates break out about the nature of relationships between parents / caregivers and young children. This occurred again recently with the airing in Australia of the first episode of the BBC series *Bring Up Baby*. This featured a nurse who advocated a non-interactive style of child caring supposedly based on the ideas of Truby King. King was a distinguished New Zealander – founder of the Plunkett Society, and the first private New Zealander to have a state funeral and also the first to appear on a postage stamp. He made major contributions to improving standards of child care, and did indeed recommend limiting cuddling and other forms of attention with a view to building character. Whether or not the nurse in the BBC program fairly represented King's child rearing recommendations, there was wide-spread consternation among early childhood professionals about her views. Nowadays, *not* cuddling a child would be generally regarded as bordering on child neglect.

It is now recognized that children develop through the medium of relationships, and the nature and quality of those relationships have profound developmental consequences. This paper explores the implications of this for work with the families of young children with developmental disabilities. The paper begins by examining the central role that relationships play in the development of young children, and summarises the evidence regarding relationships and why these are important. The paper then explores how these processes apply to children with developmental disabilities. Such children have the same developmental needs as other children, but may have difficulty having these realised because of the nature of their disabilities. However, there is evidence that attachments and relationships are just as important to children with developmental disabilities as they are to other children. The paper looks at some of this evidence, and what the consequences are for children when the relationships they experience are not optimal.

Finally, the paper explores the implications of this evidence for parents, caregivers, teachers and other service providers. For parents and caregivers, the importance of supporting them in developing positive and responsive relationships with children with developmental disabilities from as early an age as possible is highlighted. For professionals, the challenge is knowing how to engage children with different disabilities in mutually pleasurable interactions, and how to build on these to promote children's learning and development.

THE ROLE OF RELATIONSHIPS IN CHILD DEVELOPMENT

Relationships play a critical role in the development of young children. Recent research has confirmed the important role parents and caregivers play in young children's lives, and deepened our understanding of how interactions with adults effects children's development.

The key findings can be summarized as follows:

- ***Children develop through their relationships with the important people in their lives*** (Gerhardt, 2004; National Scientific Council on the Developing Child, 2004a; Reis, Collins & Berscheid, 2000; Richter, 2004; Siegel, 1999). These relationships are the 'active ingredients' of the environment's influence on healthy human development (National Scientific Council on the Developing Child, 2004a).
- ***Sensitive and responsive care giving is a requirement for the healthy neurophysiological, physical and psychological development of a child*** (National Scientific Council on the Developing Child, 2004a, 2004b, 2008; Richter, 2004; Siegel, 1999). Sensitivity is an awareness of the infant and an awareness of the infant's acts and vocalizations as communicative signals to indicate needs and wants. Responsiveness is the capacity of caregivers to respond contingently and appropriately to the infant's signals.
- ***Inadequate, disrupted and negligent care has adverse consequences for the child's survival, health and development*** (National Scientific Council on the Developing Child, 2005, 2008; Richter, 2004). The quality of care giving relationships has an impact on children's health and development. These effects occur because children, whose care is less than adequate or whose care is disrupted in some way, may not receive sufficient nutrition; they may be subjected to stress; they may be physically abused and neglected; they may develop malnutrition; they may not grow well; and early signs of illness may not be detected.
- ***Infants and caregivers are prepared, by evolutionary adaptation, for caring interactions through which the child's potential human capacities are realized*** (Richter, 2004). The evolving biological and social capacities of the newborn and young child set out an agenda of requirements for support from caregivers to meet the child's full potential for health, growth and development. The infant's brain is prepared to anticipate and depend on nurturant human care.
- ***Factors directly affecting the caregiver and child, as well as underlying social and economic issues, influence the quality of caregiver-child relationships*** (Howe, 2006; Richter, 2004). Barriers to the natural emergence of a caring relationship disrupt the care a child needs. The effects of caregiving on young children can persist well into adolescence in the form of behaviour disorders, anxiety, and depression.
- ***Nurturant caregiver-child relationships have universal features across cultures, regardless of differences in specific child care practices*** (Richter, 2004). In all human groups, babies depend on warm, responsive, linguistically rich, and protective relationships in which to grow and develop. They cannot survive in environments that do not meet threshold levels of these characteristics. Caregivers in all cultures demonstrate sensitivity and responsiveness towards infants and young children, although the form or the caregiver's actions may vary considerably from one cultural milieu to another.

- ***Relationships change brains neurologically and neurochemically, and these changes may be for the better or for the worse.*** We are steadily building a picture of the neurological basis for some of the core features of relationships (Cozolino, 2002, 2006; Gerhardt, 2004; Goleman, 2006; NSCDC, 2004b; Schore, 1994, 2001, 2003a, 2003b; Siegel, 1999, 2001, 2007) and of what Siegel (1999) has called the neurobiology of interpersonal development. Caregivers are the architects of the way in which experience influences the unfolding of brain development: human connections create neuronal connections (Siegel, 1999).
- ***Brains communicate with other brains through preconscious or infraconscious pathways*** (Cozolino, 2006; Goleman, 2006; Schore, 2001a). Much important communication that affects the development of relationships occurs through limbic pathways in the brain that do not involve the cerebral cortex and are therefore preconscious or unconscious. These pathways enable our brains to read the body and facial signals given off by others, and detect their intentions and emotional states – in effect, our (right) brains are able to communicate directly with other people’s (right) brains independently of conscious communication processes or awareness. These pathways also enable people (eg. mothers and infants) to synchronise their emotional states and tempos, creating a state of what Siegel (2001) calls resonance. The right brain limbic areas that enable this to occur grow rapidly in the first two years of life and the nature of their development can therefore have long-term implications. The growth of a baby’s brain literally requires brain–brain interaction, and occurs in the context of a positive affective relationship (Schore, 2001a).
- ***The attachments that children form with parents and caregivers create the central foundation from which the mind develops*** (Appleyard & Berlin, 2007; Newton, 2008; Oates, 2007; Ranson and Urichuk, 2008; Schore, 2001a; Siegel, 1999, 2001; Siegel & Hartzell, 2003). Attachment is an inborn biological instinct that motivates an infant to seek proximity to parents (and other primary caregivers) and to establish communication with them (Siegel, 1999; Siegel & Hartzel, 2003). For secure attachments to develop, caregivers need to have positive intentions and feelings for the child and be able to perceive and respond to the children’s mental and emotional states. Positive intentions and feelings for the child are needed because these are communicated directly to the child through the high-speed preconscious right brain pathways, and precipitate neurochemical reactions that create feelings of pleasure in the child and promote neuronal connections (Gerhardt, 2005, Schore, 1994). The ability to perceive and respond to the child’s mental and emotional states is important because this promotes trust, safety, self-regulatory capacities, and a sense of being able to influence what happens. It is the caregiver’s ability to regulate the infant’s stress levels that programs the infant’s behavioural responses to stress by organising the limbic circuitries of the early developing right hemisphere of the brain (Schore, 2001a).
- ***Disturbances in attachment can have long-term consequences for children’s development and functioning*** (Siegel, 1999; Stien & Kendal, 2004; Ranson & Urichuk, 2008; Schore, 2001b; Thompson, 2000). There is substantial evidence that

children with secure attachments in childhood develop more positive social-emotional competence, cognitive functioning, physical health and mental health, whereas children with insecure attachments are more at risk for negative outcomes in these domains (Appleyard & Berlin, 2007; Ranson & Urichuk, 2008). However, attachment is not a once-off development, with the early attachments determining later development: it is a developmental process, with the attachment being continuously renegotiated as the child matures (Thompson, 2000). Moreover, children vary in the extent to which early attachments have an enduring impact on them. Nevertheless, for most children, good early attachments are important because they lay the foundation for future development and increase the chances of good outcomes (Thompson, 2000). Adverse early rearing experiences on the other hand have longstanding effects on emotion regulation, and severely compromised attachment histories are associated with brain organizations that are inefficient in regulating affective states and coping with stress, and therefore engender maladaptive infant mental health (Schorer, 2001a).

There a number of reasons why the development of secure parent / child attachments may be disturbed (Howe, 2006):

- The child may be a problematic partner as a result of temperament (eg. difficult to settle, hard to 'read'), or developmental or sensory impairments
- Parents may have difficulty parenting adequately as a result of post-natal depression or other mental health problems, drug or alcohol abuse, poor general parenting skills, or lack of knowledge of special skills needed for the particular child
- Parent-child relationships may be compromised by family circumstances, such as lack of social support, marital difficulties and domestic violence, financial pressures, or housing problems.
- ***Relationships of all types have a significant impact on the development and well-being of those involved*** (Moore, 2007). This applies to the relationships between parents and children, caregivers and children, parents and caregivers with children who have disabilities, teachers and children, professionals and parents, managers and staff, staff and colleagues, and trainers and trainees.
- ***Relationships affect other relationships*** (Gowen & Nebrig, 2001; Moore, 2007; Reis, Collins & Berscheid, 2000). Parallel processes operate at all levels of the chain of relationships and services, so that our capacity to relate to others is supported or undermined by the quality of our own support relationships. Thus, there is a flow-on effect, in which relationships influence relationships. This flow-on effect can be seen in the relationships between early childhood professionals and parents of young children: we model for parents how to relate to their young children by the way we relate to them.

'People learn how to be with others by experiencing how others are with them – this is how one's views and feelings (internal models) of relationships are formed

and how they may be modified. Therefore, how parents are with their babies (warm, sensitive, responsive, consistent, available) is as important as what they do (feed, change, soothe, protect, teach). Similarly, how professionals are with parents (respectful, attentive, consistent, available) is as important as what they do (inform, support, guide, refer, counsel).' (Gowen & Nebrig, 2001, pp.8-9)

- ***Relationships form a cascade of parallel processes from governments and societies through to parents and children*** (Moore, 2007). Parallel processes operate across the full spectrum of relationships, not just in the relationship between professionals and parents. They can be seen as forming a cascade of parallel processes, in which relationships at all levels have flow on effects beyond immediate relationships, and the nature and quality of all these relationships will ultimately have an impact on the relationship at the 'bottom' of the cascade, that between parent and child.

It is clear from these key findings that relationships are the crucible in which child development occurs, and that the quality of those early relationships can have long-lasting effects, both positive and negative. It is also clear that relationships continue to play a major part throughout our lives, so that the continuing availability of positive and supportive relationships is central to our ongoing health and well-being.

If relationships are so central to development and functioning, how do we ensure that relationships that young children experience promote rather than undermine positive development? In order to answer this question, we first need to explore what we know about the qualities of effective relationships.

KEY FEATURES OF EFFECTIVE PARENTING / RELATIONSHIPS WITH CHILDREN

On the basis of a review of the evidence regarding relationships of many different types, Moore (2007) has argued that effective relationships of all kinds – including those between parents and children, caregivers and children, parents and caregivers with children who have disabilities, teachers and children, professionals and parents, managers and staff, staff and colleagues, and trainers and trainees – all share common characteristics. There are ten key characteristics:

- ***Attunement / engagement.*** The starting point for all effective relationships is tuning to the other person's world, understanding their perspective and experience, and establishing a personal connection.
- ***Responsiveness.*** Effective relationships are characterised by responsiveness, that is, by the partners responding promptly and appropriately to each other's signals and communications.
- ***Respect.*** A third key feature of effective relationships is mutual respect. Respecting others means not trying to control them or exert power over them, but engaging them as equals and accepting them as they are.

- **Clear communication.** Effective relationships are characterised by clear communication between the parties involved.
- **Managing communication breakdowns.** In effective relationships, communication breakdowns are acknowledged and positive connections restored.
- **Emotional openness.** In effective relationships, emotions are acknowledged, both the positive joyful ones, and the negative uncomfortable ones.
- **Understanding one's own feelings.** A number of the other key qualities of effective relationships depend upon being able to understand and manage one's own feelings.
- **Empowerment and strength-building.** Adopting a strength-based approach is a common recommendation for a wide range of relationships, including working with children, families, and communities.
- **Moderate stress / challenges.** Effective relationships are characterised by moderate stress and challenges.
- **Building coherent narratives.** An important feature of effective relationships of various kinds is the building of coherent narratives – telling stories that help people make sense of their lives.

For the purposes of the present paper, we will focus on the first two of these characteristics – attunement / engagement and responsiveness – as these are particularly important for early childhood development and the establishment of secure attachment. Different groups of researchers have analysed these characteristics in terms of constructs such as **emotional availability** (Biringen, 2000; Biringen & Robinson, 1991), **parental responsivity** (Landry, Smith & Swank, 2006; Spiker, Boyce & Boyce, 2002), and **maternal insightfulness** (Koren-Karie, Oppenheim, Dolev, Sher & Etzion-Carasso, 2002; Oppenheim, Koren-Karie, Dolev & Yirmiya, 2008).

Emotional availability (Biringen, 2000; Biringen & Robinson, 1991) is a relationship construct that refers to the quality of emotional exchanges between parents and their children. It focuses on the two partners' accessibility to each other and their ability to read and respond appropriately to one another's communications (Biringen & Robinson, 1991). This construct encompasses four maternal dimensions and two child dimensions: the parental attitudes and behaviours are sensitivity, structuring, non-intrusiveness and non-hostility, and the child dimensions are child responsiveness and the child's emotional availability to the parent. A key aspect of parental emotional availability is the parent's awareness of and response to the child's emotional cues, in addition to his or her ability to express a range of emotions in interaction. A key aspect of child emotional availability is the child's own readability of emotional signals as well as his or her positive emotional presence (Biringen, Fidler, Barrett & Kubicek, 2005). Given the evolving and dynamic nature of the parent-child relationship, we would expect parent emotional availability and child emotional availability to be correlated, so that highly sensitive parents will have responsive and involving children while insensitive parents are more likely to have children who are unresponsive and uninvolved (Biringen, Fidler, Barrett & Kubicek, 2005).

Another key relationship construct is **parental or maternal responsivity**. This refers to how a parent responds to and provides for a child, and involves caregiver characteristics as warmth, nurturance, stability, predictability, and contingent responsiveness (Spiker, Boyce & Boyce, 2002). Four distinct aspects of responsivity have been identified: contingent responding, emotional-affective support, joint attention with the child, and language input that is matched to the child receptive language level (Landry, Smith & Swank, 2006). These are not mutually exclusive and have often been reported to correlate with each other.

A third construct that focuses on the qualities of parental behaviour that support the development of a secure parent–child attachment in young children is **maternal insightfulness** (Koren-Karie & Oppenheim, 1997; Koren-Karie, Oppenheim, Dolev, Sher & Etzion-Carasso, 2002; Oppenheim, Koren-Karie, Dolev & Yirmiya, 2008). This is defined as the parents' capacity to consider the motives underlying their child's behaviours and emotional experiences in a complete, positive, and child-focused manner while taking into consideration the child's perspectives. Attachment researchers as well as clinical writers have proposed that insightfulness is a central dimension underlying sensitive caregiving behavior and serves as an antecedent to secure attachment. Four types of maternal insightfulness have been identified (Koren-Karie, Oppenheim, Dolev, Sher & Etzion-Carasso, 2002): positively insightful mothers (who demonstrate the ability to see various experiences through their children's eyes), one-sided mothers (who have a preset, unidimensional conception of the child that does not appear open to contradictory input), disengaged mothers (who lack of emotional involvement, and focus on the child's behaviour rather than motives), and a mixed category of mothers who respond inconsistently to different episodes of child behaviour, being insightful on some occasions and one-sided or disengaged on others.

It is clear that there is a great deal of overlap between these constructs: they all deal with aspects of parental attunement, emotional availability, and appropriate responses to the child's needs and states. As we have seen, these qualities are considered to be essential for children's healthy neurophysiological, physical and psychological development. What evidence is there to support this claim, and what do we know about exactly how responsive parenting shapes children's development?

Models of responsive parenting

Before we explore the research to see if there is any evidence that these parental qualities do indeed affect children's development, we need to consider how such effects might occur. Are there any developmental 'program logic' models to show exactly how the forms of sensitive parenting just described influence children's development? Two sources of evidence – regarding transactional influences on development and the neurological basis for such influences – suggest how this might occur.

The **transactional model of development** (Sameroff & Chandler, 1975; Sameroff & Fiese, 2000) is useful for understanding how highly responsive parenting may promote cognitive and language development, and how unresponsive parenting may hamper optimal cognitive and language development (Warren & Brady, 2007). In this model,

young children's communication, social, emotional, and cognitive skills develop in a cumulative manner through bi-directional, reciprocal interactions between them and their caretakers. This process can be observed early in infancy in bouts of mutual gaze between the infant and parent, as well as the kind of contingent responsiveness that occurs during breastfeeding and in the way that parents respond to signs of hunger, irritation or discomfort in their infants. This process typically becomes increasingly bi-directional as the infant grows. Sensitive caretakers change their behavior in response to change in children in ways that directly support and scaffold further development.

Warren & Brady (2007) suggest that the true potential of transactional effects can be seen in the cumulative manner by which advantages and deficits in experience develop across the first few years of life. For example, parents differ in how frequently they express positive and negative feelings towards their children, and in the balance between these. These differences accumulate: a child who experiences ten more positive statements a day than another child does would have nearly 11,000 more such experiences over a three-year period. And if a child who experiences fewer positive statements also experiences cumulatively more negative expressions of feeling (eg. 'Stop that', 'Shut up', 'You're a bad boy'), these qualitative and quantitative experiential differences will compromise the development of secure attachment, exploratory behavior, self-concept, and language, cognitive and social development.

Evidence to show that development is indeed shaped by the cumulative effect of transactions between the child and their parents and caretakers comes from individual studies (eg. Carlson, Sroufe & Egeland, 2004) and reviews (Sameroff, 2009, Sameroff & Mackenzie, 2003).

Another set of findings that shows how responsive parenting can affect child development comes from studies of the **neurobiology of interpersonal relationships** (Buchanan, 2009; Cozolino, 2006; Goleman, 2006; Schore, 2001, 2003a, 2003b, 2005; Siegel, 1999). These studies show that much interpersonal communication occurs via subconscious neurological pathways that act in parallel with the pathways based on conscious thinking and verbal communication. These two pathways, which Goleman (2006) calls the 'low' road and the 'high' road, operate at different speeds: the subconscious 'low' road operates automatically and conveys information faster, allowing our brains to link directly with other people's brains. Cozolino (2006) calls this the 'social synapse':

Neurons communicate via chemical signals that activate and influence one another through the transmission of multiple biochemical messengers. Communication between people consists of the same basic building blocks. When we smile, wave, and say hello, these behaviors are sent through the space between us via sight and sound. These electrical and mechanical messages are received by our senses, converted into electrochemical signals within our nervous systems, and sent to our brains. The electrochemical signals generate chemical changes, electrical activation, and new behaviors, which in turn transmit messages back across the social synapse. The social synapse is the space between us. It is also the medium through which we are linked together into

larger organisms such as families, tribes, societies, and the human species as a whole. Because so much of this communication is automatic and below conscious awareness, most of what goes on is invisible to us and taken for granted.

One of the major ways in which caregivers influence the brain development of infants and young children is through these subconscious brain-to-brain connections. According to Schore (2005), the brain is actually a system of two unique hemispheric brains, each of which has very different structural and functional properties. The early maturing right brain is dominant in the first three years after birth, and is shaped by the emotional communications that occur within attachment relationships. These communications take the form of coordinated visual eye-to-eye messages, auditory vocalisations, and tactile and body gestures that induce instant emotional effects, positive feelings of excitement and pleasure that are shared by the infant and caregiver. During such optimal moments of bodily-based affective communications, the adult's and infant's individual homeostatic systems are linked in ways that allow for mutual regulation of vital endocrine, autonomic, and central nervous systems of both adult and infant (Schore, 2005). This kind of synchrony involves a direct connection between the right brain of the infant and the right brain of the adult via the subconscious 'low' road neurological pathway, and is essential for the development of positive attachment relationships, self-regulation, and socioemotional development.

These findings regarding transactional influences on development and their neurological underpinnings indicate ways in which sensitive parenting might influence development. We will now explore what evidence there is that the parental qualities and behaviours involved in the three constructs discussed earlier – parental responsiveness, emotional availability and maternal insightfulness – actually do benefit children?

Benefits of responsive parenting

Regarding ***parental responsiveness***, there is a substantial and growing body of evidence that cumulative exposure to a stable, highly responsive parenting style throughout the early childhood period is associated with a variety of child benefits in terms of language, cognitive, emotional, and social development (Bakermans-Kranenburg, van IJzendoorn & Juffer, 2003; Biringen, 2000; Dunst, 2007; Kassow & Dunst, 2007a; Landry, Smith, Miller-Loncar & Swank, 1998; Landry, Smith, Swank, Assel & Vellet, 2001; Landry, Smith & Swank, 2006; Tamis-LeMonda, Bornstein & Baumwell, 2001; Trivette, 2007a; Warren & Brady, 2007). This research indicates that children whose mothers display more responsive behaviour during the first years of life achieve language milestones earlier, score significantly higher on cognitive tests, develop better social skills, become more securely attached, develop better social-emotional functioning, and have fewer emotional and behaviour problems (Bakermans-Kranenburg, van IJzendoorn & Juffer, 2003; Dunst, 2007; Kassow & Dunst, 2007a; Trivette, 2007a; Warren & Brady, 2007). Unresponsive parenting on the other hand is strongly associated with insecure attachment as well as poor social-emotional development including aggression and later behaviour problems (Landry, Smith, Swank, Assel & Vellet, 2001).

Regarding **emotional availability**, the research shows that both parental and child emotional availability are related to attachment, as well as to other meaningful aspects of the parent-child relationship (Biringen, 2000). Emotional availability also correlates with aspects of the child's development. Given the significant and meaningful associations between emotional availability and many discrete affective indices of parent-child interaction, emotional availability can be considered a global index of the overall quality of the parent-child affective relationship (Biringen, 2000).

Evidence of the importance of **maternal insightfulness** comes from a study of 12-month old infants that showed that maternal capacity for insightfulness underlies sensitive caregiving, and that mothers showing this capacity are more likely to have securely attached children (Koren-Karie, Oppenheim, Dolev, Sher & Etzion-Carasso, 2002).

Other studies have looked at the characteristics of parental interactional behaviour that are most highly correlated with subsequent child attachment security (Kassow & Dunst, 2007b; Landy & Menna, 2006). These show that parental attunement to a full range of a child's affective displays and an acceptance and containment of the child's emotions are central to the development of attachment (Landy & Menna, 2006). Attachment is also promoted by parent-child turn-taking interactions that are rewarding for both partners and influential of both partners' responsive behaviour toward one another, and by supportive and reassuring efforts to let the infant know that the parent is available for guidance and assistance when needed, were most associated with attachment security (Kassow & Dunst, 2007b).

This body of research supports the claims that key aspects of the way in which parents relate to their young children - parental responsiveness, emotional availability and maternal insightfulness – shape the children's development.

We now turn to the question of how all this applies to children with developmental disabilities. Do the same relational and neurological processes affect their development?

RELATIONSHIPS AND THE DEVELOPMENT OF CHILDREN WITH DISABILITIES

There is no reason why children with developmental disabilities should not be regarded as having the same developmental needs as other children – needs for nurturance, care, emotional responsiveness, safety and security, consistency, and so on (Biringen, Fidler, Barrett & Kubicek, 2005). There is also no reason why these crucial relationships qualities would not have the same impact on their development as they do on other children. For many children with disabilities, the neurological structures on which relationships are based are intact and they are therefore subject to the same positive and negative possibilities as other children. If warm and responsive caregiving is provided, then positive attachments will develop, forming a secure basis for future learning and development. This is what occurs in many families. If the child does not receive such caregiving, then their learning and development will be compromised (Greenspan & Wieder, 2006).

However, children with disabilities may have difficulty having these needs realised because of the nature of their disabilities. Maternal responsivity does not function independently of the child's behavior and responsiveness. Either partner in the 'dance' between parent and child is capable of disrupting the interaction and altering its very nature in ways that may have long-lasting effects (Kelly & Barnard, 2000). Where the children have disabilities or developmental delays, there are often problems in establishing reciprocal and emotionally available child-parent interactions (Biringen, Fidler, Barrett & Kubicek, 2005; Howe, 2006; Kelly & Barnard, 2000). Research shows that

- such children often initiate interactions less frequently and give cues that are more subtle and difficult to read
- parents tend to compensate by becoming more directive in their interactions
- an important goal of intervention is to help parents become good observers of their own babies so that they can recognise their cues and respond contingently:

'Perhaps what is critical in the interaction is not the number of parental directives, the duration of parental control, or the level of maternal stimulation but the degree to which each member is responding to the other in contingent, sensitive, and empathetic ways.' (Kelly and Barnard, 2000, p. 465)
- the development of reciprocity is not a static process but is continually changing according to the individual behavioural characteristics of the parent and child

Initiating and maintaining a warm, responsive interaction style with a child with autism or any of a number of other developmental disorders can be highly challenging even for a parent with the very best of intentions. A number of child characteristics associated with developmental delays and disorders may be disruptive to parental responsivity alone or in combination with other characteristics. These include low initiation rates, slow response times, gaze avoidance or atypical eye gaze, hypersensitivity to sensory input, social anxiety and shyness, perseveration and repetitiveness, stereotypical behavior, unintelligible speech, and problems with conversational discourse, poor short term memory, and a wide range of behavior problems. Any one of these characteristics may be sufficient to disrupt parent efforts to be responsive and a given child may display many of these characteristics over long periods of time (Warren and Brady, 2007).

However, some parents are able to read their child's emotional signals regardless of the disability or despite the disability, and such parents are more likely to respond to their children appropriately. Biringen, Fidler, Barrett & Kubicek (2005) call this 'therapeutic parenting', whereby the parent uses techniques that evoke a positive emotional climate in the relationship, and then continues to use such techniques in therapeutic doses until the child becomes positively emotionally responsive.

A review by McCollum & Hemmeter (1996) of interaction interventions with parents of children with developmental disabilities found that there was clear evidence that such programs changed parents' interactions with their children. There is also evidence that the degree of parental sensitivity, responsiveness and emotional availability are

predictive of outcomes in children with intellectual and developmental disabilities (Biringen, Fidler, Barrett & Kubicek, 2005; Dunst, 2007; Koren-Karie, Oppenheim, Dolev, Sher & Etzion-Carasso, 2002; Trivette, 2007b; Venuti, Falco, Giusti & Bornstein, 2008; Warren & Brady, 2007). Reviews of studies of the effects of a responsive caregiver style of interaction on the development of young children with or at risk for developmental disabilities by Dunst (2007) and Trivette (2007b) found that sensitive, appropriate responses that were contingent on children's production of a behaviour had a positive influence on both the cognitive and socio-emotional development of such children.

These findings suggest that early childhood intervention programs for young children with developmental disabilities may enhance their effectiveness by promoting maternal emotional availability as well as children's responsiveness to and involvement with the mother.

Consequences of poor early relationships

What are the consequences for children with disabilities when the relationships they experience are not optimal? One major risk is of abuse or maltreatment. Population-based studies (eg. Spencer, Devereux, Wallace, Sundrum, Shenoy, Bacchus & Logan, 2005; Sullivan & Knutson, 2000) have found that children with disabilities are more likely than normally-developing children to be maltreated or neglected, although the rates varied according to the specific disabling conditions involved.

Why are children with disabilities more prone to abuse? It is partly because of the stresses they place upon families, such as the caregiving demands of meeting the child's needs, the emotional demands of understanding and adapting to the child's disabilities, the reduction in family income, and so on. However, maltreatment also occurs because of the difficulties parents may have in forming attachments with the children, and in developing mutually rewarding relationships with them. Even when there is no actual abuse, young children with developmental delays are likely to experience relative deficits in various types of environmental input compared to typically developing children — despite the best intentions of their caregivers — again because they often display low rates of initiation and responsiveness themselves (Warren & Brady, 2007).

Another possible consequence of relationship problems is that the children do not develop secure attachments with parents and caregivers (Howe, 2006; Warren and Brady, 2007). As we have seen already, attachments and relationships are just as important to children with developmental disabilities as they are to other children.

For instance, on the basis of studies of how families of young children with cerebral palsy adapt to having a child with a developmental disability, Marvin & Pianta (1992) proposed that differences in self-reliance are as much related to a child's relationships with family members as they are to differences in specifics of the child's physical disability. Their rationale was that development of functions (such as self reliance) occurs at the dyadic or relationship level, with normally developing children as well as children with disabilities. This is because the caregiver acts as a type of prosthetic, even for non-disabled children. This implies that skill-based approaches aimed at teaching

children particular behaviours or skills may be less important than the quality of the child-caregiver interaction. On the basis of case studies and other data, Marvin & Pianta argue that a secure attachment between children with disabilities and their mothers is associated with self-reliance and an insecure attachment with an angry and over-dependent lack of self-reliance. They suggest that the mother's own internalised model of her attachment experiences shapes her ability to resolve the crisis of the diagnosis of her child's disability, and therefore to perceive and respond sensitively to her child's signals and needs.

Different developmental disabilities (eg. autism, deafness, visual impairments, intellectual disabilities, cerebral palsy, severe communication disorders) and combinations of disabilities pose different barriers to the development of secure attachments to parents, caregivers and teachers. There is not time to explore how each of these disabilities might challenge the ability of parents and caregivers to establish responsive and emotionally available relationships, so we will focus on two: deafness and autism

Attachments in deaf children. Since 90% of children with severe or profound hearing losses are born to hearing parents, the challenge of building attachments with such children revolves around communication. For the remaining 10% who have deaf parents, communication is far less likely to be an issue (if they are using sign language).

What do know about the development of attachment in deaf children? Below the age of 2 years, deaf children's attachments are no different to hearing children's attachments (Lederberg & Mobley, 1991; Koester & McTurk, 1991). However, the maintenance of secure attachment is dependent upon the development of effective parent-child communication strategies. During the first two years, non-verbal communication is sufficient to ensure reciprocal interactions between parents and child, and therefore serves as a basis for the development of attachment (Traci & Koester (2003). Beyond the age of two years, non-verbal communication becomes increasingly insufficient as a basis for the ongoing development of attachment (Lederberg & Everhart, 1998; Vaccari & Marschark, 1997). The ongoing development of the attachment needs language, and the lack of a shared language will progressively undermine the strength of the early attachments as the child grows. Deaf preschoolers with poor communication skills are more often insecurely attached to their hearing parents than those with good communication skills (Greenberg & Marvin, 1979), and deaf children who do not have an effective mode of communicating with their mothers are at greater risk of developing mental health problems in adolescence than those who do, regardless of whether the communication is oral or signed (Wallis, Musselman & MacKay, 2004). By contrast, deaf children of deaf parents have similar attachment patterns to hearing children of hearing parents (Meadow, Greenberg, Erting & Carmichael, 1981).

Attachments in children with autism. What do know about the development of attachment in children with autism spectrum disorders? Research indicates that the presence of autism typically disrupts mother-child interaction in general and maternal responsivity specifically (van IJzendoorn, Rutgers, Bakermans-Kranenburg, Swinkels, van Daalen, Dietz, Naber, Buitelaar & van Engeland, 2007).

Studies on the various aspects of emotional development in children with autism have overwhelmingly confirmed that these children are impaired in their ability to share affective states with others (Dissanayake & Sigman, 2001). Typically, young children with autism have been described as under-responsive, labile, and inappropriate in their expression of affect, such that they do not turn to others to express their feelings, nor do they respond to others when feelings are expressed. Many children with autism spectrum disorders display particularly severe forms of the behaviors that compromise the normal development of reciprocal interactions - low initiation rates, slow response times, gaze avoidance or atypical eye gaze, hypersensitivity to sensory input, social anxiety and shyness, perseveration and repetitiousness, stereotypical behavior, unintelligible speech, and problems with conversational discourse, poor short term memory, and a wide range of behavior problems. Over time, these characteristics can create a relatively stable interaction pattern that may be directive, rigid, and lacking the developmental progression of the transactional model in its optimal form. The cumulative effects of this interaction style in turn interacts with the child's underlying disability over many years in ways that further impede the child's development (Warren & Brady, 2007).

Autism appears to be the disability that would pose the most difficulty in forming and building on attachments. However, many of the studies of autism spectrum disorders have focused on the differences between children with autism and normally developing children – difficulties in understanding other's thought processes ('theory of mind' deficits) etc. – rather than the similarities. When we look closely at the behaviour of children with autism, we can see many of the same behaviours as other children, although manifested in ways that may be hard to detect.

Regarding **attachment** in children with autism, the evidence illustrates that children with autism, not only develop selective attachments to their caregivers, but show that these children are able to form attachments with their caregivers, and as many as half of these are secure attachments (Biringen, Fidler, Barrett & Kubicek, 2005; Dissanayake & Crossley, 1996, 1997; Oppenheim, Koren-Karie, Dolev & Yirmiya, 2008; Rutgers, Bakermans-Kranenburg, Ijzendoorn & Berckelaer-Onne, 2004). Moreover, the attachments demonstrated by children with autism are functionally similar to those seen in normally developing children (Dissanayake & Crossley, 1996, 1997). However, there is a tendency for the more intellectually disabled children with autism to be less securely attached (Rutgers, Bakermans-Kranenburg, Ijzendoorn & Berckelaer-Onne, 2004; van IJzendoorn, Rutgers, Bakermans-Kranenburg, Swinkels, van Daalen, Dietz, Naber, Buitelaar & van Engeland, 2007).

Regarding **emotional responsiveness** in children with autism, studies investigating in emotional expression show that, although children with autism can and do express emotion, they do not readily communicate this emotion to others. That is, unlike children without autism, they fail to combine their affect with other behaviours such that they convey communicative intent (Dissanayake & Sigman, 2001). While this deficit may stem from more basic processes in communication, there is clear evidence of a

disruption in the emotional signalling of individuals with autism. Similarly, they have difficulty recognising the emotional signals of others.

Although the emotional capacities of people with autism are impaired, some of this impairment may be overcome by compensatory cognitive strategies used by high functioning autistic people, even though these strategies cannot fully compensate for the deficits.

Outcomes of positive early relationships

What are the benefits for children with disabilities when the relationships they experience are optimal? There is evidence that promoting caregiver responsiveness to young children with developmental disabilities has both short- and long-term benefits for the children's cognitive and socio-emotional competence (Trivette, 2003). Indeed, it has even been shown that early childhood intervention services are *only* effective at enhancing the development of young children with developmental disabilities when they promote mothers' responsiveness to their children (Mahoney, Boyce, Fewell, Spiker & Wheeden, 1998). This is regardless of the amount of services provided to children or the range of family services parents receive. However, there has been little research on how consistently early interventionists focus on enhancing parental responsiveness. One study of home visiting (Peterson, Luze, Eshbaugh, Jeon & Kantz, 2007) found that early interventionists varied considerably in the amount of time they spent promoting parental responsiveness, even when that was the intended focus of the session. The more they did so, however, the more engaged the parents were.

Given the importance of sensitive attunement and positive reciprocal relationships for children who are at risk or have developmental disabilities, it is clear that helping parents build such relationships should be a central focus of early childhood intervention services. How parents interact with their children will always influence their children's development regardless of whether interventionists or parents acknowledge this (Mahoney & Wheeden, 1997). Ensuring that these interactions are as attuned as possible to the child's behaviours and needs is a powerful way of building positive parent-child relationships as well as promoting the child's development.

We will now explore some of the strategies that have been developed to help establish positive reciprocal relationships between children and parents, beginning with those developed for at risk children.

INTERVENTIONS

Interventions with children at risk

A number of intervention strategies for building positive relationships between caregivers and children at risk have been developed. These include the maternal sensitivity training, interaction coaching (McDonough, 2000), the Circle of Security approach (Cooper, Hoffman, Powell & Marvin, 2005; Dolby, 2007), the Hanen Program for Parents (Girolametto & Weitzman, 2006), the PALS program (Landry, Smith &

Swank, 2006), the Developmental, Individual-Differences, Relationship-Based (DIR) Model (Greenspan & Wieder, 2006), the Marte Meo Developmental Support Programme (Aarts, 2008), and the Promoting First Relationships program (Kelly, Zuckerman, Sandoval & Buehlman, 2003).

- ***Maternal sensitivity training***

Is early preventive intervention effective in enhancing parental sensitivity and infant attachment security? A number of training programs have been reported in the literature that either focus primarily on establishing a highly responsive parenting style or do this as a component of an overall early intervention approach that may also include other components. There is considerable evidence that these training programs can lead to enhanced parent responsiveness and, to a lesser extent, infant attachment security (Bakermans-Kranenburg, van IJzendoorn & Juffer, 2003; Warren & Brady, 2007). Although attachment insecurity appeared to be more difficult to change than maternal insensitivity, when an intervention is successful in enhancing maternal sensitivity, this change appears to be accompanied by a parallel positive change in infant attachment security. Overall, interventions involving fathers as well appear to be significantly more effective than interventions focusing on mothers only.

- ***Interaction coaching***

Examples include the interaction coaching and the *Mellow Parenting* model developed by Christine Puckering (www.mellowparenting.org) and the interaction guidance model developed by Susan McDonough (McDonough, 2000).

- ***The Circle of Security approach***

The Circle of Security is an educational and group therapy intervention that focuses on changing maladaptive interactive patterns between parents and children, to promote children's emotional security with parents (Cooper, Hoffman, Powell & Marvin, 2005; Dolby, 2007; Hoffman, Marvin, Cooper & Powell, 2006; Marvin, Cooper, Hoffman & Powell, 2002; Powell, Cooper, Hoffman & Marvin, 2007). It does this primarily through videotaping parent-child interactions in a laboratory setting using standard protocols, and reviewing the videotapes of each group member in the group setting. Parents thus learn to appreciate their strengths, and change the aspects of their parenting style that are problematic. The intervention is based on attachment theory and research that shows that children have complementary and reciprocal needs to outwardly explore their worlds with confidence and the support of parents, and return to the proximity of parents for comfort and care when needed. The exploration-attachment dimensions of children's needs are presented as a continuous 'circle of security' that lays a foundation for children's social and emotional development.

A growing body of research evidence shows that the Circle of Security intervention can favourably alter children's attachments to their caregivers (Hoffman, Marvin, Cooper & Powell, 2006; Dolby, 2007).

- ***It Takes Two to Talk: The Hanen Program for Parents***

A well-known approach that exemplifies the responsive parenting approach is the Hanen Program of Parents (Girolametto & Weitzman, 2006). This aims to increase the child's social communication skills and language development by enhancing the quality of interaction between the parent and child. Parents are taught that interaction should usually be initiated and controlled by the child. They are explicitly taught to follow their child's attentional lead and respond contingently to the child's behavior in a manner that is congruent with the child's immediate interests. Methods of modeling, recasting, and expansions of the child's communication attempts are taught and of course strongly encouraged while the use of directives such as imitation prompts and test questions, are discouraged because it is assumed that they will disrupt the flow of interaction and the child's attentional engagement.

Girolametto and his colleagues have conducted several investigations of the effects of the Hanen Parent Training Program (Girolametto & Weitzman, 2006). This research has consistently demonstrated direct effects of this particular approach on various measures of communication and language development with young children with language delays including children with Down syndrome. The most substantial of effects in these studies have been on various measures of language usage, as opposed to measures of language acquisition. That is, it is clear that enhanced parent responsivity leads to more frequent communication and language use by young children with developmental delays, but it is not as clear that enhanced responsivity has a major impact on their acquisition of new language forms and functions.

- ***PALS***

Another example of a promising responsive parenting intervention is the PALS program developed by Landry, Smith & Swank (2006). PALS stands for 'playing and learning strategies'. This home visiting program is designed to teach at-risk mothers of infants to engage in a highly responsive style that shares many similarities with the style taught by the Hanen Program. Its goal is to establish a style that includes four different aspects of responsiveness - contingent responding, emotional-affective support, support for infant foci of attention, and language input match to developmental needs. The program is designed to be delivered in 10 weekly home visits.

This program has been used with mothers of very low birthweight children, and has proved effective in helping the mothers become more responsive and in promoting children's social, emotional, communication, and cognitive competence (Landry, Smith & Swank, 2003, 2006).

- ***The Developmental, Individual-Differences, Relationship-Based (DIR) Model***

The DIR model is a biopsychosocial framework to understand and organise programs of assessment and intervention for children with developmental delays and mental health problems (Greenspan & Wieder, 2006). The *D* stands for functional developmental level: identifying where the child is in his/her development; the *I* stands for individual differences in sensory processing, sensory modulation, and motor planning; and the *R* stands for relationships: what are the child's relationships with caregivers and others like now, and what pattern of affective interaction would best promote health development. In the DIR approach parents are helped to follow the child's lead, tuning in as closely as possible to the child's interests and rhythms and responding in ways that support and amplify whatever themes the child seems to be expressing. The goal is for the parent to build a warm, trusting relationship in which shared attention, interaction, and communication are occurring on the child's terms.

- ***Marte Meo Developmental Support Programme***

The Marte Meo Developmental Support Programme, developed by Maria Aarts (Aarts, 2008), is a practical model for supporting development in everyday communication moments. The central focus of the programme is to identify, activate and develop skills to enable and enhance constructive interaction. This program uses video review and from this training participants learn very concrete information about supporting children's development in daily interactive moments (infancy to school age children) and for transferring this information to parents and other significant carers. In Australia, Robyn Dolby and colleagues have developed a relationship-based intervention that uses ideas from Marte Meo and the Circle of Security to support staff, parents and children at preschool.

- ***Promoting First Relationships***

This program began life as a program to provide early intervention to homeless families (Kelly, Buehlman & Caldwell, 2000). The written curriculum (Kelly, Zuckerman, Sandoval & Buehlman, 2008) presents a practical way of training service providers to help parents and other caregivers provide sensitive and responsive caregiving that can result in mutually satisfying caregiver-child relationships. The content is focused on the following curricular components presented in the PFR curriculum (training videotape, written manual, and set of 17 handouts):

- the description of specific provider consultation strategies for promoting healthy caregiver-child relationships;
- social and emotional needs specific to the infant-toddler period;
- caregiving qualities and activities that promote security, trust, and emotion regulation during infancy (eg, individualized attention, empathy, labeling and organizing feelings and emotions, and predictability);

- additional caregiving qualities and activities that promote healthy identity formation in the toddler years, including motivation, and social competence (eg, managing feelings of distress, offering rituals and routines, encouraging exploration, independence, and cooperation through appropriate choices, and limits);
- intervening with challenging behaviors (eg, assessing through discussions and observations, identifying young children's feelings and unmet needs, identifying possible causes for challenging behaviors, reframing the behaviors for caregivers, and developing individualized intervention plans); and
- exploring the parent's own sense of self, emotion regulation, and support that influence the caregiving environment.

The training program for service providers includes videotaping the caregiving interactions in the home to allow parents to observe and reflect on their interactions with their children, offering positive and instructive feedback during caregiver-child interactions that builds caregiving competence, and focusing on the deeper emotional feelings and needs of both parents and young children. An important aspect of the curriculum is the detailed description of four types of provider consultation strategies important for promoting sensitive and responsive caregiving:

- joining or establishing emotional connections with parents;
- giving verbal feedback that is contingent, positive, and instructive;
- using videotapes of dyadic interactions to help parents become better observers of their own and their children's interactive strengths; and
- using reflective questions to focus on underlying feelings and needs of parents and young children.

When should these various strategies be used? Some guidance is provided by Landy & Menna (2006) who note that the caregiver's attunement to a full range of a child's affective displays and an acceptance and containment of the child's emotions are central to the development of attachment. However, the parent's ability to do this can be compromised by their own parenting experiences. Much of our parenting and caregiving takes place at a preconscious level of procedural memory, and is therefore intuitive rather than conscious.

'When parents' early experiences of being parented are of sensitive, gentle, and responsive interactions, the parenting they provide tends to be the same. If abuse was experienced, however, parents may have to make a conscious effort and to concentrate intensely in order to avoid repeating the same behavioural patterns. Nevertheless, it has been found that under stress, old patterns may be repeated and buried feelings and sensorimotor reactions can be reactivated. (p. 300)

Landy & Menna describe four levels of parenting which vary according to how conscious or otherwise they are of their parenting practices and what kinds of internalised parenting models they are able to draw upon:

- Unconscious / poor parenting: the parents respond negatively to their children in an automatic or unconscious way, particularly when under stress. These parents need strategies to help them regulate themselves and ground them in the present, and to enhance their self-reflectivity and empathy for the child.
- Conscious / poor parenting: the parents are aware that the parenting practices they are using are not helpful for the child and would like to change. They benefit from being provided with developmental guidance at teachable moments, and by programs such as the Circle of Security parenting program.
- Conscious / good parenting: the parents are working hard to change their interactions, and need support, modelling, and affirmation of improvement. Such parents can best be helped by strategies such as interaction coaching that help them understand the unique needs of their child, according to their age and temperament.
- Unconscious / good parenting: the parent is able to parent positively in a more intuitive way, and only needs continuing affirmation and support. Such parents only need continuing affirmation and support that they are doing this well.

Interventions for children with developmental disabilities

Four approaches that seek to promote parental / caregiver responsiveness with children who have developmental disabilities are described below: the Responsive Teaching approach developed by Gerald Mahoney and colleagues (Mahoney and MacDonald, 2007), the Early Start Denver Model developed by Sally Rogers and colleagues (Vismara, Colombi & Rogers, 2009; Vismara & Rogers, 2008), the Relationship Development Intervention developed by Steven Gutstein (Gutstein, 2001, 2007; Gutstein & Sheely, 2002), and the gentle teaching approach championed by John McGee and colleagues (McGee & Menolascino, 1991; McGee, Menolascino, Hobbs & Menousek, 1987). Of these, the Responsive Teaching approach is the most comprehensive and has the strongest evidence of effectiveness so far.

- ***Responsive Teaching: Parent-Mediated Developmental Intervention***

Responsive Teaching (Mahoney & MacDonald, 2007) is a comprehensive developmental intervention curriculum designed to be used with children up to six years of age who have, or are at-risk for, developmental and social emotional problems. Responsive Teaching was shaped by child development research findings regarding the impact that responsive interactions have on children. These findings show that responsive interactions are highly effective at promoting children's pivotal developmental behaviours, are also effective at enhancing children's developmental and socio-emotional functioning, but are ineffective at teaching children discrete skills.

As a result, Responsive Teaching has two features that differentiate it from most other intervention approaches.

- First, the objectives of interventions are the pivotal developmental behaviours that Responsive Interactions promote. These are the behaviours children must use while participating in activities to understand, learn and become more proficient in the skills that mark developmental growth. These pivotal developmental objectives consist of a relatively small set of behaviours that children employ throughout the early childhood years during their routine activities and interactions.
- Second, Responsive Teaching views adults as playing an indirect but critical role in promoting children's development. Many of the developmental skills children acquire come primarily from their own self-initiated learning. Responsive Teaching strategies contribute to this process by helping children 'learn to learn' as they use these Pivotal Developmental Behaviours in their daily routine interactions. The more often children use these behaviours while interacting with people and objects, the more rapidly they acquire the knowledge and competencies indicative of higher levels of functioning.

Responsive Teaching Strategies are specific strategies parents can use to enhance their children's use of pivotal developmental behaviours. They correspond to the many interactive qualities that are either directly related, or commonly associated with, the characteristics of parental interactive style which research indicates promotes children's learning and social-emotional well being. There are 66 of these strategies altogether, grouped according to the component and dimension of responsive interaction that they promote:

- Reciprocity – engagement / turn taking / joint action routines
- Contingency – awareness / timing / intent / frequency
- Shared control - moderate direction / facilitation
- Affect - animation / enjoyment / warmth / acceptance
- Match - developmental match / interest match / behavioural style match

What evidence is there for the effectiveness of the relationship-focused approach? The program's developers have conducted a number of studies (Kim & Mahoney, 2005; Mahoney & MacDonald, 2007; Mahoney & Perales, 2003, 2004; Mahoney, Perales, Wiggers & Herman, 2006). For example, Mahoney & Perales (2003) investigated the effectiveness of relationship-focused intervention on the social and emotional well-being of young children with autism spectrum disorders. The intervention took the form of weekly intervention sessions for parents and children for 8 to 14 months, and was successful at encouraging mothers to engage in more responsive interactions with their children. In turn, there were significant improvements in children's social interactions and their social / emotional functioning.

In another study involving the same intervention regime, Mahoney & Perales (2005) compared the effects of relationship-focused early intervention on toddlers and preschool-age children who were classified as having either pervasive developmental disorders or developmental disabilities. This time, the intervention

was conducted over a 12-month period through weekly individual parent-child sessions, and focused on helping parents use responsive teaching strategies to encourage their children to acquire and use pivotal developmental behaviours that addressed their individualised developmental needs. Before and after comparisons indicated significant increases both in parents' responsiveness and in children's use of pivotal behaviours. Both groups of children made significant improvements in their cognitive, communication, and socio-emotional functioning.

This approach has also been shown to have the same impact on the interactive behaviour of parents from a non-western country. In a study involving a group of Korean mothers and their preschool-aged children with disabilities (Kim & Mahoney, 2005), the Responsive Teaching strategies were introduced to parents during weekly group and individual intervention sessions over a three month period. Assessments of parent-child interactions showed that the intervention was effective in promoting more responsive, affective and focused parental behaviour, and that there was a corresponding increase in the children's interactive behaviours.

- ***The Early Start Denver Model***

The Early Start Denver Model (Vismara, Colombi & Rogers, 2009; Vismara & Rogers, 2008) consists of a 12-week, one-hour-per-week individualized parent-child education program. Parents learn to implement naturalistic therapeutic techniques which fuse developmental- and relationship-based approaches with Applied Behavior Analysis into their ongoing family routines and parent-child play activities. Initial evaluations of this model indicate that parents acquired the strategies by the fifth or sixth session, maintained their skill levels through the rest of the treatment period, and for the 3 months following the end of all treatment. Thus, the treatment led to lasting behavior change, with the parents integrating these interactive skills into their daily lives with their child. Most importantly, their children demonstrated developmental progress in important social communicative behaviors.

- ***Relationship Development Intervention (RDI)***

Relationship Development Intervention (Gutstein, 2001, 2007; Gutstein & Sheely, 2002) is a parent-based intervention program that gives parents the tools to effectively teach what the program's developer Steven Gutstein calls Dynamic Intelligence skills and motivation to their child in the course of everyday interactions. This approach tries to help children interact positively with other people, even without language. The rationale for this approach is that, when children learn the value and joy of personal relationships, they will find it easier to learn language and social skills. Studies by the program developers of children in clinical settings (Gutstein, 2004; Gutstein, Burgess & Montfort, 2007) suggest that the program is effective in reducing symptoms of autism and improving flexibility in thinking and problem solving, and school placement.

- ***Gentle teaching***

A similar rationale underpins another relationship-based approach to working with people with disabilities, the gentle teaching approach developed by John McGee and colleagues (McGee & Menolascino, 1991; McGee, Menolascino, Hobbs & Menousek, 1987). According to McGee, Menolascino, Hobbs & Menousek (1987), the essence of effective management of problem behaviours in people with intellectual disabilities lies in building a caring relationship and teaching the person the rewards of relationships. They believe it is essential to teach the person that there is value and goodness inherent in human interactions, human presence, and human participation. Based on a psychology of human interdependence (McGee, 1989), the gentle teaching approach has a basic goal of teaching bonding. This involves teaching persons with special needs that our presence signifies safety and security, that our words and contacts (eg. our looks, smiles, touch) are inherently rewarding, and that participation is satisfying. Thus, caregivers set out to teach the value of human engagement, based on three basic feelings: that it is good to be with one another, that it is good to do things with one another, and that it is good to do things for one another.

Another relationship-based approach for working with children with developmental disabilities is the ***Developmental, Individual-Differences, Relationship-Based (DIR) model*** described earlier. Although originally designed for children who had mental health or general developmental issues, it is readily applicable to work with children who have a variety of developmental disabilities (Greenspan & Weider, 1998, 2006), including autism (Wieder & Greenspan, 2007).

Another of the relationship-based programs described earlier, the ***Promoting First Relationships*** program (Kelly, Zuckerman, Sandoval & Buehlman, 2003), has been used successfully to improve the relationship-focused skills of personnel serving young children with disabilities and their families (Kelly, Zuckerman & Rosenblatt, 2008) .

Another approach to identifying effective ways of promoting parental sensitivities is to examine the degree to which different intervention practices are associated with variations in parental sensitivity to their children's behavior. Thus, rather than focusing on the effectiveness of individual interventions such as those outlined above, the focus is on identifying practice characteristics that have been found to be effective across many different interventions. Kassow & Dunst (2007) used this approach in reexamining studies reviewed by Bakermans-Klanenburg, Van IJzendoorn & Juffer (2003). They identified the following characteristics of intervention practices most associated with enhanced parental sensitivity:

- First, behavioral interventions that focused specifically on enhancing parental sensitivity to their children's behavior were most effective. Moreover, including other practice elements (support or representation) to parental sensitivity interventions appears to have had little or no value-added benefits. The focus of effective sensitivity interventions included parental awareness of their children's behavior,

accurate interpretation of these behaviors, and responsiveness to the children's behavior.

- Second, the effectiveness of the type of intervention differed as a function of number of sessions. Behavioral-based sensitivity interventions that lasted fewer than 16 sessions were most effective: the impact of highly focused behavioral interventions was realized with as few as 8 to 10 sessions or opportunities to learn about and use sensitive parental interactional styles.
- Third, interventions were most effective when they were begun when children were 6 months of age or older, although the interventions were effective when begun at any age. Presumably, children's behaviors were more easily interpreted by parents as their children became more developmentally competent.
- Fourth, using video tapes of the parents interacting with their children as feedback was more effective than not using this type of procedure as a means of influencing parent behavior. Additionally, video tapes modeling sensitivity appeared effective as an intervention as well.
- Fifth, the interventions were effective regardless of whether the interventionists were professionals or non-professionals (laypersons). Interventions that included written information about different aspects of parental sensitivity, video tapes of sensitive parental interactive behaviour, or baby carriers that encouraged close parent/child contact, and interventions that included little or no ongoing guidance by either professionals or non-professionals were also effective, suggesting the importance of informational and material supports as a means for facilitating parental sensitivity.

In this section, we have identified a number of effective or promising programs and some proven strategies for promoting parental / caregiver responsiveness with children who are either at risk or who have developmental disabilities. In the final two sections we will explore the implications of this evidence for early childhood intervention services, and draw some overall conclusions.

IMPLICATIONS FOR EARLY CHILDHOOD INTERVENTION SERVICES

The discussion so far has focussed on promoting parent-child interactions as a key focus of early childhood intervention practice. How does this agenda square with other key elements of early childhood intervention such as family-centred practice (Blue-Banning, Summers, Frankland, Nelson & Beegle, 2004; Dunst, 1997; Moore and Larkin, 2006; Turnbull, Turbiville and Turnbull, 2000) or relationship-based practice (Gilkerson & Ritzler, 2005; Heffron, 2000; Weston, Ivins, Heffron & Sweet, 1997)?

There has been some debate in the early childhood intervention field about this issue. Baird & Peterson (1997) thought there was a potential mismatch between family-centered philosophy and strategies for addressing infant-parent interaction in the early intervention process: for instance, if parents decided against directly focusing on

interactions with their child as a means of promoting the child's development, the family-centred approach could be interpreted as requiring that the parents' preferences be respected and the intervention would therefore be less effective. Mahoney & Wheeden (1997) argued that this misrepresented family-centered philosophy, the central purpose of which is to support and enhance the effectiveness of parents as caregivers and primary influences on their children's development. However, in a later article, Mahoney, Kaiser, Girolametto, MacDonald, Robinson, Safford & Spiker (1999) suggested that the emergence of family-centered care and family support as core features of early intervention may have been one of the factors contributing to a relative decline in a focus on providing parents with specific knowledge and childrearing skills to promote the development and competence of their children. This critique provoked a counter-critique from Dunst (1999) who maintained that there was no incompatibility between working in a family-centred way and focusing on helping parents develop their parenting skills.

The way to resolve this debate is to be clear that family-centred practice and relationship-based practice both describe the *way* that services are delivered, whereas parent-child interaction therapies and approaches are part of *what* is delivered. Both are essential: the *manner* in which services are delivered is as important as the *content* of what is delivered. The ability of service providers to share their professional knowledge and skills effectively is intimately linked with how effective they are in engaging with parents. The relationships that service providers build with parents – based on respect, engagement / attunement, and partnership – are the *medium* through which services are delivered, and the quality of those relationships – how empathic, responsive and empowering they are – makes a significant difference to how effective the services are in promoting parental skills and parent-child relationships. Thus, early intervention services are most effective when they make full use of the cascade of parallel processes (Moore, 2007).

On their own, family-centred and relationship-based practices do not directly affect child development and functioning, but do have an important indirect role: they create the conditions under which professionals can help parents build positive relationships with their children and develop the skills to meet their child's developmental needs. However, just as family-centred and relationship-based practices are insufficient on their own, so too are the technical knowledge and skills of professionals (such as the relationship-promoting programs and strategies reviewed in this paper). Knowledge and skill on their own count for little if the professional lacks the capacity to build the kind of relationship with parents that enables the effective sharing of that knowledge and skill.

What this implies is that early childhood interventionists need well-developed skills in engaging and building partnerships with parents, as well as knowledge of the strategies and programs to help families build positive relationships with their children and promote their children's development. In addition, if interventionists are to help parents become attuned to and respond appropriately to their children, then interventionists also need skills to engage and respond to these children. For early childhood intervention professionals, the challenge is knowing how to engage children with different disabilities in mutually pleasurable interactions, how to build on these to promote children's learning and development, and how to share this knowledge effectively with parents.

This emphasis on the importance of relationships may also cause us to rethink some of the strategies and interventions that seek to teach children functional skills but do not place any particular emphasis on building a relationship. It should also make us wary of accepting evidence from studies that did not measure the quality of relationships between those delivering and receiving the intervention

CONCLUSIONS

This paper has summarised evidence that the nature and quality of their key relationships are critical for children's development, and that this is just as true for children with disabilities as it is for those without. We have seen that key features of these relationships – particularly attunement / engagement and responsiveness – are especially important for early childhood development and the establishment of secure attachment. We have also seen that the reason these relationship features are so powerful is that utilise high-speed neurological pathways that operate below the level of consciousness and that effectively synchronise the right brains of adult caregivers with those of their infants.

We need to recognise that some children with disabilities behave and function in ways that make it difficult for parents and caregivers to develop mutually enjoyable reciprocal relationships. Nevertheless, there is no evidence to suggest that positive relationships with caregivers are any less important for such children, and we should assume therefore that all children with disabilities are able to and would benefit from developing meaningful relationships with others.

The implication of this evidence is that supporting parents and caregivers in developing positive and responsive relationships with children with developmental disabilities from as early an age as possible should be a major focus of early childhood intervention services. All those involved in working with young children with disabilities – parents, caregivers, early childhood interventionists – should seek to establish relationships with these children that reflect the key qualities of effective relationships. It is the combined effect of such relationships that will ensure the effectiveness of interventions.

To achieve this, early childhood interventionists need well-developed skills in engaging and building partnerships with parents, as well as knowledge of the strategies and programs to help families build positive relationships with their children and promote their children's development. In addition, interventionists also need skills to engage and respond to these children, and how to build on these to promote children's learning and development.

REFERENCES

- Appleyard, K. & Berlin, L.J. (2007). **Supporting Healthy Relationships Between Young Children and Their Parents: Lessons from Attachment Theory and Research**. Durham, North Carolina: Centre for Child and Family Policy, Duke University.
- Aarts, M. (2008). **Marte Meo - Basic Manual (Revised Edition)**. Eindhoven, The Netherlands: Aarts Productions no. 1.
- Bakermans-Kranenburg, M.J., van IJzendoorn, M.H. & Juffer, M. (2003). Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. **Psychological Bulletin**, **129**, 195–215.
- Baird, S. & Peterson J. (1997). Seeking a comfortable fit between family-centred philosophy and infant-parent interaction in early intervention: Time for a paradigm shift? **Topics in Early Childhood Special Education**, **17** (2), 139-164.
- Biringen, Z. (2000). Emotional availability: Conceptualization and research findings. **American Journal of Orthopsychiatry**, **70** (1), 104–114
- Biringen, Z., Fidler, D.J., Barrett, K.C. & Kubicek, L. (2005). Applying the emotional availability scales to children with disabilities. **Infant Mental Health Journal**, **26** (4), 369–391.
- Biringen, Z. & Robinson, J. (1991). Emotional availability in mother–child interactions: A reconceptualization for research. **American Journal of Orthopsychiatry**, **61**, 258–271.
- Blue-Banning, M., Summers, J.A., Frankland, H.C., Nelson, L.L. & Beegle, G. (2004). Dimensions of family and professional partnerships: constructive guidelines for collaboration. **Exceptional Children**, **70** (2), 167-184.
- Buchanan, M. (2009). Science: Secret signals. **Nature**, **457**, 528-530.
- Butterfield, P.McA., Martin, C.A. & Prairie, A.P. (2004a). **Emotional Connections: How Relationships Guide Early Learning**. Washington, DC: Zero to Three Press.
- Butterfield, P.McA., Martin, C.A. & Prairie, A.P. (2004b). **Emotional Connections: How Relationships Guide Early Learning (Instructor's Manual)**. Washington, DC: Zero to Three Press.
- Carlson, E.A., Sroufe, S.A. & Egeland, B. (2004). The construction of experience: A longitudinal study of representation and behaviour. **Child Development**, **75** (1), 66-83.

- Cook, R.E. & Sparks, S.N. (2008). **The Art and Practice of Home Visiting: Early Intervention for Children with Special Needs and Their Families**. Baltimore, Maryland: Paul H. Brookes.
- Cooper, G., Hoffman, K., Powell, B., & Marvin, R. (2005). The Circle of Security intervention: Differential diagnosis and differential treatment. In L. J. Berlin, Y. Ziv, L. M. Amaya-Jackson & M. T. Greenberg (Eds.), **Enhancing early attachments: Theory, research, intervention, and policy**. New York: Guilford Press.
- Cozolino, L.J. (2002). **The Neuroscience of Psychotherapy: Building and Rebuilding the Human Brain**. New York: W.W. Norton.
- Cozolino, L. (2006). **The Neuroscience of Human Relationships: Attachment and the Developing Social Brain**. New York: W.W. Norton.
- Dissanayake, C. (2004). Change in behavioural symptoms in children with high-functioning autism and Asperger Syndrome: Evidence for one disorder? **Australian Journal of Early Childhood**, **29** (3), 48-57.
- Dissanayake, C. & Crossley, S. A. (1996). Proximity and sociable behaviours in autism: Evidence for attachment? **Journal of Child Psychology and Psychiatry**, **37**, 149-156.
- Dissanayake, C. & Crossley, S. A. (1997). Autistic children's responses to separation and reunion with their mothers. **Journal of Autism and Developmental Disorders**, **27**, 295-312.
- Dissanayake, C., & Sigman, M. (2001). Attachment and emotional responsiveness in children with autism. Glidden, L.M. (Ed). **International Review of Research in Mental Retardation (Vol. 23): Autism**. San Diego, California: Academic Press.
- Dolby, R. (2007). **The Circle of Security: Roadmap to building supportive relationships**. Canberra, ACT: Early Childhood Australia.
- Dunst, C.J. (1997). Conceptual and empirical foundations of family-centered practice. In R. Illback, C. Cobb and H. Joseph (Eds.), **Integrated Services for Children and Families: Opportunities for Psychological Practice**. Washington, D.C.: American Psychological Association.
- Dunst, C.J. (1999). Placing parent education in conceptual and empirical context. **Topics in Early Childhood Special Education**, **19** (3), 141-147.
- Dunst, C.J. (2007). **Social-Emotional Consequences of Response-Contingent Learning Opportunities**. Winterberry Research Syntheses, 1 (16). Asheville, North Carolina: Winterberry Press.

- Dunst, C.J. & Kassow, D.Z. (2007). **Characteristics of Interventions Promoting Parental Sensitivity to Child Behavior**. Winterberry Research Syntheses, 1 (23). Asheville, North Carolina: Winterberry Press.
- Gerhardt, S. (2004). **Why Love Matters: How Affection Shapes a Baby's Brain**. London, UK: Brunner-Routledge.
- Gilkerson, L. & Ritzler, T.T. (2005). The role of reflective process in infusing relationship-based practice into an early intervention system. In K.M. Finello (Ed.). **The Handbook of Training and Practice in Infant and Preschool Mental Health**. New York: Jossey-Bass.
- Girolametto, L. & Weitzman, E. (2006). It Takes Two to Talk — The Hanen Program for Parents: Early language intervention through caregiver training. In R. McCauley and M. Fey (Eds.). **Treatment of Language Disorders in Children**. Baltimore, Maryland: Paul h. Brookes.
- Goleman, D. (2006). **Social Intelligence: The Hidden Impact of Relationships**, New York: Random House.
- Gowen, J.W. & Nebrig, J.B. (2001). **Enhancing Early Emotional Development: Guiding Parents of Young Children**. Baltimore, Maryland: Paul H. Brookes
- Greenberg, M.T. & Marvin, R.S. (1979). Attachment patterns in profoundly deaf preschool children. **Merrill-Palmer Quarterly**, 25 (4), 265-279.
- Greenspan, S. & Wieder, S. (1998). **The Child with Special Needs: Encouraging Intellectual and Emotional Growth**. Reading, Massachusetts: Perseus Books.
- Greenspan, S. & Wieder, S. (2006). **Infant and Early Childhood Mental Health: A Comprehensive, Developmental Approach to Assessment and Intervention**. Arlington, Virginia: American Psychiatric Publishing.
- Gutstein, S.E. (2001). **Autism / Aspergers: Solving the Relationship Puzzle**. Future Horizons Press: Arlington, Texas.
- Gutstein, S.E. (2007). **The Relationship Development Intervention (RDI®) Program and Education**. Houston, Texas: Connections Centre Publishing.
- Gutstein, S.E. & Sheely, R. (2002). **Relationship Development Intervention Activities for Young Children**. Jessica Kingsley Publications: London.
- Gutstein, S. (2004). The effectiveness of Relationship Development Intervention in remediating core deficits of autism-spectrum children. **Journal of Developmental & Behavioral Pediatrics**, 25 (5), 375, October 2004.

- Gutstein, S., Burgess, A. & Montfort, K. (2007). Evaluation of the Relationship Development Intervention Program. **Autism**, **11** (5), 397-412.
- Heffron, M.C. (2000). Clarifying concepts of infant mental health — promotion, relationship-based preventative intervention, and treatment. **Infants and Young Children**, **12**(4), 14-21.
- Hoffman, K.T., Marvin, R.S. Cooper, G. & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The Circle of Security intervention. **Journal of Consulting and Clinical Psychology**, **74** (6), 017-1026.
- Howe, D. (2006). Disabled children, parent–child interaction and attachment. **Child & Family Social Work**, **11** (2), 95-106.
- Kassow, D.Z. & Dunst, C.J. (2007a). **Relationship Between Parent Contingent-Responsiveness and Attachment Outcomes**. Winterberry Research Syntheses, 1 (1). Asheville, North Carolina: Winterberry Press.
- Kassow, D.Z. & Dunst, C.J. (2007b). **Characteristics of Parental Sensitivity Related to Secure Infant Attachment**. Winterberry Research Syntheses, 1 (12). Asheville, North Carolina: Winterberry Press.
- Kelly, J.F. & Barnard, K.E. (2000). Assessment of parent-child interaction: implications for early intervention. In J.P. Shonkoff and S.J. Meisels (Eds.). **Handbook of Early Childhood Intervention**. New York: Cambridge University Press.
- Kelly, J.F., Zuckerman, T.G. & Rosenblatt, S. (2008). Promoting first relationships: A relationship-focused early intervention approach. **Infants & Young Children**, **21** (4), 285-295.
- Kelly, J. F., Zuckerman, T. G., Sandoval, D. & Buehlman, K. (2008). **Promoting First Relationships: A Program for Service Providers to Help Parents and Other Caregivers Nurture Young Children's Social and Emotional Development (2nd Ed.)**. Seattle, Washington: NCAST-AVENUW Publications.
- Kim, J.M. & Mahoney, G. (2005). The effects of relationship focused intervention on Korean parents and their young children with disabilities. **Research in Developmental Disabilities**, **26** (2), 101-201.
- Koester, L.S. (1994). Early interactions and the socio-emotional development of deaf infants. **Early Development and Parenting**, **3** (1), 51-60
- Koester, L. S. & MacTurk, R. H. (1991). Precursors of attachment relationships in deaf and hearing infants. Poster presented at International Society for the Study of Behavioural Development, Minneapolis, Minnesota.

- Koester, L.S., Papousek, H. & Smith-Gray, S. (2000). Intuitive parenting, communication, and interaction with deaf infants. In P.E. Spencer, C.J. Erting & M. Marschark, M. (Eds.). **The Deaf Child in the Family and at School. Essays in Honor of Kathryn P. Meadow-Orlans**. Mahwah, New Jersey: Lawrence Erlbaum.
- Koren-Karie, N., Oppenheim, D., Dolev, S., Sher, E. & Etzion-Carasso, E. (2002). Mothers' insightfulness regarding their infants' internal experience: Relations with maternal sensitivity and infant attachment. **Developmental Psychology**, **38** (4), 534-542.
- Koren-Karie, N. & Oppenheim, D. (1997). **Insightfulness Procedure administration and coding manual**. Unpublished manual. Haifa, Israel: University of Haifa.
- Landy, S. & Menna, R. (2006). **Early Intervention with Multi-Risk Families: An Integrative Approach**. Baltimore, Maryland: Paul H. Brookes.
- Landry, S.H., Smith, K.E., Miller-Loncar, C.L. & Swank, P.R. (1998). The relation of change in maternal interactive styles to the developing social competence of full-term and preterm children. **Child Development**, **69** (1):105–123.
- Landry, S.H., Smith, K.E. & Swank, P.R. (2003). The importance of parenting during early childhood for school-age development. **Developmental Neuropsychology**, **24** (2-3), 559-591.
- Landry, S.H., Smith, K.E. & Swank, P.R. (2006). Responsive parenting: establishing early foundations for social, communication, and independent problem-solving skills. **Developmental Psychology**, **42** (4), 627–642.
- Landry, S.H., Smith, K.E., Swank, P.R., Assel, M.A. & Vellet, S. (2001). Does early responsive parenting have a special importance for children's development or is consistency across early childhood necessary? **Developmental Psychology**, **37** (3), 387–403.
- Lederberg, A.R. & Everhart, V.S. (1998). Communication between deaf children and their hearing mothers: The role of language, gesture, and vocalisations. **Journal of Speech, Language and Hearing research**, **41** (4), 887-899
- Lederberg, A. R. & Mobley, C.E. (1990). The effect of hearing impairment on the quality of attachment and mother-toddler interaction. **Child Development**, **61** (5), 1596-2604.
- Lederberg, A.R. & Prezbindowski, A.K. (2000). Impact of child deafness on mother-toddler interaction: strengths and weaknesses. In P.E. Spencer, C.J. Erting & M. Marschark, M. (Eds.). **The Deaf Child in the Family and at School. Essays in Honor of Kathryn P. Meadow-Orlans**. Mahwah, New Jersey: Lawrence Erlbaum.

- McCollum, J. & Hemmeter, M.L. (1996). Parent-child interaction intervention when children have disabilities. In M.J. Guralnick (Ed.), **The Effectiveness of Early Intervention**. Baltimore, Maryland: Paul H. Brookes.
- McDonough, S.C. (2000). Interaction guidance: An approach for difficult-to-engage families. In C.H. Zeanah (Ed.). **Handbook of Infant Mental Health (2nd Ed.)**. New York: The Guilford Press.
- McGee, J. J. (1989). **Being Together: Toward a Psychology of Human Interdependence**. Omaha, Nebraska: Creighton University.
- McGee, J. J. & Menolascino, F. J. (1991). **Beyond Gentle Teaching: A Non-aversive Approach to Helping Those in Need**. New York: Plenum.
- McGee, J. J., Menolascino, F. J., Hobbs, D. C. & Menousek, P. (1987). **Gentle teaching: A Non-aversive Approach to Helping Persons with Mental Retardation**. New York: Human Sciences Press.
- Mahoney, G. (2007). **Responsive Teaching Planning and Tracking Program**. Austin, Texas: PRO-ED.
- Mahoney, G., Boyce, G., Fewell, R., Spiker, D. & Wheeden, C.A. (1998). The relationship of parent-child interaction to the effectiveness of early intervention services for at-risk children and children with disabilities. **Topics in Early Childhood Special Education, 18** (1), 5-17.
- Mahoney, G., Kaiser, A., Girolametto, L., MacDonald, J., Robinson, C., Safford, P. and Spiker, D. (1999). Parent education in early intervention: A call for a renewed focus. **Topics in Early Childhood Special Education, 19** (3), 131-140.
- Mahoney, G. and MacDonald, J. (2007). **Autism and Developmental Delays in Young Children: The Responsive Teaching Curriculum for Parents and Professionals**. Austin, Texas: PRO-ED.
- Mahoney, G. & Perales, F. (2003). Using relationship-focused intervention to enhance the social-emotional functioning of young children with autism spectrum disorders. **Topics in Early Childhood Special Education, 23** (2), 77-89.
- Mahoney, G. & Perales, F. (2005). Relationship-focused early intervention with children with pervasive developmental disorders and other disabilities: A comparative study. **Journal of Developmental & Behavioural Pediatrics, 26** (2), 77-85.
- Mahoney, G., Perales, F., Wiggers, B. & Herman, B. (2006). Responsive Teaching: Early intervention for children with Down syndrome and other disabilities. **Down Syndrome Research and Practice, 11** (1), 18-28.

- Mahoney, G. & Wheeden, A. (1997). Parent-child interaction--the foundation for family-centered early intervention practice: A response to Baird and Peterson. **Topics in Early Childhood Special Education**, 17 (2), 165-184.
- Mahoney, G. & Wheeden, C.A. (1999). The effect of teacher style on interactive engagement of preschool-aged children with special learning needs. **Early Childhood Research Quarterly**, 14 (1), 51-68.
- Marvin, R., Cooper, G., Hoffman, K. & Powell, B. (2002). The Circle of Security project: Attachment-based intervention with caregiver-pre-school child dyads. **Attachment and Human Development**, 4 (1), 107-124.
- Marvin, R.S. & Pianta, R.C. (1992). A relationship-based approach to self-reliance in young children with motor impairments. **Infants and Young Children**, 4 (4), 33-45.
- Meadow, K. P., Greenberg, M. T., Erting, C. & Carmichael, H. (1981). Interactions of deaf mothers and deaf preschool children: comparisons with three other groups of deaf and hearing dyads. **American Annals of the Deaf**, 126, 454-468.
- Moore, T.G. (2006). Parallel processes: Common features of effective parenting, human services, management and government. Invited address to *7th National Conference of Early Childhood Intervention Australia*, Adelaide, 5-7th March. http://www.rch.org.au/emplibrary/ccch/TM_ECIAConf06_Parallel_process.pdf
- Moore, T.G. (2007). The nature and role of relationships in early childhood intervention services. Paper presented at *2nd International Conference of the International Society on Early Intervention*, Zagreb, Croatia, 14-16th June. http://www.rch.org.au/emplibrary/ccch/TM_ISEIConf07_Nature_role_rships.pdf
- Moore, T.G. with Larkin, H. (2006). **'More Than My Child's Disability': A Comprehensive Review of Family-Centred Practice and Family Experiences of Early Childhood Intervention Services**. Melbourne, Victoria: Scope (Vic) Inc. http://www.rch.org.au/emplibrary/ccch/EY_Mod2_Reading.pdf
- National Scientific Council on the Developing Child (2004a). **Young Children Develop in an Environment of Relationships**. NSCDC Working Paper No. 1. Waltham, Massachusetts: National Scientific Council on the Developing Child, Brandeis University. http://www.developingchild.net/papers/paper_1.pdf
- National Scientific Council on the Developing Child (2004b). **Children's Emotional Development is Built into the Architecture of their Brains**. NSCDC Working Paper No. 2. Waltham, Massachusetts: National Scientific Council on the Developing Child, Brandeis University. <http://www.developingchild.net/papers/workingpaperII.pdf>

- National Scientific Council on the Developing Child (2005). **Excessive Stress Disrupts the Architecture of the Developing Brain**. NSCDC Working Paper No. 3. Waltham, Massachusetts: National Scientific Council on the Developing Child, Brandeis University. http://www.developingchild.net/papers/excessive_stress.pdf
- National Scientific Council on the Developing Child (2008). **The Timing and Quality of Early Experiences Combine to Shape Brain Architecture**. *Working Paper #5*. Cambridge, Massachusetts: Centre on the Developing Child, Harvard University. http://www.developingchild.net/pubs/wp/Timing_Quality_Early_Experiences.pdf
- Newton, R.P. (2008). **The Attachment Connection: Parenting a Secure and Confident Child Using the Science of Attachment Theory**. Oakland, California: New Harbinger Publications.
- Oates, J. (Ed.)(2007). **Attachment relationships**. Bernard Van Leer Foundation Early Childhood in Focus Series No. 1: Quality of Care for Young Children. Milton Keynes, UK: The Open University.
- Oppenheim, D., Koren-Karie, N., Dolev, S. & Yirmiya, N. (2008). Secure attachments in children with autism spectrum disorder: The role of maternal insightfulness. **Zero to Three, 28** (4), 25-30.
- Peterson, C. A., Luze, G. L., Eshbaugh, E. M., Hyun-Joo, J. & Kantz, K. R. (2007). Enhancing parent-child interactions through home visiting: Promising practice or unfulfilled promise? **Journal of Early Intervention, 29** (2), 119-135.
- Powell, B., Cooper, G., Hoffman, K. & Marvin, R. (2007). The Circle of Security Project: A case study—"It hurts to give that which you did not receive." In D. Oppenheim & D.F. Goldsmith (Eds.). **Attachment Theory in Clinical Work with Children: Bridging the Gap between Research and Practice**. New York: Guilford Press.
- Ranson, K.E. & Urichuk, L.J. (2008). The effect of parent-child attachment relationships on child biopsychosocial outcomes: a review. **Early Child Development and Care, 178** (2), 129-152.
- Reis, H.T., Collins, W.A. & Berscheid, E. (2000). The relationship context of human behavior and development. **Psychological Bulletin, 126** (6), 844-872.
- Richter, L. (2004). **The Importance of Caregiver-Child Interactions for the Survival and Healthy Development of Young Children: A Review**. Geneva, Switzerland: Department of Child and Adolescent Health and Development, World Health Organisation.
- Rutgers, A.H., Bakermans-Kranenburg, M.J., Ijzendoorn, M.H. & Berckelaer-Onnes, I.A. (2004). Autism and attachment: a meta-analytic review. **Journal of Child Psychology and Psychiatry and Allied Disciplines, 45** (6), 1123-1134.

- Sameroff, A. (Ed.)(2009). **The Transactional Model of Development: How Children and Contexts Shape Each Other**. Washington, DC: American Psychological Association.
- Sameroff, A.J. & Chandler, M.J. (1975). Reproductive risk and the continuum of caretaking casualty. In F.D. Horowitz, M. Hetherington, S. Scarr-Salapatek & G. Siegel (Eds). **Review of Child Development Research, Vol. 4**. Chicago, Illinois: University of Chicago Press.
- Sameroff, A.J. & Fiese, B.H. (1990). Transactional regulation and early intervention. In Meisels, S.J. and Shonkoff, J.P. (Eds.). **Handbook of Early Childhood Intervention**. Cambridge University Press.
- Sameroff, A.J. & Mackenzie, M.J. (2003). Research strategies for capturing transactional models of development: The limits of the possible. **Development and Psychopathology, 15** (3), 613-640.
- Schore, A.N. (1994). **Affect Regulation and the Origin of the Self: The Neurobiology of Emotional Development**. Hillsdale, New Jersey: Erlbaum.
- Schore, A.N. (2001a). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. **Infant Mental Health Journal, 22** (1-2), 7- 66.
- Schore, A.N. (2003a). **Affect Dysregulation and Disorders of the Self**. New York: W.W. Norton.
- Schore, A.N. (2003b). **Affect Regulation and the Repair of the Self**. New York: W.W. Norton.
- Shonkoff, J.P. & Phillips, D.A. (Eds.) (2000). **From Neurons to Neighborhoods: The Science of Early Childhood Development**. Committee on Integrating the Science of Early Childhood Development, National Research Council and Institute of Medicine. Washington, DC: National Academy Press.
- Siegel, D.J. (1999). **The Developing Mind: Toward a Neurobiology of Interpersonal Experience**. New York: The Guilford Press.
- Siegel, D.J. (2001). Toward an interpersonal neurobiology of the developing mind: attachment relationships, “mindsight,” and neural integration. **Infant Mental Health Journal, 22**, (1–2), 67–94.
- Siegel, D.J. (2007). **The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being**. New York: W.W. Norton.

- Siegel, D.J. & Hartzell, M.M. (2003). **Parenting from the Inside-Out: How a Deeper Self-Understanding Can Help You Raise Children Who Thrive**. New York: Tarcher / Penguin.
- Spencer, N., Devereux, E., Wallace, A., Sundrum, R., Shenoy, M., Bacchus, C. & Logan, S. (2005). Disabling conditions and registration for child abuse and neglect: a population-based study. **Pediatrics**, **116** (3), 609-613.
- Spiker, D., Boyce, G. & Boyce, L. (2002). Parent-child interactions when young children have disabilities. **International Review of Research in Mental Retardation**, **25**, 35–70.
- Stien, P.T. & Kendall, J. (2004). **Psychological Trauma and the Developing Brain: Neurologically Based Interventions for Troubled Children**. Binghamton, New York: The Haworth Press.
- Sullivan, P.M. & Knutson, J.F. (2000). Maltreatment and disabilities: a population-based epidemiological study. **Child Abuse & Neglect**, **24** (10), 1257-1273.
- Tamis-LeMonda, C., Bornstein, M. & Baumwell, L. (2001). Maternal responsiveness and children's achievement of language milestones. **Child Development**, **72**, 748–767.
- Thompson, C. (2008). **Come Ashore and We Will Kill and Eat You All**. London, UK: Bloomsbury.
- Thompson, R.A. (2000). The legacy of early attachments. **Child Development**, **71** (1), 145-152.
- Traci, M. & Koester, L.S. (2003). Parent-infant interactions: A transactional approach to understanding the development of deaf infants. In M. Marschark & P.E. Spencer (Eds.). **Oxford Handbook of Deaf Studies, Language and Education**. Oxford, UK: Oxford University Press.
- Trivette, C. (2003). Influence of caregiver responsiveness on the development of young children with or at risk for developmental disabilities. **Bridges**, **1**(13), 1–13.
- Trivette, C.M. (2007a). **Influence of Home Environment on the Social-Emotional Development of Young Children**. Winterberry Research Syntheses, 1 (11). Asheville, North Carolina: Winterberry Press.
- Trivette, C.M. (2007b). **Influence of Caregiver Responsiveness on the Development of Young Children with or At Risk for Developmental Disabilities**. Winterberry Research Syntheses, 1 (12). Asheville, North Carolina: Winterberry Press.

- Turnbull, A.P., Turbiville, V. and Turnbull, H.R. (2000). Evolution of family-professional partnerships: Collective empowerment as the model for the early twenty-first century. In J.P. Shonkoff and S.J. Meisels (Eds.). **Handbook of Early Childhood Intervention (2nd. Ed.)**. Cambridge, Massachusetts: Cambridge University Press.
- Vaccari, C. & Marschark, M. (1997). Communication between parents and deaf children: implications for socio-emotional development. **Journal of Child Psychology and Psychiatry**, **38** (7), 793-801
- van IJzendoorn, M.H., Rutgers, A.H., Bakermans-Kranenburg, M.J., Swinkels, S.H.N., van Daalen, E., Dietz, C., Naber, F.B.A., Buitelaar, J.K. & van Engeland, H. (2007). Parental sensitivity and attachment in children with autism spectrum disorder: Comparison with children with mental retardation, with language delays, and with typical development. **Child Development**, **78** (2), 597–608.
- Venuti, P., Falco, S.D., Giusti, Z. & Bornstein, M.H. (2008). Play and emotional availability in young children with Down syndrome. **Infant Mental Health Journal**, **29** (2), 133-152.
- Vismara, L.A. & Rogers, S.J. (2008). The Early Start Denver Model: A case study of an innovative practice. **Journal of Early Intervention**, **31** (1), 91-108.
- Vismara, L.A., Colombi, C. & Rogers, S.J. (2009). Can one hour per week of therapy lead to lasting changes in young children with autism? **Autism**, **13** (1) 93-115
- Wallis, D., Musselman, C. & MacKay, S. (2004). Hearing mothers and their deaf children: The relationship between early, ongoing mode match and subsequent mental health functioning in adolescence. **Journal of Deaf Studies and Deaf Education**, **9** (1), 2-14.
- Warren, S.F. & Brady, N.C. (2007). The role of maternal responsivity in the development of children with intellectual disabilities. **Mental Retardation and Developmental Disabilities Research Reviews**, **13** (4), 330-338.
- Weston, D., Ivins, B., Heffron, M. & Sweet, N. (1997). Formulating the centrality of relationships in early intervention: an organisational perspective. **Infants and Young Children**, **9** (3), 1-12.
- Wieder, S. & Greenspan, S.I. (2006). **Engaging Autism: Using the Floortime Approach to Help Children Relate, Communicate, and Think**. Cambridge, Massachusetts: Da Capo Lifelong Books.

CONTACT DETAILS

Dr. Tim Moore

Senior Research Fellow

Centre for Community Child Health,
Murdoch Childrens Research Institute,
The Royal Children's Hospital,
Flemington Road, Parkville, Victoria, Australia 3052

Phone: +61-3-9345 5040

Fax: +61-3-9345 5900

Email: tim.moore@mcri.edu.au

Websites: www.rch.org.au/ccch/media.cfm?doc_id=10705

Of significance was the finding that the organization of people's residential arrangements influenced the sort of fictive family that existed. There were two principal forms of fictive family in the lives of these people those involving social relations with people who were paid to care for them (i.e., staff/workers), and those involving other labelled people who lived in the same home. Colin lived in his own home, with 24-hour paid support. Those people in the study who had strong relationships with their real families were better served. Patterns of family recreation in families that include children with a developmental disability. *Journal of Leisure Research*, 29 (1), Patton, M. Q. (1990). Qualitative evaluation and research methods.