
Fitting the Puzzle Pieces Together: The Complexities of Infant–Mother Interaction and Disorganised Attachment Patterns

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Commentary on DeOliveira, 2004

These authors present an impressive compilation of literature covering some of the growth in the fields of emotion regulation, mother–infant interaction and disorganised attachment patterns. This paper provides a gesture toward the further understanding of interactive processes from complementary models which may help to elucidate our understanding of the environment in which disorganised attachment patterns seem to flourish. This commentary concentrates on the issues surrounding the link between disorganised attachment patterns, mother–infant affective interactions with a special focus on later continuities and discontinuities.

Relationship Specificity

Attachment quality during infancy is best understood as a characteristic of the child–caregiver relationship most readily observable in the Strange Situation Procedure (Ainsworth, Blehar, Waters & Wall, 1978). The Strange Situation may thus be said to provide a reliable index of infant behaviour in response to stress-inducing circumstances, and in doing so provides a window upon young children’s internal working models of their relationships to caregivers. That caregivers’ own unique internal working models of relationships, reflected in their responses to the Adult Attachment Interview, are the most powerful predictor of the infant–caregiver relationship quality, and further underlines the relationship-specific nature of the attachment construct (Steele, Steele & Fonagy, 1996; Van Ijzendoorn & Bakerman-Kranenburg, 1996).

Given reasonable stability in the caregiving environment, these patterns of response to the Strange Situation are reasonably stable over time (Lyons-Ruth, Repacholi, McLeod & Silva, 1991; Vaughn, Egeland, Sroufe & Waters, 1979; Waters, 1979). While there is evidence of an association between specific attachment patterns and some indices of temperament (Goldsmith & Alansky, 1987; Moran & Pederson, 1998) cited by DeOliveira *et al.*, the four main patterns of infant–parent attachment are unlikely to be directly determined by a single property of the child such as temperament (Crockenberg, 1981; van den Boom, 1994). These studies demonstrate the complexity of mother–child attachment as they take into account the role of social support or brief therapeutic interventions which can override the ‘temperament’ factor. The majority of studies which have compared infant–mother attachment quality with infant–father attachment quality report that each infant–parent relationship is

statistically independent of the other (e.g. Main & Weston, 1981; Steele *et al.*, 1996). The child's behaviour upon reunion in the Strange Situation with mother largely reflects the unique history of interactions *with* mother, how she responded to her infant's bids for contact and comfort and how these were experienced by the infant. A different history of interactions is likely to underpin the child's attachment to father. Thus, mutual regulation patterns and parental habits concerning how well they adhere to the optimal sequence of well-mirrored/well-marked/contingent/congruent exchanges (what I will hereafter call 'mirroring and marking') would also, presumably, be different for mother as compared to father. Given robust evidence that infant–parent Disorganisation appears to be relationship-specific, one is prompted to ask whether infant–father and infant–mother interaction patterns when studied by the approaches advocated (Gianino & Tronick and Gergely & Watson) would also be relationship-specific. And if not, how do the typical range of caregiving experiences to which infants are exposed impact upon the development of these socialisation patterns?

Developmental Neuroscience and Attachment

Another point that one is prompted to think about by this article concerns Bowlby's notion that the nature of attachment relationships is that it endures over time and that internal working models once formed are resistant to change (Bowlby, 1979). The Gianino and Tronick and Gergely and Watson models both highlight compelling reasons why this might be so. The sophisticated dance of interactive patterns that occurs between mother and infant either in terms of rupture and repair described by Gianino and Tronick or the mirroring and marking described by Gergely and Watson could be thought of as the building blocks of emotion regulation that the infant accommodates into their own regulatory system, and then becomes anchored in the infant's physiological and neurochemical make-up. Despite the limited behavioural repertoire, the infant employs them so, with tremendous tenacity, and in so doing influence the nature of the interactions so that they become consistent and enduring patterns.

The pivotal influence upon these patterns, promoting the infant's capacity for choice and control, is the quality of maternal care. Diverse strands of evidence support this position, such as the growing body of neuroscientific research highlighting the influence of maternal care upon the infant's brain development. For example, the physiology of the brain is discernibly different in maltreated as compared with well-cared-for infants (Perry *et al.*, 1995, Schore, 2001). This research, taken together with the findings from the infancy researchers that the infant's emotion regulation system is dependent on the quality and nuances of mother–infant affective responses, resonates well with the notion of continuity in relationship patterns. In other words, the complicated interactive dances that typify mother and baby interactions facilitate or dampen the infant's regulatory system and brain development. When things go well as Tronick so aptly describes, 'mutual regulation is one of the processes that shapes the human brain itself. . . . Thus the brain, like emotional experience, is jointly created' (1997, p. 73).

Socialization Models and Infant–Parent Patterns of Attachment

Validation of the negative influences of less than optimal mother–infant interactions in the form of physiological indices of brain development is complemented by a series of independent investigations by attachment researchers investigating the roots of dis-

organisation. This work has highlighted features of Disorganised attachment patterns such as frightening/frightened behaviour on the part of the mother (Lyons-Ruth & Jacobvitz, 1999; Schuengel, Bakermans-Kranenburg, van IJzendoorn & Blom, 1999). Moreover, Lyons-Ruth and colleagues found that infant Disorganised behaviour was predicted by the observed level of disrupted maternal affective communication independent of the influence of discrete observations of frightened or frightening behaviour. They also highlight the important distinction between those infants who are classified Secure-Disorganised and those who show Insecure-Disorganised patterns. Mothers of the Secure group tend toward fearful, inhibited behaviours, while mothers of the Insecure group tend toward displaying to their infants more pervasively frightening behaviours. Schuengel *et al.*'s observation of the discrepancy between those mothers who had been classified as Unresolved, but were otherwise Secure, as compared to those who were Unresolved and Insecure, showed an ability to 'meta-signal' their rough play behaviour with their infants. This meta-signalling has obvious links to the mirroring and marking that Gergely and Watson elaborate. As we apply the interesting models of Gianino and Tronick and Gergely and Watson, in the context of also observing infants and their caregivers in the Strange Situation, it will indeed be fascinating to see if these assumptions can be empirically supported.

This puzzle piece has to some degree been filled in by the literature reporting observations of mother–infant interactions and subsequently observed patterns of infant–mother attachment. The difference between insecure and secure infant–mother pairs has received the most attention. For example, Malatesta, Culver, Tesman and Shepard (1989) found that by analysing maternal and infant facial affects, mothers of Secure infants showed moderate contingency while Insecure Avoidant dyads showed highest levels of contingent behaviour. This may be the single greatest reason why previous attempts to assess maternal sensitivity have yielded mixed results because coders might easily mistake high contingency as sensitive caregiving when indeed this has been shown to be a correlate of insecurity.

This finding of highest contingency in infants who are later classified as avoidant was also found by Jaffe, Beebe, Feldstein, Crown and Jasnow (2001) who investigated vocal rhythm co-ordination during face-to-face play at 4 months in mother–infant dyads and later in Strange Situation interactions. DeOliveira *et al.* mention only very briefly this point which should not be underplayed, citing Gergely (2001) and Nichols, Gergely & Fonagy (2001), who state that older infants have a 'preference for less-than-perfect social contingencies.' It would seem that infants who experience this moderate level of contingency in a relationship are those most likely to develop a Secure attachment to that particular caregiver.

In a more recent study, Koulomzin, Beebe, Anderson, Jaffe, Feldstein & Crown (2002) found that 4-month-old infants, who would later be classified as Securely attached at 12 months, show marked differences across a range of microanalytic indices as compared with infants who would later be classified as Avoidant. Their findings on the differences between the Secure and Insecurely classified dyad provide important data, which fits in well with the infant socialization data. Beebe and her colleagues find evidence in their measures of head/gaze co-ordination patterns in the context of positive and negative affect that the Avoidant infant seems to be working harder to find a mode of self-comfort that is successful. This is an important element as they highlight that the Secure infant has a range of competencies, evident at 4 months, clearly showing their advantage for interpersonal engagement. These include maintaining head/gaze co-ordination in the context of positive affect, the flexibility to

maintain head/gaze co-ordination with or without self-directed tactile mouth, and a greater tendency to vary facial signalling. Looking at mother more with a steadier orientation, regardless of self-comforting behaviours, such infants are well established on a 'secure' pathway. By contrast, it is safe to assume, given the salience of fear responses in the presence of a parent at 1 year in the infant with a Disorganised attachment that the preceding months have often involved the mother and child in mutually fearful interactions, which neither can easily contain.

Continuity, Change, and Resilience

This paper gives rise to what are appropriate and usual concerns around the issue of continuity versus change in attachment patterns (Thompson, 1994). In particular, the current paper by DeOliveira *et al.* assumes continuity from Disorganisation to later psychopathology when this could usefully be set against the background of evidence of so-called lawful or meaningful discontinuity. Despite a growing body of compelling research on the continuities found in attachment behaviour from infant Strange Situation assessments, through childhood and adolescence—especially as related to Disorganisation (see Carlson, 1998)—there are some interesting and provocative findings in the literature on discontinuities. These are of interest in terms of the target article because they focus our attention on how the strategies that children first begin employing within the context of the infant–mother constellation develop and possibly change over time. If the experience of optimal parenting in terms of affect attunement (i.e. Gianino and Tronick's mutual regulation or Gergely and Watson's contingency maximisation and mirroring and marking) takes place, it is easy to estimate that such fortunate children will not form disorganised patterns of attachment and instead will enjoy the good, mentally healthy adaptation associated with secure attachment relationships. However, when we turn to a model of risk and resilience we need to pay attention to the discontinuities, that is, to positive adaptation despite a less than adequate early attachment history. Studies of clinical populations with somewhat counter-intuitive results have emerged regarding developmental trajectories for secure and insecure infant patterns of attachment. These thought-provoking studies highlight the complexity and diversity by which some children arrive at mental health. The work of Marian Radke-Yarrow with families where the primary caregiver suffers from psychopathology is relevant to a discussion on continuities and discontinuities in attachment. Radke-Yarrow's pioneering study is one of the only prospective longitudinal studies with a strong emphasis on the developmental processes and the transmission of psychopathology and adaptation from parent to child (Radke-Yarrow, 1998). This carefully designed study compared children of mothers who were clinically depressed, those with bipolar illness and those without any psychiatric diagnosis at successive stages of their child's psychiatric and psychosocial development. This study has yielded many interesting findings. However, from an attachment point of view what is most striking was the discovery that the children who were classified as securely attached with their mothers with psychiatric symptoms *more* often developed later problems than did the children who were insecurely attached to symptomatic mothers. This of course is counter-intuitive to what attachment theory and research might have predicted. However, if we think for a moment what it might mean for a child to be Securely attached to a mother with psychiatric illness this finding might not be so very surprising. If Security is linked to interactions characterised by being in tune with, and reflecting on the mind, thoughts, feelings and intentions of the other, one can

quickly detect the risks for the child of being 'too close' to the mentally disturbed parent. For if the mind of the parent is at times chaotic or non-responsive, alternating with islands of appropriateness, security may become more of a risk than a safeguard. In this situation of being cared for by a disturbed parent, children who are able to distance themselves, both psychically and even physically, might be set free to explore other relationships and thus be better off.

Other innovative studies such as those conducted by Suomi (1995) have examined the consequences of foster-reared monkeys. Foster-reared monkeys with difficult temperaments but whose unrelated mothers were especially nurturant had positive long-term developmental outcomes where they were able to adeptly recruit support from their group members and even rose to the very top of their social group's dominance hierarchy. These were contrasted by the monkeys with difficult temperaments who, raised by punitive foster mothers, developed 'Insecure' attachments and subsequently display extreme reactions to environmental novelty and stress and ended up at the bottom of their group dominance hierarchy. Interestingly, monkeys with an easy temperament seem less affected by the quality of mothering (Suomi, 1995). A similar finding as to the importance of context was shown to be critical in a study by Werner and Smith (1982) who found that in their study of high- and low-risk families, good parenting was unrelated to child outcome in the low-risk families but critical in the high-risk families.

Individual Differences

In terms of the synthesis of the Gianino and Tronick and Gergely and Watson models with disorganised attachment, it would be interesting to think about how idiosyncratic affect regulation and contingency patterns show individual differences so that in some cases they may not actually lead to a Disorganised attachment pattern. In other words, what qualities in infant–parent interactions reveal something of how the environmental influences which help transmute Disorganised attachment patterns into organised attachments? Are there different aetiologies which give rise to the variations in the expression of disorganised attachment patterns? If the infant/child does show Disorganised attachment patterns with a particular caregiver, in which circumstances can they break from the pattern and move toward more healthy adaptation, i.e. in line with the more optimal functioning caregiver?

We know from ratings of Adult Attachment Interviews where childhood experiences have involved trauma that it is not uncommonly the case that the speaker conveys a sense of moving beyond the fear they felt so often as a child. Additionally, such speakers are capable of going some way toward understanding, though not necessarily forgiving, *caregiving* figure(s) who perpetrated abuse against them as children. In these circumstances, the interview often reveals a robust sense of self, interpersonal awareness and valuing of attachment so that one can say the adult who was abused is not likely to become an abuser. Such resilience invariably emerges out of the individual discovering one or more secure bases or refuges beyond the abusive relationship, such as may be provided by an extended family member, spouse or therapist.

Fear and Anger

We know that in the case of infants whose mothers have been unable to work through to a Resolved state with regard to past trauma or loss there is a propensity for these

infants to form Disorganised attachment relationships (Lyons-Ruth & Jacobovitz, 1999; Main, 1990; Schuengel *et al.*, 1999; Solomon & George 1999). As stated earlier, the underlying process by which the state of mind of the caregiver is conveyed to the infant is thought to be communicated via interactions which are frightening for the infant or in which the caregiver seems frightened by the infant. According to the researchers studying Disorganisation, the affect that is most often highlighted is fear. It is interesting to give further thought to the specific affect(s) that are being displayed by mother and infant in terms of the proposed emotion socialisation model and to think about why it is fear that seems to be the particularly salient affect to mark the disturbances in these dyads. According to Tronick and Weinberg (1997), normal mother–infant interactions consist of a mix of matches of attention and affective state and ruptures of these interactions. Tronick hypothesises ‘that reparation of interactive errors is the critical process of normal interaction that is related to developmental outcome rather than synchrony or positive affect per se’ (1997, p. 65). This then may be one of the critical elements in the relationships of caregivers with states of mind dominated by Unresolved trauma or loss. That is, the inability of the adult to appropriately engage with a child, especially one who may be expressing challenging and negatively tinged behaviour, may leave too many of the ruptures unintended.

We know from some of Bowlby’s earliest writings on affect regulation and specifically on the ambivalence that must exist in every parent, that insecure parents find the child’s negative emotions, especially hatred directed toward the parent, the most difficult and may meet such displays with a similar matched negative response, an averted gaze, withdrawal or display of concomitant anger (Bowlby, 1979). We also have evidence that depressed mothers who are likely to have Insecure/Disorganised attachment patterns with their children, to both exhibit more negative affect (Radke-Yarrow *et al.*, 1993) and to show an increased propensity to pick up on negatively tinged behaviours. Lynne Murray and colleagues have shown that negative mother–child interactions appeared to arise as a function of the depressed mother’s selective sensitivity to signs of distress or negative behaviour in the infant. Depressed mothers were more likely to show breaks both in their attention to the infant, and in their interactive engagement (Murray & Cooper, 1996). Furthermore, Murray posits, ‘it appears that to be sensitively responsive to the infant, thereafter, the mother needs to be free from pre-occupation with other problems as well as from depressive disorders.’

In our own study of maltreated children who are placed in new adoptive homes, we have found an interesting connection between mothers who are rated Unresolved with regard to loss and/or trauma and the children narrative story stem responses (Steele *et al.*, in press). DeOliveira *et al.* cite the literature showing the connection between children who showed Disorganised attachment patterns in infancy who later exhibit catastrophic fantasies in their story stem narratives (Solomon, George & De Jong, 1995). Our findings confirm this connection in that we found that the children’s stories had more instances of aggression, if they were placed with mothers who were rated as having Unresolved responses to the Adult Attachment Interview. Aggression in story stem narratives is a common feature among abused and maltreated children, especially those who have retaliatory fantasies. The children in our adoption study, by virtue of their histories, present as vulnerable in varying degrees. This vulnerability when met with by the vulnerability inherent in the Unresolved parent heightens the vulnerability and intense feeling (fear, anger, sadness) states in both. These children also seem especially well able, perhaps through their own hypersensitivity, to be aware

of the affective states of others. Indeed, their caregivers often report their great skill in ‘pushing the buttons’ of their caregivers.

We also can find evidence for the centrality that the affect of **fear** holds in studies on the neural basis of social cognition. For example, we know that infants are selectively interested in faces that show fear, even within the first year of life (de Haan & Nelson, 1997; Kotsoni *et al.*, 2001). David Skuse in a fascinating review of the literature on recognition of facial affects posits that the ‘display of fear has a particular quality that requires us to interpret what the other person, the individual with the fearful face, is thinking. We might argue that is true also for sadness or happiness or even disgust, but none of these is as important for our immediate well-being as fear (or anger)’ (2003, p. 45). From an evolutionary perspective it does make perfect sense that our survival depends so heavily upon our ability to recognise fear as a guide to the probability that danger must be lurking not far away.

Skuse (2003) remarks on the association between the affects of fear and anger as he cites Adolphs *et al.* (1999)—‘it is not surprising that the same neural circuits that are necessary for the accurate identification of fear are also associated with the identification of anger, and in many studies deficits in the two are correlated’ (in Skuse, 2003, p. 55). Evidence from neuroscience has not yet been able to delineate clearly the connection between fear and anger/aggression but according to neuroscientist Panksepp ‘we now know that circuits for aggression and fear overlap in many areas of the brain’ (1998, p. 203). This highlights the interesting connection between the fear the infant classified as Disorganised is exposed to in interaction with the caregiver and their later propensity for psychopathology (Lyons-Ruth & Jacobovitz, 1999; catastrophic fantasies in narrative and play scenarios: Solomon *et al.*, 1995; Steele *et al.*, 2003).

DeOliveira and colleagues summarise some of the fascinating data concerning abusive mothers, their own emotion representations and their difficulties in ascribing appropriate emotions to their infants. They cite their own work which found that mothers rated as Unresolved on the Adult Attachment Interview gave anomalous responses to the IFEEL Pictures stimuli. However, just as the findings of Radke-Yarrow highlighted some divergent results concerning better adaptation of the Avoidantly attached infants of mentally ill mothers, there is interesting evidence from work with maltreated children and facial affect recognition that highlights the complexity in the field of affect regulation and experience of parenting. The work of Pollak and colleagues (2000) includes studies showing that physically abused children have a propensity to invest more resources in the processing of the facial affect of anger than happy and fearful faces. They also found that physically abused children had more difficulty matching facial displays of sadness to emotional situations. Pollak and Sinha (2002) conducted a fascinating study of physically abused children, who when contrasted with a group of non-abused children showed a propensity to pick up on facial affect displays of anger with greater accuracy and required less information in order to make their judgements. They found no differences in the recognition of fear or happiness. They did however, require more information than their comparison group peers in recognising sadness. The finding around anger fits well with Tronick’s notions on the need for maltreated children to be hypervigilant as to the caregivers’ state of mind, as their survival is dependent on early recognition of the mental state of the adult in charge. Anger on the face of the caregiver may have the most immediate implications for getting out of harm’s way (e.g. ‘am I gonna get hurt?’), while discerning the fearful face may prove helpful in a less immediate way (e.g. ‘do I also need to be afraid?’).

One of the features that is highlighted by this work concerns the need to better understand the link between the recognition and understanding of emotion and the formation of an internal working model that reflects the quality of children's relationships to their parents. In the case of the child who is classified as Disorganised with one or other parent, it is interesting to hypothesise at which level of cognitive functioning or emotional regulation is the system 'Disorganised'? In other words, what is it that is Disorganised? Are the representations themselves of a poor quality so that they are fuzzy and not readily accessible? Or is it the case that the internal working model is faulty so that it has difficulty integrating and making available for conscious access representations (which may be quite clear)? A third option may be that these systems are so interconnected that this question is not answerable. For some time we have relied upon robust measures such as the Adult Attachment Interview and the Strange Situation which give us reliable expressions of these processes in speech and behaviour. DeOliveira and colleagues have provided a compelling fresh start from which to begin investigating some of the many gaps in the puzzle that typifies the complexities of parent-child relationships and social development.

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