

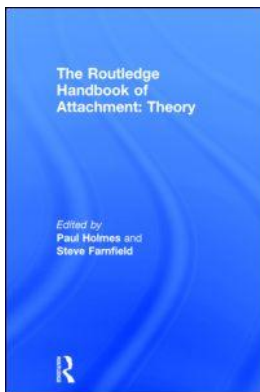
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The Dynamic-Maturational Model (DMM) of attachment

Steve Farnfield and Martin Stokow

Introduction

This chapter gives an introduction to Patricia Crittenden's Dynamic-Maturational Model (DMM) of attachment in terms of its theoretical underpinnings and array of strategies. The DMM represents a significant split from the mainstream of attachment theory, a split which, like many family disagreements, has generated considerable emotional heat at times while the origins of the arguments are difficult to locate.

The intellectual debate tends to coalesce around the concept of 'disorganisation'. Put simply Mary Ainsworth's pioneering work on the Strange Situation procedure (SSP) identified three types of infant attachment behaviour which Ainsworth and Bowlby decided to call A, B and C until they had a better idea of what they meant (Karen 1998) (see also Van Rosmalen *et al.* Chapter 1 and Fonagy *et al.* Chapter 2 in this book). However, there were a number of video tapes that did not fit the ABC categories, some of which involved infants who had been maltreated. In 1982 Mary Ainsworth discussed these anomalies with two of her students, Mary Main and Patricia Crittenden. Their debate focused on the discrepancy between the observed behaviour (about which they mostly agreed) and the meaning of this behaviour, on which they deeply disagreed (Crittenden, personal communication). This was a crucial meeting which set off two branches of research and theorising.

On one side, Main and Solomon conceptualised the discrepant infant behaviour in terms of collapses or interruptions to organised behaviour when under stress (an approach-avoidance conflict when faced with a frightened or frightening attachment figure) which they termed 'disorganized and/or disorientated' together with a best fitting Type A, B, C category (Main & Solomon 1986, 1990; Main 1995; see also Shemmings in Chapter 5).

For her part, Crittenden interpreted most of the same behaviours in terms of alternating use of the A and C strategies or A/C together with precursors of what she later called in the DMM A3-4 and C3-4 patterns. The DMM further subdivides the A and C types into subgroups as we describe below (Crittenden 1985, 1995). The alternating Type A/C was also proposed by Radke-Yarrow and colleagues (Radke-Yarrow *et al.* 1985).

This analysis of the atypical infant responses to the SSP established two pathways of theory and research which we refer to as ABC + D and the DMM; the second of which is the subject of this chapter.

Back to Darwin: the environment of evolutionary adaptedness

Bowlby was fascinated by both Darwin's scientific theories and by Darwin as a man and published a biography of him (Bowlby 1991). Attachment has been described as a middle level evolutionary theory (Simpson & Belsky 2008) in that it can use empirical research to test aspects of a universal or grand theory (Darwin's evolutionary theory) (Merton 1949). The function of attachment is to protect the self and one's progeny long enough for our genes to be passed on through succeeding generations. In order to understand how this process developed Bowlby argued it is necessary to establish a model of the environment of evolutionary adaptedness (EEA) in which our ancestors lived for two million years (Bowlby 1969).

Adaptation to different environmental conditions requires not one but a variety of responses for both self-protection and reproduction and survival of the species. Bowlby and Ainsworth wanted to explain the conditions under which the insecure A and C infant patterns might be functional. However, despite Bowlby's emphasis on the threats posed by climate and predators there was a tendency among early attachment theorists to privilege secure attachment over the insecure patterns (Simpson & Belsky 2008). The result was that balanced or secure Type B became something of a 'natural' or desired state, while the A and C variants were seen as pathological.

Crittenden goes back to the evolutionary roots of the theory by emphasising danger, not safety, as the dominant feature of the EEA. By extension she argues that no single attachment strategy¹ has primacy over others, so that humans will have evolved a variety of responses to danger in order to maximise survival and reproductive fitness (passing on our genes). In doing so Crittenden ties together survival, which was the focus of much of the early work on infant attachment, with mate selection, sexual behaviour and reproduction (Crittenden 2002, 2008).

Just as survival is enhanced by the availability of a range of self-protective strategies, so reproductive success is increased by various forms of mate selection and caregiving (parenting). To give an example, when conditions are safe people can defer reproduction and have fewer children on whom they can devote more attention. Conversely harsh environments, such as those involving poverty or conflict, are conducive to earlier reproduction and having more children for whom parental resources are spread more thinly (Simpson & Belsky 2008; Barkow *et al.* 1992).

Taken together, staying alive and reproducing constitute the basic biological imperatives of any species. For humans, these result in three related, but sometimes competing, motivations: protecting the self, finding a sexual partner, and protecting one's progeny until they reach reproductive maturity (Crittenden 2008: 11).

Thus Crittenden defines attachment as having three equally important aspects:

- 1 a unique, enduring, and affectively charged relationship (e.g., with one's mother, with one's spouse);
- 2 a strategy for protecting oneself (of which there are three basic strategies, Types A, B, and C, as identified by Ainsworth, and many sub-strategies, as described by the DMM);
- 3 The pattern of information processing that underlies the strategies.

(Crittenden 2008: 12)

Dispositional representations

Information processing was introduced into attachment theory by Bowlby (1980) and provides the motor for DMM theory. We give a brief introduction in the next section before presenting the array of DMM strategies, after which we return to information processing, in terms of memory systems, in more detail.

The human brain is conceptualised by Crittenden as an organ devoted to receiving signals from the body together with stimulæ from the environment in order to generate meaning regarding danger and sexual opportunity. The word 'mind' can be construed as referring to the mental representations of this information which occur at both conscious and unconscious levels (Crittenden 1994). These mental representations are continually reworked according to the intensity of the stimulæ and the perceived levels of threat in the environment.

Current work in cognitive neuroscience, which was unavailable to Bowlby, indicates that representation is an active process with more than one representation being generated for every interaction with attachment figures and, indeed, all other situations. For example, that most cited of attachment figures, your mother, does not exist as a complete person in a single site of your brain but all over it in many Dispositional Representations (Damasio 1994). Damasio uses the term 'Dispositional Representations' to indicate the wide range of possibilities that come to mind every time you think about 'your mother'. These possible mothers are the product of all the interactions you have had with her over time, including the thoughts you have had about her when she was not even there.² When you think about 'mother' she will be reconstructed in a variety of ways: her voice, odour, face, caress and so on. And every time you think about her the mothers in your mind are reworked. Hence memories are not so much pictures in the head but the traces in the brain made by the last time your mother came to mind (Damasio 2000).

To match this complexity of representation, Crittenden has replaced Bowlby's use of the 'internal working model' with the term 'Dispositional Representations' (DRs) (Crittenden 2006). A DR of attachment is a disposition to act that connects the child or person to the context in a particular way, together with an expected outcome of their action (Crittenden, personal communication). DRs are physiological or bodily states. They lie dormant and implicit but many of them can be made explicit at any time and simultaneously. In developmental terms, Damasio

sees layers of DRs beginning with genetically given dispositions, those acquired in the interaction of genes and the environment (Bowlby's first three phases of attachment, see Marvin & Britner 2008) and, living in the shadow of these layers, dispositions that are formed and constantly reworked by autobiographical or episodic memory (phase 4 and the rest of your life) (Damasio 2000). The mother in your brain exists in different sites and Type B mental integration (associated with the highest level of mentalisation see Allen 2013) depends on interconnections between these sites (see Damasio 2000: 223).

Seen like this, the approach/flight response of 'disorganised' infants is the result of a conflict between the genetic disposition to attach (approach and seek safety) and the learning that has taken place following abuse or rejection that approach to a 'secure base' might not bring safety. The availability of a conscious autobiographical or episodic memory (see below) would offer the possibility of a more organised response which, in many cases, is what happens; i.e. with development disorganised infants develop an organised, albeit insecure, attachment strategy (Main & Cassidy 1988; Solomon & George 2011).

Rather than an aberration, multiple, and possibly mutually conflicting, dispositions actually appear to be the norm. What matters is the ability to organise them in the mind which, in turn, means the various dispositions of mother are brought together and integrated in convergence zones in the brain; a position very similar to the one predicted by Bowlby (1973). This can only be done under conditions of moderate arousal (i.e. safety).

Transformations of information: cognition and affect

Transformation of sensory information produces meaning in the mind. In line with Bowlby's 'defensive exclusion', insecure attachment strategies can be defined in terms of how the mind distorts or omits information which, if it were psychologically available for processing, would increase anxiety to unbearable levels (Bowlby 1980). Conversely, secure Type B attachment involves a relatively low level of distortion or omission associated with greater periods of safety, which allow reflection, and lower levels of anxiety.

In the DMM the simplest forms of transformation of information are organised according to cognition and affect, i.e. two of the three traditional dimensions of mental functioning (Le Doux 2002). The third is motivation, which in the DMM refers to protection of the self from danger and, in adulthood, sex and reproduction together with protection of our offspring.

Crittenden's use of the term cognition is restricted to learned behaviour based on temporal order. In the DMM-based analysis of the Adult Attachment Interview (AAI) speech patterns (discourse analysis), cognitive statements typically take a when/then or if/then form. For example, 'When my gran was at home I knew my father wouldn't touch me'. Cognition provides information about the relationship between events or causality. Crittenden refers to this as the 'when' in a sequence of one's behaviour there might be danger or sexual opportunity.

In Crittenden's theory affect refers to the intensity of feelings when under stress, with particular emphasis on three physical states: the *desire* for comfort and nurture which motivates approach; *anger* (fight); and *fear* of hurt or abandonment (flight or freezing). Affective information is tied to the context; a sudden noise or eerie silence; the smell of alcohol or feeling someone is behind you – all signal changes in the environment and indicate 'where' in relation to the self there might be danger or sexual opportunity (Crittenden & Landini 2011).

Both sources of information are prone to error. We can think or feel we are safe when we are actually in danger and vice versa. Crittenden lists seven transformations of cognitive and affective information:

- Truly predictive.
- Erroneous information.
- Distorted information such as idealising (Type A) or excessively blaming (Type C) an attachment figure.
- Omitted information. For example disregarding one's desire for comfort in Type A or the complexity of causal relations in Type C.
- False information such as smiles that cover anger: Type A+ false positive affect (below) or deception in Type C+ regarding the true intention of an aggressor.
- Denied information such as denial of negative affect in Type A or one's own part in causing a dangerous event in Type C.
- Delusional information. For example idealisation of an attachment figure who was actually abusive (Type A7 below) or delusional representations of the self as all-powerful and others as evil (Type C7-8).

Strategies: the Dynamic-Maturational Model of attachment

The DMM strategies are clustered in five developmental stages: infancy; preschool; school age; adolescence and adulthood. These stages offer the possibility of deepening the strategic use of existing strategies or reorganising to a new strategy that comes 'on stream' with increasing age and social, emotional and cognitive maturation. These possible developments are noted by the higher number added to the A and C attachment strategies (e.g. C4 or A5). In DMM notation a plus sign is used as a shorthand to convey DMM strategies A3-8 (i.e. A+) and C3-8 (C+).

Infancy

Figure 3.1 depicts the Ainsworth ABC infant strategies which are observable in the SSP at 11 to 15 months (Ainsworth *et al.* 1978; Ainsworth & Wittig 1969) together with the DMM extensions (see above). Coding of A1-2, B1-4 and C1-2 strategies produces similar results whichever system of analysis (ABC + D or DMM) is used. Crittenden added B5.

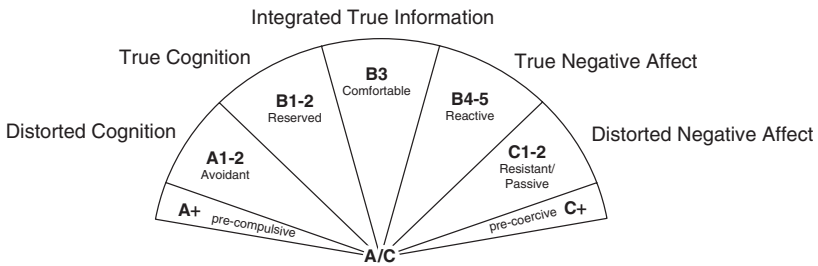


Figure 3.1 Infant attachment strategies (Dr Patricia Crittenden: with permission)

Infants in Type B have integrated cognitive and affective information – ‘I feel cold, I cry, my mother comes, she does useful things, I feel better.’ Needless to say this is done at a procedural not conscious level but affective signals from the child predictably elicit positive outcomes.

Infants in Type A1-2 have attachment figures who reject unnecessary displays of attachment seeking behaviour. These infants learn to control the display of negative affect (anger/desire for comfort) forbidden by their parents, thus taking something of their parent’s perspective on what is ‘good’ or ‘bad’ about their own behaviour. Although all infants do this, those in Type A1-2 overemphasise the need to inhibit the feelings adults in their life dislike. Their carers tend to be protective but not comforting and so for the children cognition is a better predictor of how to act than affect which can lead to trouble.

The proportion of infants in normative samples whose behaviour is rated Type C in the SSP is about 6–7 per cent (Cassibba *et al.* 2013) but shows a rise in the preschool years (NICHD 2001) with, what in the UK is called the ‘terrible twos’ for whom expressed affect is all powerful. Not all cultures identify toddlers as difficult, suggesting perhaps that the Type A in British society has found displays of affect difficult to manage!

Crittenden argues that the organisation of coercive (Type C) behaviour depends on the growing ability of toddlers to understand the impact of their behaviour on their attachment figures; i.e. emergent mentalising (the capacity to understand the minds of other people) can be used cooperatively to solve problems, as in Type B, or to regulate the behaviour of others (Type C) (Crittenden 2000).

The attachment figures of children in Type C1-2 tend to be comforting and responsive at least some of the time (they are inconsistently emotionally available to the child), typically attending to behaviour they express not to want while ignoring positive behaviour. In order to maintain parental attention their children learn to exaggerate the display of strong or negative affect: Type C1 (threateningly angry strategies to obtain attention and comfort) and C2 (disarmingly and demandingly desirous of comfort). Infants in Type C rely on affective logic rather than cognitive information.

The criteria for D (Disorganised and/or disorientated; Main & Solomon 1990) overlap with the DMM subclassifications; that is A/C, pre-compulsive and pre-coercive.

The infant ABC strategies do not necessarily mature into higher DMM subscripts. That is, a child may start in Type B and remain secure for the rest of her life, likewise children in Types A1-2 and C1-2. Although the strategic range of their attachment behaviour will expand with age and experience the self-protective function of the ABC strategies remains the same; i.e. people in A inhibit negative affect, those in C exaggerate one or more negative affects and those in Type B use these strategies in an even-handed and integrated way.

Preschool and school age

The preschool and school years are combined in [Figure 3.2](#).

Types A and C

A3 and 4

One of Crittenden's major contributions to understanding development under less than optimal conditions is compulsivity in the Type A+ strategies. Whereas infants in Type A1-2 learn to inhibit unnecessary displays of forbidden negative affect, maturation in the preschool years enables more threatened children to increase the strategy by displays of false positive affect (e.g. smiling when feeling rejected) which function to elicit adult approval. Compulsive behaviour means the child or adult feels compelled to act in certain ways in order to maximise the possibility of safety. This concept has strong antecedents in the literature including Winnicott's

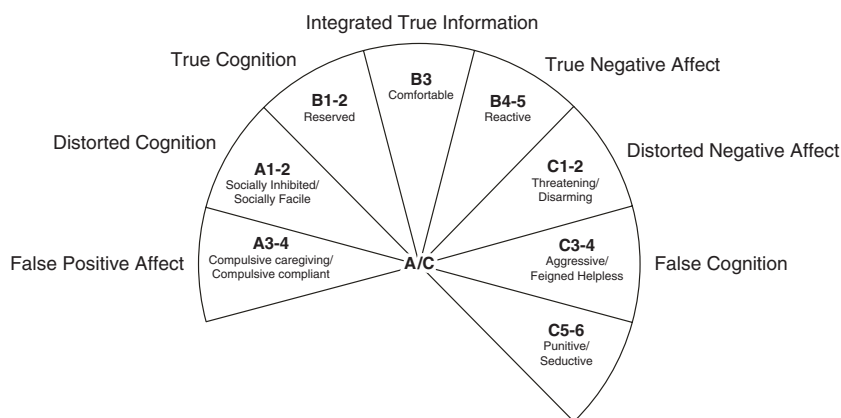


Figure 3.2 Strategies in the preschool and school years (Dr Patricia Crittenden: with permission)

observations on a ‘false self’ (Winnicott 1960) and Ferenczi’s on the child as a little psychiatrist who learns to read the behaviour of mad and abusive adults thus taking on the perspective of her aggressors (Ferenczi 1933).

Pre-schoolers in Type A3 (compulsive caregiving) inhibit the desire for comfort and nurture while displaying a false brightness that functions to maintain the psychological availability of carers who are, typically, withdrawn and sometimes depressed and thus consistently emotionally absent for the child. Some of these children are predicted to go on to become health and social care professionals while those in Type A1-2 may enter professions that stress the importance of cognition and the inhibition of overtly expressed emotion, such as academics or lawyers.

Those in Type A4 (compulsive compliance) inhibit anger and conform to the demands of controlling, sometimes frankly abusive parents (Crittenden 1992b; Crittenden & Landini 2011: 158ff.).

Subtypes of these strategies are Type A3- (compulsive attention to a psychologically needy but not abusive or withdrawn parent) and Type A4- compulsive performance in which parental approval, and hence affirmation of the self, is achieved at the expense of becoming the child parents want (excelling academically or in sports, for example).

C3 and 4

The term coy behaviour was first used by Hinde (1982). The crucial (intrinsic biological) features of coy behaviour are: exposure of neck, belly, and genitals, smiling with covered teeth, looking out of the corner of the eyes, a ‘broken ankle’ stance, and the no weapons or praying hands. All these behaviours signal that the child is no threat and adorable. Used on its own coy behaviour enables a ‘cute kid’ to elicit positive attention from adults and, when used in conjunction with threatening or even aggressive behaviour, disarms adult authority and aggression. With practice this strategy can involve deception; Johnny in Type C3 is not as aggressive as he looks (inside he is anxious and vulnerable) and Hattie in Type C4 is not so cute and vulnerable as she appears (inside she is angry). Both children may alternate angry-disarming strategies according to adult responses, thus maintaining attention on themselves for considerable periods of time. This is particularly useful in circumstances where children are not only confronted with temporarily unavailable attachment figures, but are threatened by them or deceived regarding dangerous situations (Crittenden & Landini 2011: 197).

The similarity of (childlike) coy behaviour with (adult) sexual behaviour is of considerable importance as the sexual abuse of children frequently includes adult misinterpretation of childlike coy behaviour as sexual signals (Crittenden 2008: 26ff.).

C5 and 6

In the school years the DMM sees an extension on the C side with the C5-6 obsessive strategies (Crittenden 1994). These strategies develop when the relatively

simple bluff of the C3-4 strategies no longer elicits parental attention and caregiving. Due to their maturing cognitive abilities, school-aged children are now much better able to deceive adults than they were in the preschool period. Their attachment figures are either unavailable or overprotective, may threaten or deceive the children. In particular, the family system is frequently organised around adult behaviours that involve the child without explaining the motives behind it (Marvin 2003; Dallos 2014); for example, Johnny is not daddy’s child but everyone pretends he is while sometimes acting as if he is not. Johnny does not understand why and how things happen and tends to over-attribute the cause of problems to himself (note the massive problem Johnny has with source memory – see modifiers below).

A5 and 6

While caregiving conducive to Type C+ is enmeshed and triangulated the child in Type A+ finds no easy way of eliciting care (Marvin 2003; Dallos 2014). While children in Type C+ sometimes act as if they feel invisible and not held in the minds of their parents those in Type A+ act as if they would like to be invisible because they have a pervasive sense of shame.

Adolescence and adulthood

Figure 3.3 shows the A5-6 strategies available in adolescence together with the full range of DMM adult patterns.

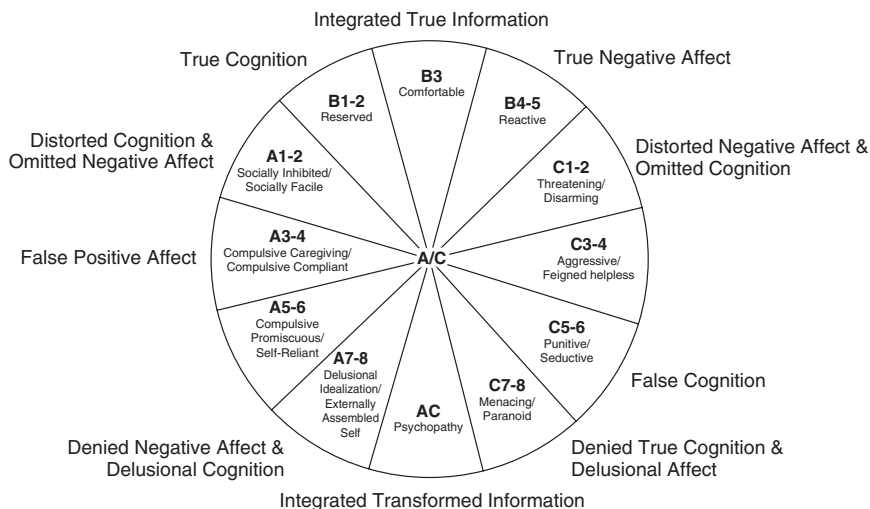


Figure 3.3 Adolescent and adult strategies (Dr Patricia Crittenden: with permission)

In adolescence, ‘the onset of sexual desire and behaviour’, writes Crittenden, ‘changes . . . everything!’ (Crittenden 2008: 55). With sexual maturity children in Type A+ face a contradictory imperative: sex requires a partner but intimacy in Type A promotes anxiety. Possible solutions to this are Type A5 compulsive promiscuity (sexual and/or social) and Type A6 compulsive self-reliance. In some cases these develop out of the failure of the Type A3-4 strategies to yield protection in the school years.

Attachment is often described as a theory of affect regulation. Crittenden highlights the difference between mid-range states of arousal, such as anger, desire for comfort, boredom, and the extremes such as rage, terror, depression. People in extremis ‘live on the edge’; they experience and exhibit extreme emotional states which can alarm, frighten or sometimes seduce other people, including professionals, as well as jam other people’s thought processes.

Arousal in Type A+ may swing from intensely low, depressed states, to outbursts of forbidden affects (see modifiers below) involving rage and or sexual aggression. The absence of an authentic self can lead to acts of self-harming which are designed not to worry and elicit the attention of others (as in Type C6) but as a last ditch effort to locate a self that can feel something, so that the intrusion of pain ‘becomes the only and last resort to feeling alive’ (Sahhar 2014).

Of particular interest is the confusion of anxious arousal, associated with self-protection, with sexual arousal. This is important for understanding situations where this confusion leads, for example, to child sexual abuse; intra-family incest where the perpetrator seeks comfort but misreads the child’s behavioural signals and his own bodily signals. Note this approach to incest, as an adult comfort disorder, is counter to the dominant model of perpetrator power and grooming.

The crossover between sex and danger is of equal importance with regard to high states of sexual arousal which switch from aggression to submission (sado-masochistic sex), sexual terror and pain to possible death (Crittenden 2008). These are features of work with people in extremis and the DMM offers a way of thinking about them without resorting to moral judgements.

A7-8 and C7-8

Psychopathology in adulthood is seen in DMM terms as attempts at self-protection or finding a reproductive partner which are maladaptive. That is, strategies which were functional and self-protective when first developed in childhood have become dysfunctional because the environment and/or the self have changed (Crittenden 2002). In particular, strategies forged under dangerous circumstances may result in isolation or conflict when the context becomes safer.

Those people in Types A7-8 and C7-8 run high risks of psychopathology. Type A7 approximates to the Stockholm syndrome, whereby attachment figures who were life threateningly dangerous during childhood are now construed as protective and loving. This is also a likely outcome of abuse in an adult relationship (domestic violence). The Type A8 pattern reflects a loss of self-representation

in the context of (normally very early) absent attachment figures, as in multiple out-of-home placements. Individuals using this pattern refer to the external world, in particular the opinions of doctors, therapists, social workers and official records and reports as a means of establishing their identity (Crittenden & Landini 2011).

Whereas anger/vengeance and seductive vulnerability in the C5-6 strategies are focused, in C7-8, anger and or fear become pervasive to the point where comfort and safety are no longer deemed possible and overtures of nurture and concern from other people may be misread as concealed threats. Type C7 exaggerates anger menacingly, often in pre-emptive attacks, whereas Type C8 exaggerates fear to the point of paranoia. The C7-8 defences are likely forged in home environments where the child was deceived in order to be abused or where parental signals of love and nurture resulted in pain, rejection and humiliation. People in Type C7-8 are thus likely to be deeply suspicious of overtures of compassion and nurture from well meaning professionals in what the AAI terms Type naive B.

Survival under high levels of threat also heightens the risk of inflicting injury on the self and others. People in Type C5-8 are capable of becoming so consumed with revenge, for example, that they take risks with their own safety and those of their progeny. Risks in Type A+ include greater vulnerability to depression than the B and C strategies. This is due to the inhibition of forbidden negative affect together with over-attributing responsibility to the self for relationship problems. Intrusions of (forbidden) negative affect (INAs, see below) can result in explosions of rage or sexual violence with obvious consequences to the victim. Likewise the dismissal of other people's feelings in the C5-8 patterns enables sadistic, planned rather than spontaneous, attacks on other people.

One of the important aspects of this part of DMM theory is its relation to the work by Fonagy and colleagues on mentalising; the ability to differentiate between one's own mental states and those of other people (Allen 2013; and see Chapter 6). The capacity to mentalise adequately represents the optimum form of information processing in humans and so has a desired state rather similar to the primacy sometimes given to secure attachment. However, Crittenden emphasises that under some dangerous circumstances distortions of mentalising have more self-protective value than true mentalising. It can also be used to harm others. For example, intelligent psychopathy in the DMM – the integration of false, denied and delusional information – could result in accurate reading of other people's mental states in order to harm or exploit them (Crittenden & Landini 2011).

Lack of resolution of loss and trauma and modifiers

The DMM adult patterns together with most forms of lack of resolution and the modifiers were theorised by Crittenden from the coding of thousands of AAIs (Crittenden & Landini 2011: 336). This has been followed by a small but growing number of empirical studies using the DMM-AAI with clinical (e.g. Zachrisson & Kulbotten 2006; Ringer & Crittenden 2007; Crittenden & Newman 2010;

Farnfield in press) and normative populations (Strathearn *et al.* 2009; Shah *et al.* 2010; Hautamäki *et al.* 2010).

As noted above, the DMM A+ and C+ strategies are functional within the context under which they were developed. As a rough generalisation people in the top third (A1-2, B1-5 and C1-2) are expected to show few major psychosocial problems, those in the middle segments (A3-6 and C3-6) to run increasingly greater risks of such problems and those in the bottom part of the model (A7-8 and C7-8) are expected to experience major problems with a significant proportion showing up in clinical in-patient populations and prison. Likewise the further we go down the DMM model the greater the expected increase in unresolved loss and trauma.

Lack of resolution

Crittenden likens the impact of unresolved loss and trauma to land mines: we are proceeding using an established strategy when suddenly – boom! Bad things flood in from the past and our strategic Type A or C behaviour breaks down. In line with the psychiatric clusters of posttraumatic symptoms, lack of resolution follows a dismissed (Type A) or preoccupied (Type C) form; frequently the two are combined in an alternating fashion. Unresolved loss (typically death of an attachment figure or sibling) also involves the dismissal and/or preoccupation with the impact of the death on the self.

In the DMM-AAI Crittenden identifies 14 different forms of lack of resolution: dismissed forms (dismissed, displaced, blocked and denied), preoccupying forms (preoccupied, vicarious, imagined, suggested, hinted and anticipated) and others (delusional repair, delusional revenge, disorganised, depressed) (Crittenden & Landini 2011).

Modifiers

Whereas the ‘land mines’ associated with the lack of resolution may temporarily disrupt strategies, ‘modifiers are like a full-fledged, unlimited (by time or space) war. Nothing is safe or comfortable and the individual has no self-protective strategy’ (Crittenden & Landini 2011: 254–5). Hence modifiers can result in a major disruption to psychosocial functioning by rendering attachment behaviour non-strategic for, sometimes, long periods of time.

Depression

Depression was identified as a modifier during the development of the Preschool Assessment of Attachment (PAA), the DMM equivalent of the Cassidy Marvin system (Cassidy *et al.* 1987–92), both of which use the SSP. The other modifiers are coded for in the child systems but originate from work on the DMM-AAI. Depression is not a proxy psychiatric diagnosis but refers to an awareness by the subject that their strategy (A, B or C) does not function strategically. Signifying

behaviours of depression, such as flat affect, hopelessness, together with negative beliefs about the self and the future are also relevant depending on which procedure (child or adult) is being coded.

Intrusions of forbidden negative affect

Intrusions of forbidden negative affect (INAs) refer to explosive intrusions of rage or sexual behaviour in a Type A3-8 strategy. Essentially, inhibition breaks down and the person loses control of the self. Unlike people in Type C who are adept at using displays of emotion strategically, those in Type A+ have no such control, with the result that they may commit serious acts of violence followed by deep remorse and, sometimes, the inability to remember what they did (Crittenden & Landini 2011).

Disorientation

Disorientation means the speaker, in a DMM-AAI, has problems with source memory leading to confusion regarding the contents of one's own mind. Johnny gives too much self-relevance to information that had more complex sources but which even in adulthood remain hidden to him. Disorientation always modifies a Type A/C pattern in which the speaker seems to flip from A to C and back again without finding that either strategy (other people's perspective in A and self-perspective in C) organises their behaviour in a self-protective fashion. Disorientation was also a feature of a significant number of DMM-AAIs with prospective adoptive parents who appeared confused regarding fertility, i.e. whether they wanted to pass on their own genes or those of the child they might adopt (Farnfield 2012).

Expressed somatic symptoms

Expressed somatic symptoms are non-verbal behaviours that, in the AAI, interfere with the interpersonal process of the interview. These include behaviours such as tics, repeated coughing without a cold, jigging parts of the body and even falling asleep. Crittenden and Landini note that 'it is thought that [expressed somatic symptoms] represent conflict between what is known or suspected and what one is permitted to know or to say' (2011: 270).

Reorganisation

Finally reorganisation modifies strategic functioning because it involves integrating previously distorted information to achieve a more balanced Type B strategy.

Memory systems

The clinical attraction of the DMM lies in its potential to help formulate interventions that meet the needs of specific individuals. As Crittenden notes, the only

information we have is about the past but the information we actually need is that which will predict dangers in the future (Crittenden 2002: 72). Thus current behaviour is biased towards responses influenced by past experience.

A central feature of the DMM is Crittenden's expansion of Bowlby's use of memory systems in the processing of information about safety, danger and reproduction. An understanding of an individual's use of different memory systems, through for example an analysis of an AAI transcript, allows for an understanding of the strategies they use for their self-protection.

The DMM employs six types of representation or memory systems (see [Figure 3.4](#)) which are organised in four different ways: cognitive or affective and implicit or explicit (unconscious and conscious) (Schacter & Tulving 1994; Crittenden 2008). All but one, connotative language, will be familiar to cognitive psychologists.

Implicit memory systems

Implicit memory starts to function in infancy and before the development of language.

Procedural memory is cognitively based and describes 'knowing how' to do things, like riding a bicycle or playing piano, without having to think about what we are doing. In terms of attachment, procedural memory is assessed by the infant

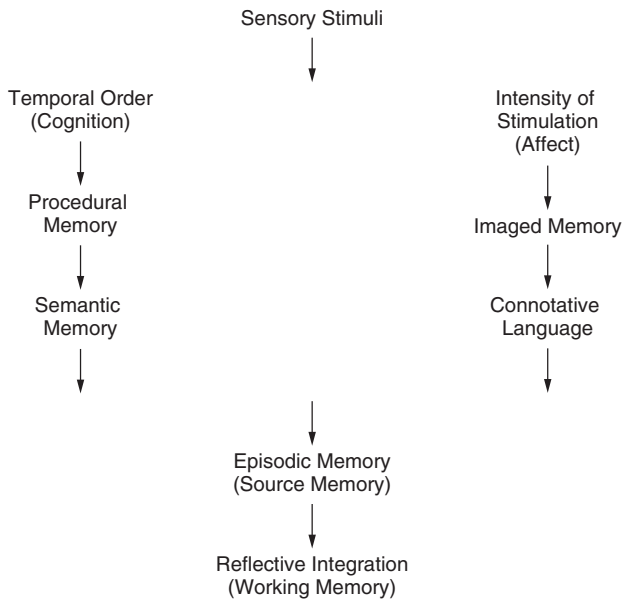


Figure 3.4 Transformation of information: the organisation of memory systems (Dr Patricia Crittenden: with permission)

SSP, i.e. what the infant has learned regarding the likely response of his mother when he feels and shows distress.

Imaged memory is organised around sensory inputs and consists of the impressions from all five senses that accompany our experiences. Images of touch, taste and smell are particularly powerful.

Explicit memory systems

Explicit memory systems (associated with memories that can be actively recalled) develop later.

Semantic memory develops, with language, from the second year of life and can be thought of as procedural memory in a verbal form. It includes family scripts as to how to behave and, in the preschool years, involves children adopting parental observations about their own behaviour. For example, ‘good girl, you put away your toys’ can form the basis of a rule, namely: ‘Mummy approves of girls who tidy their toys.’

Connotative language has been introduced by Crittenden as the verbal counterpart of imaged memory. Language may arouse the self, and others, with rhyme or alliteration (‘you pot bellied bastard piss off!’) or function in a dry, analytic way to control or down-regulate affective states (‘one doesn’t usually get annoyed about such things but there’s a time and place’).

Episodic memory

Unlike semantic memory, which functions to abstract common information across multiple experiences, *episodic memory* most approximates to the common meaning of memory; a story about a time when something happened (Bowlby 1980). It develops from the third year of life and consists of the integration of cognitive and affective information about past events. Episodic memory ‘is a transient construction that contains not only reactivation of neural networks that were active during the event itself, but also networks that represent the state of the self in the present’ (Crittenden & Landini 2011: 61) Hence, we continue to work on our ‘episodes’ long after the actual event.

An important subset of episodic memory is source memory. In the preschool years attachment figures are crucial in helping children to scaffold memories and organise their experience. Although pre-schoolers are not totally reliant on adults to generate information, in the school years children are able to distinguish between what they ‘know’ from what their parents tell them: ‘Mum says he’s just a friend but I know they sleep together.’ That is, they are able to identify both what they know or think and the source of the information. In adults this also includes awareness that a childhood ‘memory’ ‘could be something I saw or maybe I remember it because my mother was always talking about it’.

In the DMM-AAI the disorientated modifier, which is outlined above, refers to interviews in which the speaker is confused regarding source memory.

Working memory

Rather than a memory system, working memory refers to the process by which information from the other systems is available for inspection. Le Doux calls it a work space (Le Doux 2002). Working memory is an active process in which past and present information can be integrated to create new DRs but, as noted above, this takes time which is not available when we are anxious or under threat or, indeed, sexually aroused.

Implications

Self-protective strategies are largely a matter of perception, i.e. whether they work is less important than believing they work. It is as if people (all of us) get stuck in their 'default' mode in which they, and indeed entire societies, do things which, from the vantage of an outsider, appear to be manifestly bad for them but which, to the people involved, appear to be the only courses of action available to them. Thus, over time, it is not safety that relieves anxiety so much as enacting the strategy we believe will make us safer.

Like all models of behaviour the A+ and C+ strategies are not 'real' but cardboard cut-outs that approximate to reality. Nor are they describing freakish behaviour. What they do describe are exaggerations of typical behaviour. People in Type A+ and C+ overemphasise one or more sources of information at the expense of others. We can also argue that Type B3 does not exist except as the true integration of A and C strategies.

Working with memory systems is very useful in pinpointing what services should be offered and how services might be calibrated for a particular person. To take two simple examples: therapies based on cognitive restructuring, such as cognitive behavioural therapy (CBT), might be effective with people in Type C+ who 'live' in imaged and episodic memory but omit semantic memory from processing. On the other hand, cognitive therapies may be actually harmful for people in Type A who dismiss the impact of imaged and episodic memory and distort semantic memory with regard to over-identifying the self as a cause of current problems (Crittenden 1992a; Main 1995). These people might benefit from a therapeutic process that works with emotions and allows them to start to trust their feelings more (Baim & Morrison 2011).

However, therapies such as CBT or dialectical behaviour therapy (DBT), which includes cognitive behavioural techniques for affect regulation and reality testing together with mindful awareness (Linehan & Dimeff 2001), may assist those who are in Type C and over-reliant on affect-based strategies. Further, the process of therapy can be deepened if we are able to identify and work with the memory system prominent in the moment. Attunement with the client is a feature of all therapeutic modalities, or in Allen's terms, 'plain old therapy' (Allen 2013).

Attachment trauma and posttraumatic stress disorder

The majority of traumas met with in general professional practice are attachment based; they stem from child abuse in which the trauma was either caused by attachment figures or carers who manifestly failed to protect the child when protection was, in fact, possible, i.e. neglect. Allen (2013) views attachment trauma as both what happens in attachment relationships and the impact that trauma has on the ability to mentalise and form secure attachment relationships in the future. All child abuse is fundamentally emotional abuse, in Allen's terms involving a pervasive failure by abusive carers to mentalise (see Luyten & Fonagy in Chapter 6) and thus neglect is central to attachment trauma.

Rather than, in Winnicott's terms, finding a self while alone in the mentalising presence of a parent (Winnicott 1971), abused children suffer alone and without anyone to help them make sense of what is happening to them. Trust has been betrayed and the child grows up unable to trust anyone, including therapists (Allen 2013).

One of the challenges for attachment research is to reliably distinguish insecure attachment from posttraumatic stress disorder (PTSD) and, crucially, the effect that each has on the other. Our experience with the DMM is that the model is like the map of a solar system which works pretty well in explaining the orbit of observable planets (A3-8 and C3-8) and can give a satisfactory account of some of their atypical movements (trauma and loss together with modifiers). However, inevitably, in the outer circles of the model involving people with very complex histories we encounter forces about whose meaning we can only speculate (traumatic black holes maybe).

Although the initial work on disorganisation by Main and colleagues established a link between child maltreatment and disorganisation on the infant SSP (Main & Solomon 1986) and between unresolved status on the parent's AAI and disorganisation in their infant (Main & Hesse 1990), attachment scholars were cautious in tying disorganisation in children and unresolved loss/trauma in adults to PTSD.

More recently, a growing number of studies have found strong associations between diagnosed PTSD and unresolved status on the AAI (Dozier *et al.* 2008; Moran *et al.* 2008; Harari *et al.* 2009), and Joubert, Webster and Hackett (2012) have drawn similar conclusions using the Adult Attachment Projective (George *et al.* 1999).

A DMM-AAI study also found that adults with PTSD ($n = 22$ compared with 22 mixed non-PTSD diagnosis and 22 non-treatment controls) had the highest proportion with unresolved childhood traumas. The majority of the AAIs were assessed as Type C5-6; the subjects were strategic except when faced with current situations which activated DRs associated with unresolved loss and trauma in childhood. However, a minority of the PTSD AAIs were rated Type A+, many with the depressed modifier, that rendered their A+ strategy non-strategic (Crittenden & Heller, reported in Crittenden & Landini 2011).

Attachment trauma now appears to be a feature not just of PTSD but also some other psychiatric diagnoses, in particular borderline personality disorder (Allen 2013; Luyten & Fonagy Chapter 6).

But not all threats to the self result in PTSD and in both models insecure attachment is viewed as affording some protection against the psychological effects of attachment trauma. In particular, when using the ABC + D model many infants assessed as disorganised on the SSP have been found to reorganise to an insecure pattern by the age of six years; notably controlling punitive or controlling caregiving (Main & Cassidy 1988; Solomon & George 2011; Moss *et al.* 2011) which appear to match the DMM C3 and A3 strategies.

The DMM A3-6 and C3-6 patterns, in particular, denote organised strategies that function in times of enduring danger either at a familial, interpersonal, or societal level over long periods of time (Terr's Type 2 (Terr 1991)) so that coding of unresolved loss or trauma, particularly if it follows the attachment strategy (i.e. dismissing in Type A and preoccupied in Type C), may be redundant.

However, not all the infants assessed as disorganised on the Main and Solomon SSP reorganise to controlling punitive or controlling caregiving. A significant minority appear to still be disorganised at six years (Moss *et al.* 2011) and some of these will show up as older children (MacDonald *et al.* 2008) and adults in the Main and Goldwyn AAI as 'disorganised'; the cannot classify and unresolved categories (Sroufe *et al.* 2005; Main *et al.* 2005). This strengthens the argument for treating the information processing (determined by using the AAI) in attachment trauma as related but different from that in organised but insecure attachment.

If the DMM-modifiers represent non-strategic behaviour they invite comparison with ABC + D categories such as 'disorganised' or 'cannot classify'. A fruitful area of enquiry would be to map the DMM constructs against studies which have identified significant 'lapses in the monitoring or reasoning of discourse' using the Main and Goldwyn AAI and which are clustered under the cannot classify (CC) category (Hesse 1996; Hesse & Main 1999). It is also possible that, as with the beginning of the ABC + D and DMM debate over the SSP, the two models are likely looking at the same phenomena (severe disruptions to everyday psychosocial functioning caused by early trauma) but possibly giving them different meanings. For example, Hesse (1996) has criteria for CC based on evidence of Dismissed and Preoccupied strategies in the same interview which are likely A/C in the DMM.

Assessments

There are DMM assessments for each developmental period: The Infant and Toddler CARE-Index which is a carer-child play-based procedure designed to screen for risks in relationships (Crittenden 1979–2010, 1992–2005); the Pre-school Assessment of Attachment (PAA) which uses the same procedure as the Ainsworth SSP (Crittenden 1988–2005); the School-Aged Assessment (SAA) which uses picture prompts and a system of discourse analysis drawn from

the DMM-AAI to analyse children's stories (Crittenden 1995–2012) and the DMM-AAI that also has a version for adolescents (Crittenden & Landini 2011). (For an overview of all these procedures see Farnfield *et al.* (2010) and Farnfield & Holmes (2014).)

Concluding comments

Although obvious, it is worth stating that people do not seek professional help because they feel too safe. On the contrary, the majority of people with whom health and social care professionals are working have suffered abuse and/or neglect in their childhood with, increasingly, a percentage who have been exposed to wars and political persecution in their countries of origin. Specifically the DMM offers:

- a range of identifiable self-protective strategies that can act as templates for thinking about current behaviour;
- a developmental approach that invites investigation into how past experience has shaped behaviour which is maladaptive in the present;
- a focus on information processing which leads to a functional formulation (Kozłowska *et al.* 2012, 2013) and assists in the selection of treatment.

Remarkably the DMM is the product of its sole creator who has worked alone for decades, outside of the universities and, until recently, DMM studies were without any formal academic base. This has allowed for creativity but also restricted testability of the ideas. Although the infant CARE-Index and PAA procedures are well validated, the empirical evidence for the range of strategies in the school years and adulthood is not extensive (see Farnfield *et al.* 2010 for review).

Crittenden clearly proposes that the DMM is a theory in its own right; that is, a testable set of constructs that have greater explanatory power regarding the identified range of maladaptive behaviours than is provided by the mainstream ABC + D model. The compass of the DMM is actually restricted to two crucial aspects of life:

- 1 self-protection and survival, sometimes under conditions of great danger to the self and our families;
- 2 sex and reproduction.

Thus the DMM privileges certain aspects of attachment studies at the expense of others, in particular exploration. If the world is a stage then the DMM wheel of strategies describes the parts of many of the players who appear in the clinics, courts and consulting rooms of everyday practice.

The DMM offers an explanation of human suffering that is rooted less in pathology and more in the limited options that are available to all of us if we are to survive danger.

Tolstoy observed that ‘All happy families are alike; each unhappy family is unhappy in its own way’. Crittenden is fond of turning this line on its head: to be a person in your own right, you need to be safe. Misery is uniformly constricting.

Our thanks to Robbie Duschinsky who read and commented on earlier drafts of this chapter.

Notes

- 1 In keeping with evolutionary theory a strategy is ‘designed by natural selection to increase inclusive fitness’ (Simpson & Belsky 2008: 138). ‘Inclusive fitness’ refers to passing on our genes including those of indirect descendants such as nephews and nieces, which also explains caregiving by people who are themselves childless. Strategies operate outside consciousness.
- 2 This offers intriguing avenues back into the psychoanalytic roots of attachment with regard to the place of defensive processes such as fantasy and splitting.

References

- Ainsworth, M.D., Blehar, M.C., Waters, E., & Wall, S. (1978) *Patterns of Attachment: A psychological study of the Strange Situation*, Hillsdale, NJ: Erlbaum.
- Ainsworth, M.D.S. & Wittig, D. (1969) ‘Attachment and exploratory behaviour of one-year-olds in a Strange Situation’. In B.M. Foss (ed.), *Determinants of Infant Behavior, Vol. 4*. London: Methuen.
- Allen, J.G. (2013) *Restoring Mentalizing in Attachment Relationships: Treating trauma with plain old therapy*, Washington, DC: American Psychiatric Publishing.
- Baim, C. & Morrison, T. (2011) *Attachment-Based Practice with Adults: A new practice model and interactive resource for assessment, intervention and supervision*, Brighton, UK: Pavilion.
- Barkow, J.H., Cosmides, L. & Tooby, J. (1992) *The Adapted Mind: Evolutionary psychology and the generation of culture*, New York: Oxford University Press.
- Bowlby, J. (1969) *Attachment. Attachment and Loss (vol. 1)*, New York: Basic Books.
- Bowlby, J. (1973) *Separation. Attachment and Loss (vol. 2)*, New York: Basic Books.
- Bowlby, J. (1980) *Loss, sadness and depression. Attachment and Loss (vol. 3)*, New York: Basic Books.
- Bowlby, J. (1991) *Charles Darwin: A new life*, New York: Norton & Co.
- Cassibba, R., Sette, G., Bakermans-Kranenburg, M.J. & Van IJzendoorn, M.H. (2013) ‘Attachment the Italian way: In search of specific patterns of infant and adult attachments in Italian typical and atypical samples’, *European Psychologist*, 18(1), 47–58.
- Cassidy, J., Marvin, R.S. & the Working Group of the John D. and Catherine T. MacArthur Foundation on the Transition from Infancy to Early Childhood (1987/1990/1991/1992) *Attachment organization in three- and four-year olds: Coding guidelines*. Unpublished manuscript, University of Virginia, Charlottesville.
- Crittenden, P.M. (1979–2010) *CARE-Index. Infants. Coding manual*. Unpublished manuscript, Miami, FL, USA.
- Crittenden, P.M. (1985) ‘Social networks, quality of childrearing, and child development’, *Child Development*, 56, 1299–1313.

- Crittenden, P.M. (1988–2005) *The Preschool Assessment of Attachment: Coding manual*. Unpublished manuscript, Miami, FL, USA.
- Crittenden, P.M. (1992–2005) *CARE-Index. Toddlers. Coding manual*. Unpublished manuscript, Miami, FL, USA.
- Crittenden, P.M. (1992a) 'Treatment of anxious attachment in infancy and the preschool years', *Development and Psychopathology*, 4, 575–602.
- Crittenden, P.M. (1992b) 'Children's strategies for coping with adverse home environments', *International Journal of Child Abuse and Neglect*, 16, 329–343.
- Crittenden, P.M. (1994) 'Peering into the black box: An exploratory treatise on the development of self in young children'. In D. Cicchetti & S.L. Toth (eds), *Disorders and Dysfunctions of the Self* (pp. 79–148), Rochester, NY: University of Rochester Press.
- Crittenden, P.M. (1995) 'Attachment and psychopathology'. In S. Goldberg, R. Muir & J. Kerr (eds), *Attachment Theory: Social, developmental and clinical perspectives* (pp. 367–406). New York: The Analytic Press.
- Crittenden, P.M. (1995–2012) *School-aged Assessment of Attachment. Coding manual using the dynamic-maturational method*. Unpublished manuscript. Miami, FL, USA.
- Crittenden, P.M. (2000) 'A dynamic-maturational approach to continuity and change in pattern of attachment'. In P.M. Crittenden & A.H. Claussen (eds), *The Organization of Attachment Relationships: Maturation, culture, and context* (pp. 343–357). New York: Cambridge University Press.
- Crittenden, P.M. (2002) 'Attachment, information processing, and psychiatric disorder', *World Psychiatry*, 1(2), 72–75.
- Crittenden, P.M. (2006) 'A Dynamic-Maturational Model of Attachment', *Australian and New Zealand Journal of Family Therapy*, 27(2), 105–115.
- Crittenden, P.M. (2008) *Raising Parents: Attachment, parenting and child safety*, Cullompton, UK: Willan.
- Crittenden, P.M. & Landini, A. (2011) *The Adult Attachment Interview: Assessing psychological and interpersonal strategies*, New York: W.W. Norton & Co.
- Crittenden, P.M. & Newman, L. (2010) 'Comparing models of borderline personality disorder: Mothers' experience, self-protective strategies, and Dispositional Representations', *Clinical Child Psychology and Psychiatry*, 15(3), 433–451.
- Dallos, R. (2014) 'Assessing attachment in families: Beyond the dyads'. In S. Farnfield & P. Holmes (eds), *The Routledge Handbook of Attachment: Assessment*. London and New York: Routledge.
- Damasio, A. (1994) *Descartes' Error: Emotion, reason, and the human brain*, New York: Avon.
- Damasio, A. (2000) *The Feeling of What Happens: Body and emotion in the making of consciousness*, London: Vintage.
- Dozier, M., Stovall-McClough, K.C. & Albus, K.E. (2008) 'Attachment and psychopathology in adulthood'. In J. Cassidy & P.R. Shaver (eds), *Handbook of Attachment: Theory, research, and clinical applications* (pp. 718–744). New York: The Guilford Press.
- Farnfield, S. (In press) 'Assessing attachment in the school years: The application of the Dynamic-Maturational Model of attachment to the coding of a child attachment interview with community and looked after children', *Clinical Child Psychology & Psychiatry*.
- Farnfield, S. (2012) 'Bindung und Anpassung bei Ersatzeltern'. In M. Stokowy & N. Sahhar (eds), *Bindung und Gefahr: Das Dynamische Reifungsmodell von Bindung und Anpassung* (pp. 163–186). Giessen: Psychosozial-Verlag.

- Farnfield, S. & Holmes, P. (eds) (2014) *The Routledge Handbook of Attachment: Assessment*, London and New York: Routledge.
- Farnfield, S., Hautamäki, A., Nørbech, P. & Sahhar, N. (2010) 'DMM assessments of attachment and adaptation: Procedures, validity and utility', *Clinical Child Psychology and Psychiatry*, 15(3), 313–328.
- Ferenczi, S. (1988/1933) 'Confusion of tongues between adults and the child', *Contemporary Psychoanalysis*, 24(2), 206.
- George, C., West, M. & Pettem, O. (1999) 'The Adult Attachment Projective: Disorganization of adult attachment at the level of representation'. In J. Solomon & C. George (eds), *Attachment Disorganization* (pp. 318–346). New York: The Guilford Press.
- Harari, D., Bakermans-Kranenburg, M.J., de Kloetb, C.S., Geuzed, E., Vermettend, E., Westenberge, H.G.M. & Van IJzendoorn, M.H. (2009) 'Attachment representations in Dutch veterans with and without deployment-related PTSD', *Attachment & Human Development*, 11(6), 515–536.
- Hautamäki, A., Hautamäki, L., Neuvonen, L. & Maliniemi-Piispanen, S. (2010) 'Transmission of attachment across three generations', *European Journal of Developmental Psychology*, 7(5), 618–634.
- Hesse, E. (1996) 'Discourse, memory, and the Adult Attachment Interview: A note with emphasis on the emerging cannot classify category', *Infant Mental Health Journal*, 17, 4–11.
- Hesse, E. & Main, M. (1999) 'Second-generation effects of unresolved trauma in non-maltreating parents: Dissociated, frightened, and threatening parental behaviour', *Psychoanalytic Inquiry*, 19, 481–540.
- Hinde, R. (1982) *Ethology: Its nature and relations with other sciences*, New York: Oxford University Press.
- Joubert, D., Webster, L. & Hackett, R.K. (2012) 'Unresolved attachment status and trauma-related symptomatology in maltreated adolescents: An examination of cognitive mediators', *Child Psychiatry and Human Development*, 43, 471–483.
- Karen, R. (1998) *Becoming Attached: First relationships and how they shape our capacity to love*, New York: Oxford University Press.
- Kozłowska, K., English, M., Savage, B. & Chudleigh, C. (2012) 'Multimodal rehabilitation: A mind–body, family-based intervention for children and adolescents impaired by medically unexplained symptoms. Part 1: The program', *The American Journal of Family Therapy*, 40(5), 399–419.
- Kozłowska, K., English, M., Savage, B., Chudleigh, C., Davies, F., Paull *et al.* (2013) 'Multimodal rehabilitation: A mind-body, family-based intervention for children and adolescents impaired by medically unexplained symptoms. Part 2: Case studies and outcomes', *The American Journal of Family Therapy*, 40(5), 212–231.
- Le Doux, J. (2002) *Synaptic Self: How our brains become who we are*, London: Macmillan.
- Linehan, M.M. & Dimeff, L. (2001) 'Dialectical behaviour therapy in a nutshell', *The California Psychologist*, 34, 10–13.
- MacDonald, H.Z., Beeghly, M., Grant-Knight, W., Augustyn, M., Woods, R.W., Cabral, H *et al.* (2008) 'Longitudinal association between infant disorganized attachment and childhood posttraumatic stress symptoms', *Development and Psychopathology*, 20(2), 493–508.
- Main, M. (1995) 'Recent studies in attachment: Overview, with selected implications for clinical work'. In S. Goldberg, R. Muir & J. Kerr (eds), *Attachment Theory: Social,*

- developmental, and clinical perspectives* (pp. 407–474). Hillsdale, NJ: The Analytic Press.
- Main, M. & Cassidy, J. (1988) ‘Categories of response to reunion with the parent at age six: Predictability from infant attachment classifications and stable across a one-month period’, *Developmental Psychology*, 24, 415–426.
- Main, M. & Hesse, E. (1990) ‘Parents’ unresolved traumatic experiences are related to infant disorganized attachment status’. In M.T. Greenberg, D. Cicchetti & E.M. Cummings (eds), *Attachment in the Preschool Years: Theory, research, and intervention* (pp. 161–182). Chicago: University of Chicago Press.
- Main, M. & Solomon, J. (1986) ‘Discovery of a new, insecure-disorganized/disorientated attachment pattern’. In M. Yogman & T. Brazelton (eds), *Affective Development in Infancy* (pp. 95–124). Norwood, NJ: Ablex.
- Main, M. & Solomon, J. (1990) ‘Procedures for identifying infants as disorganized/disorientated during the Ainsworth Strange Situation’. In M.T. Greenberg, D. Cicchetti & E.M. Cummings (eds), *Attachment in the Preschool Years* (pp. 121–160). Chicago: University of Chicago Press.
- Main, M., Hesse, E. & Kaplan, N. (2005) ‘Predictability of attachment behaviour and representational processes at 1, 6, and 19 years of age: The Berkeley Longitudinal Study’. In Grossman, K.E., Grossman, K. & Waters, E. (eds), *Attachment for Infancy to Adulthood: The major longitudinal studies* (pp. 245–304). New York: The Guilford Press.
- Marvin, R.S. (2003) ‘Implications of attachment research for the field of family therapy’. In P. Erdman & T. Caffery (eds), *Attachment and Family Systems: Conceptual, empirical, and therapeutic relatedness* (pp. 3–30). Hove, UK: Brunner-Routledge.
- Marvin, R. & Britner, P. (2008) ‘Normative development: The ontogeny of attachment’. In J. Cassidy & P.R. Shaver (eds), *Handbook of Attachment: Theory, research and clinical implications*, 2nd edition (pp. 269–294). New York: The Guilford Press.
- Merton, R.K. (1949) ‘On sociological theories of the middle range’. Reprinted in C. Calhoun, J. Gerteis, J. Moody, S. Pfaff & V. Indermohan (eds) (2012) *Classical Sociological Theory*, 3rd edition (pp. 523–530). Chichester: John Wiley & Sons Ltd.
- Moran, G., Bailey, H.N., Gleason, K., DeOliveira, C.A. & Pederson, D.R. (2008) ‘Exploring the mind behind unresolved attachment: Lessons from and of attachment-based interventions with infants and their traumatized mothers’. In H. Steele & M. Steele (eds), *Clinical Applications of the Adult Attachment Interview* (pp. 371–398). New York: The Guilford Press.
- Moss, E., Bureau, J., St-Laurent, D. & Tarabulsky, G.M. (2011) ‘Understanding disorganized attachment at preschool and school age: Examining divergent pathways of disorganized and controlling children’. In J. Solomon & C. George (eds), *Disorganized Attachment & Caregiving* (pp. 52–79). New York: The Guilford Press.
- NICHD Early Child Care Research Network, Public Information & Communication Branch (2001) ‘Child-care and family predictors of preschool attachment and stability from infancy’, *Developmental Psychology*, 37(6), 847–862.
- Radke-Yarrow, M., Cummings, E.M., Kuczynski, L. & Chapman, M. (1985) ‘Patterns of attachment in two and three-year-olds in normal families and families with parental depression’, *Child Development*, 56, 884–893.
- Ringer, F. & Crittenden, P.M. (2007) ‘Eating disorders and attachment: The effects of hidden processes on eating disorders’, *European Eating Disorders Review*, 15, 119–130.

- Sahhar, N. (2014) 'An expanded approach to the Adult Attachment Interview: the DMM-AAI'. In S. Farnfield & P. Holmes (eds), *The Routledge Handbook of Attachment: Assessment*. London and New York: Routledge.
- Schacter, D.L. & Tulving, E. (1994) 'What are the memory systems of 1994?' In D.L. Schacter & E. Tulving (eds), *Memory Systems* (pp. 1–38). Cambridge, MA: Bradford.
- Shah, P.E., Fonagy, P. & Strathearn, L. (2010) 'Is attachment transmitted across generations? The plot thickens', *Clinical Child Psychology and Psychiatry*, 15(3), 329–346.
- Simpson, J.A. & Belsky, J. (2008) 'Attachment theory within a modern evolutionary framework'. In J. Cassidy & P.R. Shaver (eds), *Handbook of Attachment: Theory, research and clinical implications*, 2nd edition (pp. 131–157). New York: The Guilford Press.
- Solomon, J. & George, C. (eds) (2011) *Disorganized Attachment & Caregiving*, New York: The Guilford Press.
- Sroufe, L.A., Egeland, B., Carlson, E.A. & Collins, W.A. (2005) *The Development of the Person: The Minnesota study of risk and adaptation from birth to adulthood*, New York: Guilford Publications.
- Strathearn, L., Fonagy, P., Amico, J.A. & Montague, P.R. (2009) 'Adult attachment predicts mother's brain and oxytocin response to infant cues', *Neuropsychopharmacology*, 34(13), 2655–2666.
- Terr, L. (1991) 'Childhood trauma: An outline and overview', *American Journal of Psychiatry*, 148, 10–20.
- Winnicott, D.W. (1960) 'Ego distortion in terms of true and false self'. In *The Maturation Processes and the Facilitating Environment*. New York (1965): International Universities Press.
- Winnicott, D.W. (1971) *Playing and Reality*, London: Tavistock.
- Zachrisson, H.D. & Kulbotten, G.R. (2006) 'Attachment in anorexia nervosa: An exploration of associations with eating disorder psychopathology and psychiatric symptoms', *Eating and Weight Disorders*, 11, 163–170.