CHANGES IN ADULT ATTACHMENT STATUS AND AFFECT REGULATION THROUGH MUTUAL SYNCHRONY

BY

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The undersigned certifies that she or he has read and recommends to the Faculty of Graduate Studies and Research for acceptance, a final project entitled *Changes in Adult Attachment Status and Affect Regulation Through Mutual Synchrony* Submitted by Shelley Dales in partial fulfillment of the requirements for the degree of *Master of Counselling: Art Therapy Specialization*.
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Faculty of Graduate Studies and Research

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ABSTRACT

This project reviews attachment theory with a particular emphasis on updated neuroscientific advances and insights into the biology of affect regulation and the convergence of these in psychotherapeutic processes. Because of recent advances in understanding how the infant brain/mind/body is shaped by the infant’s first social experiences, the purpose of this investigation is to extract/review those underlying mechanisms that expand adaptive and regulatory capacities and review their application within the therapeutic relationship. Interdisciplinary advances are indicating that just as the infant-mother relationship is fundamentally a psychobiological dyadic system of emotional communication and affect regulation, this same system underlies the essential mechanisms that adaptively sustain subsequent relationships – including the therapeutic alliance. This review highlights the importance of right-hemisphere-to-right-hemisphere emotional and relational processes – moving away from the traditional emphasis on “left-brain” verbal and cognitive processes – thereby underscoring the necessity for therapist understanding of implicit, nonverbal communication as well as self-integration and awareness in order to help increase their client’s capacity for the same.
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CHAPTER I: INTRODUCTION

Problem Statement

Pistole (1999) points out that “the human relationship is the primary component interwoven explicitly or implicitly through all counselling” (p. 437). Bowlby (1988) has conceptualized the nonverbal aspects of the therapeutic relationship as a ‘secure base’. I am interested in investigating the qualitative aspects of the therapeutic relationship – those aspects that may transcend any particular verbal or nonverbal ‘techniques’ that therapists may employ but which are instrumental in effecting therapeutic change. This phenomenon has been conceptualized variously as ‘intersubjectivity’ (Schore, 2003b), ‘mutual synchrony’ (Schore, 2003b), ‘limbic resonance’ (Lewis, Amini, & Lannon, 2000) or ‘implicit relational knowing’ (Lyons-Ruth, 1998). Mutual synchrony typically operates outside of focal attention and conscious experience apart from expression through language (Lyons-Ruth, 1998). “Language is used in the service of this knowing but the implicit knowings governing intimate interactions are not language based and are not routinely translated into semantic form” (Lyons-Ruth, 1998, p. 285). Similarly, Robbins (1998) suggests that as therapists strive to be present with clients, they can make use of verbal metaphor to “create or discover bridges to link non-discursive and discursive communications” (1998, p. 17). Robbins suggests that therapists “must be open to both primary and secondary modes of communication process” (p. 19) – being at once comfortable with a holistic, intuitive and receptive orientation “that is essentially spatial” (p. 19), while having the adaptiveness in which the choice of words gives structure and definition to nonverbal flow” (p. 19). Schore (2003a) also suggests that the ‘nonspecific’ factors that are common to all forms of clinical treatment are part of the nonverbal
exchange (such as the attachment relationship, regulation and the emotion processing right brain) and represent a major factor in the therapeutic process. As therapists’ awareness of subtle cues of sensory perceptual communication increase, they may achieve more successful and meaningful interactions with clients.

It seems that there are underlying mechanisms within the therapeutic relationship that can alter the brain systems that process and regulate external and internal information. These mechanisms serve to reduce clients’ negative emotional symptoms and expand their adaptive capacities (Schore, 2003b). Data from developmental affective neuroscience (Cozolino, 2002; Schore, 2003b; Siegel, 1999) illustrate that in the critical early periods of life, the maturing human brain/mind/body evolves to greater degrees of complexity within the context of an affect regulating relationship with another human being. This poses questions for the human capacity for change within ‘corrective’ or ‘reparative’ relationships at later points in one’s development:

This essential interpersonal component of a growth-facilitating developmental matrix clearly suggests that psychotherapeutic changes are mediated by aspects of the relationship of the patient and therapist. When effective, this co created dyadic system can facilitate the further development and organization of the [client’s] brain/mind/body systems. The brain sciences demonstrate that the adult brain retains plasticity, and this plasticity, especially of the right brain that is dominant for self-regulation, allows for the emotional learning that accompanies a successful psychotherapeutic experience. (Schore, 2003b, xviii)

It is compelling to investigate the reparative potential of the intersubjective meeting in the therapeutic relationship – or, in other words, to understand how a
therapeutic interaction can serve to challenge or disconfirm clients’ ineffectual working models.

The questions that can form the foundation for this literature review may be worded as follows: What has attachment theory and more recent neuroscience taught us about how infants’ brains are shaped? How do early (infant) experiences impact social and emotional development? What does the literature suggest about adult therapeutic corrective experiences? Can the qualities of mutual synchrony or limbic resonance be described so that others can comprehend this way of being with clients?

As a literature review, this project will synthesize theory and research that pertains to mutual synchrony; how patterns are established in infancy within the infant-caregiver relationship and how individuals organize and regulate themselves as adults based on these patterns. I will review recent psychoneurobiological literature that investigates corrective or therapeutic relationships and look at how individuals may be able to be ‘re-regulated’. Recent interdisciplinary findings illustrate the structural systems of the developing unconscious in terms of brain research. This literature focuses on internal psychic structures and how they are influenced by early relational patterns. Prominent in this field are researchers such as Lewis, Amini, and Lannon (2000), Schore (1994, 2003a, 2003b), and Siegel (1999). In addition, the literature review for this project will be composed of theory and research that pertains to the therapeutic relationship.

Synthesis of the more recent neurobiological aspects that flow from attachment theory “allow for a deeper understanding of how an affect-focused developmentally oriented treatment can alter internal structure within the [client’s] brain/mind/body systems” (Schore, 2003b, p. 37).
Rationale for the Study

The counsellor client relationship has been established as a fundamental base from which the client change process emerges (Hubble, Duncan, & Miller, 1999). Apart from a sole focus upon technique (with its verbal and cognitive processes), it might be more useful to understand the implicit, emotional, and relational mechanisms of the relationship that help to construct meaningful and successful working alliances. There seems to be a ‘knowledge explosion’ in the realm of neuroplasticity (Lewis et al., 2000; Schore, 2003a, 2003b). I would like to synthesize what is known about the therapeutic interactive conditions which effect changes in adult attachment status.

Lewis et al. (2000) suggest that if an individual’s adult relationships are troubled, it is because the child extracted patterns from early attachment relationships and these patterns form ‘Attractors’ in the limbic brain. “New lessons must fight an uphill battle against the patterns already ingrained, because existing Attractors can easily overwhelm and absorb moderately novel configurations” (p. 164). However, Lewis and colleagues (2000) suggest that despite the waning of neural flexibility after adolescence as well as the longevity of Attractors, the emotional mind can be revised in adulthood. They point out that “when a limbic connection has established a neural pattern, it takes a limbic connection to revise it” (p. 177).

The relevance of this project lies in the fact that psychology has been focusing its attention on therapist offered techniques. Meanwhile, there has been less investigation into the implicit interplay between therapist and client and how this important aspect can be growth enhancing or therapeutically helpful. However, in Schore (2003b), Krystal notes that “…the ‘infantile nonverbal affect system’ continues to operate throughout life”
and Schore suggests that “a deeper understanding of the interactive affect transacting mechanism of the nonverbal, unconscious transference-countertransference relationship represents the frontier of clinical psychoanalysis” (p. 26).

In this light, it is intriguing to investigate how potentially corrective or reparative relationships can be therapeutically helpful. It would be useful to investigate the qualities of what can be described as ‘mutual synchrony’ or ‘limbic resonance’ and consider the implications for the field of counselling. In other words, if the experience of intersubjective meeting between client and counsellor results in changes in the client’s implicit relational knowing, these “moments of meeting [may] open the way to the elaboration of a more complex and coherent way of being together…” (Lyons-Ruth, 1998, p. 288). It may be useful to investigate the qualities of these ‘moments of meeting’ between client and therapist for the potential that the qualities may hold for successful therapy which may enact clients’ self-healing.

Implications and Benefits

Schore posits that others - self-objects - serve as “external psychobiological regulators that facilitate the regulation of affective experience, and they act at nonverbal levels beneath conscious awareness to co-create states of maximal cohesion and vitalization” (2003b, p. 14). The implications and/or benefits from this project may be to give further attention to the underlying mechanisms of the therapeutic relationship – those mechanisms which can alter the brain systems that process and regulate external and internal information and which may help to reduce clients’ negative emotional symptoms and expand their adaptive capacities. Illustrating this may encourage and support the concept of the potential richness of the therapeutic ‘container’. If therapists can be more
intuitively attuned to their clients’ relational cues as well as the complex and potentially reparative qualities inherent in the therapeutic relationship, then they may more effectively assist their clients by providing corrective experiences through this potentiality. This may enhance the therapeutic experience.
CHAPTER II: PROCEDURES

The central purpose for conducting this literature review is to enhance the author’s and other counsellors’ knowledge and practice of ways of ‘being’ with clients – apart from particular techniques and interventions – that seem to be reparative and deeply meaningful for clients. I will examine the literature to determine the extent of research and theory focusing on this phenomenon and then systematically organize this information outlining specific themes. I intend to provide a comprehensive understanding of mutual synchrony and changes in adult attachment status based upon the research findings. It is hoped that the information presented in the literature review will provide the author and others with an effective description and understanding of mutual synchrony and changes in adult attachment status through the therapeutic relationship so that this can be differentiated from (and incorporated with) the work of problem management.

In conducting the literature review, I will follow a systematic approach as outlined in Mertens (1998). My orientation emerges primarily from an interpretive/constructivist approach. In this regard, existing research and theory will be synthesized while remaining open to the potentiality that additional literature examination will be required as new information surfaces.

Secondary sources will be reviewed in order to achieve an overview of the topic and to become informed on the existing literature. Primary research articles will be identified using the ‘ancestry’ approach, that is, by reviewing texts by prominent authors and researchers such as Cozolino (2002), Schore, (2003a, 2003b) and Siegel (1999) and examining the reference lists of these relevant texts (and then examining the reference list
of relevant journal articles). Relevant articles and books will be identified by searching the electronic databases of ERIC, PsychINFO, PsychLIT, PsychARTICLES, Psychology and Behavioral Sciences Collection and Academic Search Premier. Publications from 1950 to present will be considered. The following keywords and phrases will be included: “attachment”, “adult attachment”, “patient attachment orientation”, “affect regulation”, “affective neuroscience”, “child development”, “adult development”, “developmental psychology”, “interpersonal relations”, “trauma”, “right brain”, and “therapeutic (working) alliance”. Again, the search will be expanded by examining the reference section of the articles and books found in the database search. Further resources will be identified by consulting with professionals who have expertise on this topic. Qualitative and quantitative research will be considered for this review as both are relevant to this subject.

The articles, books and studies that will be considered as significant for this review will match at least one of the following criteria: 1) the article or book discusses the role of attachment relationships in human development, 2) the article or research discusses the impact of interpersonal relationships (both early childhood and adult) on internal psychic structures, affect regulation and nonverbal psychological attunement, 3) the article or research discusses the developmental interactions of the individual with his or her social environment and describes how the regulation of social and emotional behaviour emerges through this interaction, 4) psychoneurobiological models are offered for describing the mechanisms that affect psychotherapeutic change, 5) the article or research discusses principles of treatment which correspond to the term “mutual
synchrony” (also referred to as ‘limbic resonance’, ‘psychobiological attunement’ or ‘affect attunement’).

I will collect relevant articles and studies until I believe that a saturation point has been reached. This point will be achieved when the review of the literature results in themes and examples being repeated instead of extended (Mertens, 1998). I will synthesize the information into a number of themes which will provide an organized and comprehensive overview of the topic.
CHAPTER III: THEORETICAL FOUNDATIONS

Attachment Theory

Attachment at its core is based on parental sensitivity and responsivity to the child’s signals, which allow for collaborative parent-child communication. Contingent communication gives rise to secure attachment and is characterized by a collaborative give-and-take of signals between the members of the pair. Contingent communication relies on the alignment of internal experiences, or states of mind, between child and caregiver. This mutually sharing, mutually influencing set of interactions – this emotional attunement or mental state resonance – is the essence of healthy, secure attachment. (Siegel, 1999, p. 117)

Attachment theory is being utilized by an increasing number of researchers and theorists as a framework for investigating adult psychological dynamics. The research is drawn from John Bowlby’s (1969, 1973, 1988) theory of attachment and Mary Ainsworth’s (1985) work which describes the kinds of attachment that individuals can make. A basic principle of attachment theory is that attachment relationships continue to be important throughout an individual’s life span (Bowlby, 1969).

Bowlby

In his book, A Secure Base, Bowlby (1988) outlines the development of attachment theory. During the 1940s, Bowlby and a number of other clinicians, “mostly working independently of each, were making observations of the ill effects on personality development of prolonged institutional care and/or frequent changes of mother-figure during the early years of life” (Bowlby, 1988, p. 21). Bowlby’s research began by comparing child thieves with crimeless children. He found that a lack of a mother figure
was more common in the child thieves. Toward the end of the 1940s, he focused on the results of early mother-child separation and how very young children who were separated from their mothers often became acutely distressed, particularly when they also suffered from inadequate maternal care. His observations went against traditional psychoanalytic theory, which held that an infant’s bond to the mother was formed because of primary drives such as the need to be fed. Bowlby believed that if the ideas of psychoanalysis were followed through, an infant would bond with whoever fed him or her, since such great emphasis was “placed on food…and on the infantile nature of dependency” (Bowlby, 1988, p. 22). However, this did not match Bowlby’s observations in children. Bowlby’s observations, based on naturalistic studies of infants who had been separated from their mothers, are what helped to formulate his theory of infant-caregiver attachment. Even within animal species, Bowlby discovered bonds between mothers and their young children that mimicked humans, and noted that these strong bonds could develop among animals even though they could feed themselves (Bowlby, 1988). This again went against the drive-dependency theory of psychoanalysis. Perhaps there was an attachment behaviour with its own dynamics which could explain the behaviours and physiological responses which wove pairs of individuals into interdependent units.

Bowlby believed that there were particular schemas that individuals use to organize and manage their relationships with others as well as how they think about themselves. He believed that these schemas develop over time and throughout adolescence, and are shaped by repeated experiences with primary attachment figures. With respect to early emotional development, he suggested that “the relationships infants develop with their mothers in the first year of life are critical for their subsequent
development and well-being” (Bowlby, 1988, p. 25). His conceptualization of attachment as an evolutionary product, organizing interpersonal life from infancy through the lifespan, became known as *attachment theory* – “the propensity of human beings to make strong affectional bonds to particular others” (Bowlby, 1977, p. 201). The mother-child relationship in particular is seen as the root of both intra- and interpersonal functions in later childhood and adulthood. A central tenant of attachment theory is that along with distinct patterns of responding to the caregiver, infants develop corresponding *working models* or cognitive expectations about the accessibility and responsiveness of their caregiver as well as their own abilities to elicit responses which meet their needs from their caregiver (Bowlby, 1973). Bowlby highlighted the distinction between working models of self and of others: “A working model of self is an evolving schema of how children view themselves based on their role in the attachment relationship” (Lyddon & Sherry, 2001, p. 406). Therefore, the self-internal working model is a set of beliefs about one’s worthiness and competence as an individual. Working models of others “are believed to derive from the original working models of primary caregivers and are thought to eventually generalize to a broader base of expectations about others and the world” (Lyddon & Sherry, 2001, p. 406). These representations of self and other are thought to influence each other throughout the lifespan.

Bowlby has been a significant figure in the understanding of developmental processes. In his work on attachment he applied biological understanding of his time to a psychoanalytic understanding of infant-mother bonding. In this way, he attempted to produce a natural science of developmental psychology. The major question that Bowlby
focused on was how and why do certain early ontogenetic events have such an inordinate effect on everything that follows (Schore, 2003b)?

_Ainsworth_

Just as Bowlby devoted considerable effort to studying child-caregiver reactions, his colleague, Mary Ainsworth was also considering the infant-caregiver bond through direct observation (references to caregiver will mean the mother, unless otherwise indicated). Originally a member of Bowlby’s research team in London during the early 1950s, Ainsworth was investigating the effects on personality development of separation from the mother in early childhood (Ainsworth, 1985). She performed short-term studies utilizing direct observation of behaviour in the natural environment over time. Direct observation as a research method at that time “was almost unheard of” (Ainsworth, 1985, p. 28). Ainsworth spent three years in London looking at the effects of early separation and/or deprivation.

In the mid 1950s, Ainsworth went to Uganda and began what proved to be a type of pilot study for her later work. Over a 9 month period, she visited mothers and their infants directly in their homes, interviewing the mothers and studying their interactions with their infants when the infants were hurt, hungry, or alarmed. What she found seemed to correlate with Bowlby’s work, as she noticed how the availability, responsiveness, and acute support of the mother seemed to impact the course of the infant’s interaction with her. “However, individual differences in the course of this development could not be ignored, and were clearly related to differences in the mother’s behaviour in her interaction with the infant, and these in turn were clearly related to her life circumstances and stresses” (Ainsworth, 1985, p. 28).
Ainsworth’s Strange Situation Experiment. Ainsworth continued to do a number of longitudinal studies during the 1960s, and it was during this time period that she moved forward from Bowlby’s ideas - that the development of an attachment is important for a child’s well-being - to demonstrating the importance of an emotionally secure attachment. The evidence for the emotional security of a child’s attachment could be gleaned from a relatively brief laboratory experiment called The Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978). The Strange Situation was a research paradigm meant to elicit an infant’s attachment behaviour through repeated separations from an attachment figure and interactions with a stranger. These interactions took place and were observed over a 20 minute period in a laboratory. It was evident that the major value of this experiment was the way in which it highlighted individual differences in the way infants had organized their behaviour toward attachment figures.

The validity of the Strange Situation rests on the fact that it is demonstrably and significantly related to dyadic differences in parent-infant interaction in the familiar home environment throughout the first year. Babies who were identified as securely attached in terms of their Strange Situation behaviour had experienced mothers who were sensitively responsive to their signals across all contexts of interaction throughout the first year of their life (Ainsworth, 1985). Ainsworth found that infants classified as secure were distressed by separation, sought comfort once they were reunited, and explored freely in their caregivers’ presence. She also followed up the Strange Situation by witnessing - during home visits - the caregivers of secure infants being sensitive and responsive outside of the laboratory situation.
In contrast to the secure attachment, Ainsworth discovered two other kinds of attachment, which she named *anxious-avoidant* and *anxious-ambivalent*. Infants identified as anxious-avoidant failed to cry on separation from the parent and actively ignored or avoided the mother upon her return. The infant seldom sought proximity or contact with the mother and the response to the mother appeared to be unemotional (no distress, no anger). Infants who were identified as *anxious-ambivalent* were often wary or distressed even prior to separation and displayed little exploratory behaviour. They were often preoccupied with the mother throughout the procedure - displaying both proximity-seeking and interaction-resisting behaviour - and failed to take comfort from the parent after the reunion (Bowlby & Ainsworth, 1991). These insecure patterns of attachment developed when attachment behaviour was met with inconsistency, rejection, or even danger, leaving the infant anxious about the caregiver’s responsiveness in times of crisis.

The initial study by Ainsworth outlined these three distinct attachment patterns. During later research, a fourth category of attachment was determined by Mary Main and Judith Solomon which was called *disorganized* (Main, 1996). Children who developed this form of insecure attachment were thought to have had alarm states induced by the primary caregivers. Upon reunion, these children demonstrated disorganized and/or disoriented behaviours such as approach-withdrawal, freezing with a trance-like expression, or falling to the ground, all suggesting a temporary collapse of behavioural strategies. Disorganization was thought to be the option for adapting because while the child’s brain has an innate drive to move toward the attachment figure, the child is faced with an unsolvable dilemma as the parent is the source of the alarm.
The Adult Attachment Interview

In the early 1980s Mary Main and her colleagues (Main, 1996) investigated the childhood experiences of the parents who were involved in the infant attachment studies. Main and her colleagues assumed that the current parenting styles of the adults were shaped by their own childhood experiences. Mary Main and her colleagues developed a research tool called the Adult Attachment Interview (AAI) (Main, 1996). The purpose of the AAI is to gather information about an adult’s subjective childhood memories and through linguistic analysis determine the adult’s “state of mind with respect to attachment” (Main 1996, p. 240). The format consists of open-ended questions about childhood relationships and early experiences. Analysis of the interview takes place through a study of the verbatim transcript. Through linguistic analysis of the coherence of the individual’s narrative organization and presentation, one of four principle adult attachment classifications is identified (Secure/autonomous; Dismissing; Preoccupied; Unresolved/disorganized). This classification represents an over-arching state of mind toward attachment which is an engrained, temporally stable, self-organizing mental state – not a random or transient state. Through repeated experiences with caregivers, “it has become a characteristic, self-defining state – or ‘trait’ of that individual” (Siegel, 1999, p. 83). The classification an adult receives from the AAI tends to correspond “both theoretically and empirically” (Main, 1996, p. 240) to the quality of their infant’s attachment to them and thus to a corresponding infant attachment category. That is, the adult’s AAI classification tends to correspond significantly to her child’s Strange Situation results. Therefore, the parent’s ‘state of mind with respect to attachment’ is a powerful predictor of how the parent-child relationship will evolve (Siegel, 1999) as there
is a “direct connection between how past experiences have shaped implicit memory and how they are reactivated in the setting of being with a child” (Siegel, 1999, p. 106).

There are, however, concerns regarding interview assessments (such as the AAI). The concerns are essentially focused around methodology and predictive validity issues. In terms of methodology, Carnelley and Brennan (2002) report that measurement error may emerge from lack of separately coded narratives about mothers and fathers as well as disagreement among AAI researchers about coding categories and scoring procedures, and the degree of subjective judgment that goes into scoring AAI transcripts.

As for predictive validity, Shaver and Mikulincer (2002a) outline concerns raised by Bernier and Dozier who suggest that studies of adult attachment fail to establish causality. Likewise, Bartholomew and Moretti (2002) suggest that the assumption that interview assessments tap basic attachment dynamics is open to question. They argue that there is “little evidence to support the assumption that the AAI (and other interview measures) is getting at unconscious dynamic processes” (p. 164) and the fact that the AAI is a clinical interview does not mean that it is inherently a window into dynamic processes. They suggest that assumptions such as these require empirical validation. Van Ijzendoorn (1995) reports that there is only partial knowledge of how attachment representations are transmitted. However, Shaver, Belsky, and Brennan (2000) report that the validity of the AAI is derived primarily from “its ability to predict the attachment classification of an interviewee’s child in Ainsworth’s ‘Strange Situation’” (p. 25). Siegel (1999) points out that the strength of this correlation has been reinforced by a number of findings “suggesting that it is measuring some feature of the subject that is robust, persists across time, and is independent of other variables” (p. 78).
Shaver and Mikulincer (2002) point out that attachment measures of this kind can be useful in that they provide an abstract model of psychological processes related to attachment. Also, Cozolino (2002) suggests that “Coherence of the text and presentation of the AAI narrative most likely parallel neural network coherence and integration” (p. 204). To this point, it seems that the underlying processes of the AAI are not fully understood. Inevitably, further investigation will yield more information on processes such as memory, social communication and integrating processes that impact coherence of mind (Siegel, 1999).

Parental State of Mind With Regard to Attachment: Categories

Attachment theorists and researchers (Ainsworth, 1985; Main, 1996; van Ijzendoorn, 1995) show that through repeated caregiver-child experiences, the child develops internal working models for social experiences and develops along a spectrum of attachment from secure to insecure. It is the interactive relationship between primary caregiver and child that shapes the child’s brain and mental states. The caregiver’s own attachment status and ability to regulate her own nervous system and emotional states is the essential platform from which the child’s own abilities emerge.

The parent may be oblivious to the child’s internal states and the parent’s communication may be dismissive and incoherent, setting the groundwork for an avoidantly attached child. The parent’s own early life may have included a predominance of emotional neglect and rejection as well as a dismissive stance toward attachment. Independence from emotions and intimacy would be the norm and communication would contain little sensitivity to signals or emotional attunement (Main, Kaplan, & Cassidy, 1985).
The parent of an ambivalently attached child is usually inconsistently contingent with his or her communication. Sometimes the parent’s communication is aligned with the child’s internal states, whereas other times the parent is intrusive. In these cases, the parent may be experiencing preoccupation with managing her own internal states because of her own unresolved past attachment relationship experiences (i.e. relational trauma). In this kind of self-organization, the adult has a preoccupied stance in regard to attachment which is characterized by anxiety, uncertainty and ambivalence – most likely as a result of experiencing inconsistently available care giving and intrusive emotional communication in his or her own life. These preoccupied states impair the adult’s ability to perceive the child’s needs accurately (Main, Kaplan, & Cassidy, 1985): “Mental models of others may create a sense of caution about impending loss or intrusion from others. The result for the inner experience of these adults is to be perpetually overwhelmed by doubts and fears about relying on others” (Siegel, 1999, p. 119).

The parent of a child who develops a disorganized/disoriented attachment will often be a source of disorientation or terror. In this kind of relational dyad, the parent’s communications with the child are called unresolved/disorganized and they are noncontingent. Therefore, the child is repeatedly faced with an impossible dilemma: the child needs to turn to and depend upon the caregiver for his or her very survival, but is continually abandoned and traumatized through the caregiver’s chaotic and terror inducing responses. The signals that the parent does send to the child create an internal state of chaos and overwhelming fear of the parent within the child (Main, Kaplan, & Cassidy, 1985).
While insecure attachments themselves are not equivalent to mental disorder, they are believed to create a risk of psychological and social dysfunction. According to developmental theorists however (Schore, 2003a; Siegel, 1999), the individuals who have the greatest risk of developing significant psychiatric disturbances are those with disorganized/disoriented attachment. “These attachments involve the most profound disturbances in how the self is able to organize the information and modulate the energy of emotional states. At a most basic level, these individuals appear to have the most seriously impaired capacity to integrate coherence within the mind” (Siegel, 1999, p. 119).

Although a consideration of genetic factors is necessary in order to understand the role and/or interplay of individual genetic expression, attachment theorists (Main, Kaplan, & Cassidy, 1985) – and more recently developmental neurobiologists (Cozolino, 2002; Schore, 2003a; Siegel, 1999) – are suggesting that the primary caregiver’s state of mind with respect to attachment is a powerful predictor of how the parent-child relationship will evolve.

**Earned Secure Attachment Status**

Main and her colleagues developed a subset of the secure/autonomous attachment status which they named *earned* secure/autonomous status (Phelps, Belsky, & Crnic, 1998, Main, 1996; Pearson, Cohn, Cowan, & Cowan, 1994). When interviewed, these individuals described experiences from their childhood that would point to some form of insecure attachment. However, upon analysis of transcripts of these individual’s narratives, there was found to be a flexibility, coherence and fluidity in their reflective capacity “such that their present state of mind with respect to attachment [was] rated as
secure/autonomous” (Siegel, 1999, p.91). As a result of investigating these transcripts it was surmised that these individuals developed emotional resilience through significant relationships with a close friend, romantic partner or other close, emotional relationships in their lives. Attachment research is suggesting that these findings may be reflective of integrative processes that enable some individuals to transform or modify suboptimal attachment experiences (Schore, 2003a, 2003b; Siegel, 1999). There is intense interest in “understanding the factors and mechanisms the mind can use to achieve a coherent integration of mind in the face of suboptimal attachment history” (Siegel, 1999, p. 92).

One of these factors is the presence of close, emotional relationships that are subsequent to the early attachment working models. Additionally, it is suggested that since the coherence or incoherence of narratives relates to attachment status, the ability to consciously process stressful and traumatic life events appears to correlate with “secure attachment, flexible affect regulation, and increased availability to narrative memory […].

A healing environment, such as good-enough psychotherapy, in which trauma is processed and resolved, supports this reintegrative process” (Cozolino, 2002, p. 210). The mechanism here seems to be related to successfully linking right-hemisphere, unconscious processes, with left-hemisphere, verbal processes in a coherent manner.

Adult Attachment Considerations

The attachment conceptualizations have been applied to a variety of core relationships, including the child-parent (Hazan & Shaver, 1990), adult-adult love (Pistole, 1994), adult-older parent (Krause & Haverkamp, 1996), professor-student (Lopez, 1996), and the counsellor-client relationship (D’elia, 2001; Lyddon & Sherry, 2001; Pistole, 1999), as well as to issues such as stress and coping resources (Buelow,
Lyddon & Johnson, 2002). In the last 15 years, there has been a large quantity of research suggesting that adult attachment behaviour is organized in a manner similar to that observed in childhood. Both Bowlby and Ainsworth indicated that a secure attachment relationship will facilitate functioning and competence outside the infant-caregiver dyad, and will translate into healthy adult relationships (Crowell & Treboux, 1995). However, their work was primarily based on what happens between infants; this may be in part because infant attachment behaviour is observed more readily in natural (e.g. in the home) as well as laboratory settings. Neither Bowlby nor Ainsworth explored the extent to which attachment patterns come to constitute representational structures – or how the internal working models of attachment are expressed – in later perceptual and cognitive development.

**Adult Attachment Assessment and Research: Overview and Considerations**

One of the ongoing themes in the literature on adult attachment is the question of how to assess attachment accurately. Approaches to adult attachment have relied on two different kinds of self report data: individuals’ recollections of early parental bonding experiences as well as individuals’ evaluations of current relationships with others in general (Buelow, Lyddon & Johnson, 2003). Self-reports and forced-choice measures may to some extent capture the individual’s conscious feeling and perceptions about relationships, but how directly aware are individuals of their attachment representation strategies? Other measures have since been utilized, including an attachment style questionnaire – this has been claimed to be a more “broad-based measure that contains all of the essential elements of attachment theory” (Feeney, Noller & Hanrahan, 1994, p. 149). Whether or not one way of measuring attachment is more valid than another is an
ongoing debate, and a relevant topic with respect to assessment. It is clear that adult attachment measures suffer from a number of psychometric limitations. One of the reasons for Ainsworth’s work withstanding the test of time and not undergoing such intense scrutiny is that she devoted considerable effort to studying child-caregiver interactions in their natural context. There have been some attempts made to observe individuals (particularly couples) in natural or nonlaboratory settings in order to examine the more natural behavioural dynamics of attachment relationships. For example, Fraley and Shaver (1998) conducted a naturalistic observational study of couple members temporarily separating from each other at an airport. In their view,

The airport setting provides an appropriate context for studying adult attachment dynamics because the impending departure is likely to activate attachment-related concerns regarding the safety and availability of the partner. In this respect, it is a partial analogue to the well-known Strange Situation procedure used to study the attachment dynamics of infants separated from their mothers. (p. 1198)

Fraley and Shaver suggest that it can only be a partial analogue because the Strange Situation focused mostly on reunion behaviour rather than pre-separation behaviour, but that airport separations and reunions could, for example, create concerns about the availability and responsiveness of the attachment figure, and potentially “feelings of self-efficacy and self-worth” (Fraley & Shaver, 1998, p. 1199). The other significant difference is, of course, that adults are aware of impending separations and reunions, whereas infants are not.

Using Bartholomew’s (1991) model of four attachment patterns combined with the dimensions of avoidance and anxiety, Fraley and Shaver (1998) found that the
behavioural dynamics observed between separating adults were functionally similar to those observed in children who were separated from their primary caregivers. Before directly observing the couples, questionnaires were completed by the participants to assess the relationship length, attachment style, and degree of subjective distress. The responses observed in the airport setting included protest behaviours, attempts at maintaining proximity, as well as attempts to prevent the departing individual from leaving (Fraley & Shaver, 1998). However, because adult attachments are reciprocal, they also observed mutual caregiving behaviours or attempts to comfort one another. As well, attachment behaviours such as proximity maintenance in terms of holding onto, following, and searching for their partners seemed to occur even when the separation was inevitable. According to the researchers, this seemed to suggest that attachment behaviours were activated under conditions that were perceived as a threat to the relationship, even though adults have the awareness that their protests about a partner’s leaving will not prevent it from happening (Fraley & Shaver, 1998). The working models of attachment also played a clear role in that the behavioural strategies adopted by individuals seemed to reflect their attachment style. For example, subjects categorized as highly avoidant tended to pull away from their partners when separation was imminent, while anxious subjects sought out a higher degree of proximity to their partners due to a higher level of separation distress. While there were limitations to the study, such as individuals potentially suppressing their emotions in a public setting as well as pre-test sensitization as individuals understood that they were being observed (however unobtrusively), it was an ambitious attempt to look at observable behaviours to understand more clearly attachment dynamics in the domain of adult relationships.
Attachment processes seem to influence perceptions, as well as emotions about the self and relationships with others. To what extent, however, is still not entirely clear. For example, there may be other factors besides working models of attachment such as the quality and size of a social support network which shape experiences in adulthood and how one is perceived. While Bowlby stated that internal working models are formed in early childhood, serving as a template for future relationships (romantic or other), there are studies emerging which are beginning to call his conjecture into question; one such study suggests that partners may become less anxious about attachment issues such as separation or abandonment the longer they have been together (Mickelson, Kessler & Shaver, 1997). However, this may point to the reparative potential that may emerge from relationship interactions which challenge or disconfirm ineffectual working models. Herein lie the implications for the counsellor-client relationship.

Attachment and the Therapeutic Relationship

Interpersonal psychotherapy, that which “(a) views maladaptive relationship patterns as the primary cause of many client presenting problems, (b) aims to improve a client’s functioning in current or prospective relationships, and (c) makes explicit use of the psychotherapy relationship as a means of facilitating change” (Mallinckrodt, 2000, p. 240) is the basis for the application of attachment theory and research. It has been suggested that the counselling relationship may be viewed as a medium in which counsellors can “directly experience and observe their clients’ attachment patterns and… ultimately disconfirm dysfunctional working models and attachment patterns” (Lyddon & Sherry, 2001, p. 412).
If this potential can be realized within the counsellor-client relationship, this may have significant effects upon the client. As Pistole (1999) points out, “the human relationship is the primary component interwoven explicitly or implicitly through all counselling” (p. 437). As attachment theory is applied to the counselling relationship, a focus has been on the transformation of clients’ attachment organization so that current relationships have less distortion and greater competence.

What importance does this hold? Pistole (1999) suggests that people who are preoccupied with attachment concerns cannot devote the same attention to exploratory behaviour as those who are not focused on such concerns. She suggests that these preoccupied individuals may, therefore, have diminished mastery or coping skills. This can affect exploratory behaviours such as work and career development (Blustein, Prezioso & Schultheiss, 1995; Hazan & Shaver, 1990), curiosity and information processing (Mikulincer, 1997), constructive thinking (Lopez, 1996), relationship processes (Shaver, Schachner, & Mikulincer, 2005) as well as how one learns effective coping and emotional self-regulation strategies (Buelow, Lyddon & Johnson, 2002) and one’s capacity for compassion and responsive, altruistic behaviours (Mikulincer & Shaver, 2005).

Bowlby (1988) theorized that an individual’s internal working models can be constantly revised and changed based on the experiences in the individual’s adult life. D’Elia (2001) surmised that attachment patterns are, therefore, “not immutable and non-independent of subsequent experience” (p. 332). It is suggested that the therapeutic situation is likely to activate the client’s attachment system (D’Elia, 2001; Lyddon & Sherry, 2001); the client brings his or her familiar pattern of attachment into therapy.
(secure, ambivalent, avoidant or disorganized); in this forum, the client can view the therapist as a potential attachment figure. It is here that the pattern of attachment can become explicit – i.e., how the client approaches and treats the therapist – and this pattern can be the target of corrective interventions (D’Elia, 2001). Therefore, the attachment literature suggests that an internal ‘secure base’ can be reconstructed if the therapist is capable of being responsive and attuned to the feelings, thoughts and behaviours of the client (Bowlby, 1988; D’Elia, 2001; Lyddon & Sherry, 2001; Mallinckrodt, 2000).

Gelso and Carter (1995) suggested that the richness of the relationship is lost when researchers focus primarily on what the therapist says and does: “The relationship appears to be defined in terms of therapist offered conditions, rather than the two-way interaction that a relationship must be” (p. 222). Additionally, they extend the proposition “that it is time for us to begin examining the very global concept of ‘relationship’ in much more specific and complex ways than we have heretofore” (p. 222). Myers (2003) suggests that we must move beyond the study of therapeutic techniques toward an exploration of natural dialogue, interaction, and personal experience.

The qualitative study of Myers (2003) affirmed the relationship as a growth engendering force in successful therapeutic encounters. Although her intent was to present a thick description of clients’ experiences of the relational bond, her study was naturally limited and unable to be representative of therapy clients in general. She had a small sample size (5 participants), all of whom were female. As with many of the other studies, (Buelow, Lyddon & Johnson, 2002; Satterfield & Lyddon, 1995, 1998) the research was conducted at university counselling centres. Information was not provided
on the participants’ ethnicity or socio-economic status; therefore, this is a limitation that could be given attention in further research.

Satterfield and Lyddon (1995) researched the extent to which individual differences in attachment may be related to clients’ perceptions of the working alliance. They hypothesized that clients’ working models of attachment would correlate positively with their ratings of the working alliance as well as with their exhibiting greater attachment security and with reporting greater satisfaction with the counselling relationship. As predicted, the researchers found a significant positive relationship between the depend dimension of the Adult Attachment Survey (AAS) and the global working alliance score of the working Alliance Inventory (WAI). The research was limited in its generalizability by the fact that all of the counsellors involved in the studies were trainees. As with much of the other research, this was performed at the university counselling centre and the gender, ages, socioeconomic status and ethnicity of the clients were not remarked upon. The researchers noted a relatively high attrition rate of participants, therefore limiting the study further.

Perhaps attachment organization is a universal developmental phenomenon which is independent of socio-economic status, ethnicity or gender. Bowlby’s conceptualizations and observations and the work of Ainsworth (1985) would seem to support this. D’Elia (2001) suggests that a drawback of Bowlby’s work was his “vague and hesitant use of specific ethological concepts, in spite of his bold arguing that the concepts of ethology are relevant to human development” (p. 335). As for the research, it seems that many of the studies as they relate to adult attachment have the following limitations: the use of convenience (i.e., student) samples which may limit the generalizability of findings to
other populations; the use of self-report instruments that are subject to demand characteristics and social desirability, and requesting that respondents report on remembrances of early care, raising the problem of errors in recall, subjectivity and intervening history.

As recently as 2000, Strauss surmised that “only a small number of studies so far” (p. 386) have focused on the attachment styles of the psychotherapist. Research of this nature might provide further understanding of therapist styles and their impact on therapeutic outcomes. For example, in Rubino, Barker, Roth and Fearon’s (2000) study, they attempted to relate therapists’ empathy and the depth of their interpretations during therapeutic ruptures to the therapist’s attachment characteristics. Dozier, Cue, and Barnett (1994) found that case managers who were ‘insecure’ intervened differently with their clients than ‘secure’ managers. They found that the more secure the case managers were, the more helpful the responses they provided were. Bowlby himself paralleled attachment theory to psychotherapy:

The therapeutic alliance appears as a secure base, an internal object as a working or representational model of an attachment figure, reconstruction as exploring memories of the past, resistance as deep reluctance to disobey the past orders of parents not to tell or not to remember. (Bowlby, 1988, p. 151)

As well as the potential for a better understanding the impact that counsellors’ styles of attachment have on the therapeutic relationship, it would be useful to examine how the knowledge of client attachment dimensions can be utilized by counsellors to facilitate the formation of the working alliance.
Contextual Considerations

Criticisms of socialization theories such as attachment theory would generally point to the emphasis on relationship quality and past emphasis on parenting as limited and naïve; one that is ignoring the importance of the individual’s constitutional (genetic) predisposition.

The context that attachment theory has been situated in over the last 30 years has been one of a shifting paradigm – from an emphasis on “developmental reductionism and naïve environmentalism” (Fonagy & Target, 2002, p. 308) to “a biological positivist epistemology with an emphasis on genetic determinism” (p. 308). In this context of behaviour genetic research, the importance of early socialization had been relegated to a relatively minor place.

More recently, significant interdisciplinary research has expanded the understanding of the concept of attachment (Fonagy & Target, 2002; Schore, 2003a, 2003b; Shaver & Mikulincer, 2002; Siegel, 1999). Fonagy and Target (2002) suggest that “the case for sidelining parenting in general, and early attachment relationships in particular, has tended to be based on inaccurate representations of the behavior genetics data” (p. 308). Siegel (1999) points out that “genes encode the information for how neurons are to grow, make connections with each other, and die back as the brain attains differentiation in its circuitry. These processes are genetically pre-programmed and experience dependent” (p. 18). Therefore, developmental neurobiologists are showing how each individual’s history is a complex blend of experiences that emerge out of the environment, random events, and the person’s temperament wherein adaptation and learning recursively shape the development of the mind (Siegel, 1999).
Fonagy and Target (2002) point out that attachment theory is of particular interest to prevention researchers because it is a well-integrated, coherent model that “provides for the integration of early childhood experience with later development, particularly the emergence of psychopathology” (p. 310). However, they explain that developing reliable intervention approaches has been problematic because there are a number of potential pathways that have been proposed to be influential on attachment history and subsequent development. There are a number of research-based models that attempt to explain the pathways of early intervention research; this is important as the pathways will indicate the intervention approach. The pathways are proposed by the following three models: 1) The social environment. According to this model, consistency in the social environment across time (i.e. quality of care) is important. Intervention would focus on modifications of the child’s social environment. These modifications would not have to take place early since it is the quality of the social world that is related to functioning and the impact of early environment is incidental. 2) Relationship representations. Here, working models of relationship (in which expectations regarding intimacy and care from others) are encoded through sensitive, responsive parenting in infancy. Interventions would address suboptimal internal working models. Early intervention would be necessary. 3) Cumulative risk. Fonagy and Target (2002) point out that there are problems and shortcomings of the first two models and suggest that the most likely indicator of insecure or disorganized attachment to later maladaptive or pathological outcome evolves from a combination of risk factors. They point out that this is the dominant risk model in modern developmental psychopathology: “Insecure attachment may combine with family, social adversity, ineffective parenting skills, and atypical child characteristics to generate
significant risk of behavioural disorder” (p. 312). However, the cumulative risk model fails to generate effective models of intervention.

Recently, Peter Fonagy reformulated and reinterpreted the understanding of the development of relationships and attachment. Fonagy and Target (2002) suggest that ultimately, *self-regulation* can be considered to be the “key mediator between genetic predisposition, early experience, and adult functioning” (p. 307). Essentially, the early relationship environment equips the individual with an information processing control system - a *regulatory system*. It is through the *function of attachment* to a caregiver that this regulatory system is created. This is thought to be the most important *evolutionary function* of attachment. Fonagy and Target (2002) suggest that the concept of self-regulation is a promising and significant way of viewing the importance of early environment (and the individual’s ability to adjust and control his or her responses to the environment). Advances in neuroscience methodology have permitted the exploration of how early experience with a primary caregiver may shape the brain systems that control adult behaviour. Fonagy and Target (2002) suggest that we can view the “whole of child development to be the enhancement of self-regulation” (p. 313) and that the self-regulatory function develops through the attachment to caregiver. Fonagy and Target (2002) echo other neuropsychological research (Polan & Hofer, 1999; Schore, 2003a, 2003b) when they propose that the function of the attachment relationship is to provide an opportunity for the mother to shape the physiology and behaviour of the child through her patterned interactions with her child (Polan & Hofer, 1999). Therefore, Fonagy and Target (2002) suggest that attachment can be seen “not as an end in itself but as a system that evolution has adapted to ensure that key ontogenetic physiological and psychological
goals are attained” (p. 325). Current literature on attachment suggests that viewing attachment as solely relationship representations does a disservice to the importance of attachment for psychic development. The role of early relationships is “formative because they facilitate the development of the brain’s major self-regulation mechanisms, which in turn allow the individual to perform effectively in society” (Fonagy & Target, 2002, p. 328).

Experience Shapes the Brain

Studies of early trauma and neglect (Schore, 2000, 2003a, 2003b; Siegel, 1999) reveal that neural structure and function within the brain can be severely affected from such stressors. This can lead to long-lasting and extensive effects on the brain’s capacity and ability to react to stress and can create fundamental impairments in self-organization. Early experiences that help the brain/mind/body achieve coherent self organization and form the foundation for secure attachment are proposed as:

- Contingent, collaborative communication; psychobiological state attunement;
- mutually shared interactions that involve the amplification of positive affective states and the reduction of negative ones; reflection on mental models of security that enable emotional modulation and positive expectances for future interactions.

(Siegel, 1999, p.118)

In terms of the consideration of gene expression apart from early socialization experiences, research is clarifying that development is a product of the effect of experience on the unfolding genetic potential (Siegel, 1999). Therefore, when considering a young child’s early development, his or her earliest experiences in the social
environment influence the expression of genes, which determine how neurons connect and create neuronal pathways which give rise to mental activity.

Summary

Attachment is an evolutionary, biosocial theory regarding the human orientation to make strong affectional bonds to particular others. It is based on the idea that human beings evolved in kinship groups and that survival was increased by the maintenance of secure bonds. Bowlby’s seminal theory has inspired further investigations of relational processes, not only in psychotherapy and psychoanalysis, but also in the fields of affective neuroscience, neuropsychiatry, developmental psychopathology, trauma theory, infant mental health, and behavioural biology.

Current contributors to attachment theory emphasize the critical nature of the mutual regulation of affective homeostasis (Amini, Lewis, & Lannon, 1996). Insecure attachments are not equivalent to mental disorders, they can, however, create a risk of psychological and social dysfunction. Lead figures in attachment research are currently suggesting that attachment theory is fundamentally a regulatory theory (Fonagy & Target, 2002; Schore, 1994, 2003a, 2003b; Siegel, 1999). Clinical and research models are stressing the importance not only of affect, but of affect regulation in psychological and biological development (Fonagy & Target, 2002, Schore, 2000, 2003a, 2003b). This has significance because the ability to be affectively well regulated increases the individual’s capacity for exploratory and prosocial behaviours (e.g. Mikulincer, 1997; Mikulincer & Shaver, 2005).
CHAPTER IV: LITERATURE REVIEW
Neurobiology and Affect Regulation

For the infant and young adult, attachment relationships are the major developmental factors that shape the development of the brain during its period of maximal growth – therefore, caregivers are the architects of the way in which experience influences the unfolding of genetically pre-programmed but experience dependent brain development. Genetic potential is expressed within the setting of social experiences which directly influence how neurons connect to one another. Human connections create neural connections. (Siegel, 1999, p. 85)

There has been a recent convergence between neuroscience and psychology that has allowed human development and psychopathogenesis to be explained from a psychoneurobiological perspective. This perspective has embraced the relational approaches and is currently expressed predominantly in the language of the psychoanalytic relational paradigm.

Until this last decade, the human sciences have avoided the investigation of emotional processes (Schore, 2003b). The neuroscientist Damasio (1995) notes that “emotion has received benign neglect from neuroscience and has been passed over in favor of the study of attention, perception, memory, and language” (p. 19). Concurrently, psychoanalysis has been developing out of its autonomous existence where it has seemed to live relatively isolated and remote from other sciences. Schore (2003b) suggests that “a consensus is now building that the deeper mechanisms that underlie affective processes, which play an essential role in adaptive functions, can be elucidated by a neuropsychoanalytic perspective that attends to both psychic structure and function” (p.
There is a shift in emphasis in contemporary theory and research from its traditional focus on “left-brain,” verbal, and cognitive processes to a current, intense interest on “right-brain” emotional and relational processes. In fact, Schore (2003b) states that the right hemisphere - the “locus of the emotional self” (p. 147) - is the “biological substrate of the human unconscious” (p. 147). The centrality of affective states “clearly suggests that both neuroscience and psychoanalysis must pay more attention to the links of the brain-mind into the body” (Schore, 2003b, p. 205).

The Psychoanalytic Paradigm and the Nervous System

The pediatrician and psychoanalyst Donald Winnicott (1960) developed some basic principles that parallel and relate to attachment research findings. They form a framework for understanding the growth and integration of the person that can also be applied to the nervous system (Schore, 2003b; Siegel, 1999, Winnicott, 1960, 1988). The principles that Winnicott developed pre-dated and paralleled the findings of the attachment research. His psychological perspective has been highly influential in providing a view of growth and integration that can also be applied to the nervous system (Cozolino, 2002).

Winnicott described the essence of mothering as providing a holding environment wherein empathy and devotion offer a scaffolding environment for her child’s growth. The mother’s focus on as well as attunement with her infant’s developmental state was defined by Winnicott as primary maternal preoccupation (Winnicott, 1971). The quality of maternal attention was a key factor in determining how infants thrived. According to Winnicott, the good-enough mother is a mother who is able to do an adequate job of attuning to her infant’s needs and abilities despite the complex and always changing
process of growth and adaptation. This regulatory pattern of disruption and repair has been discussed and described further by developmental neuroscientists (Lewis et al., 2000; Schore, 2003a; Siegel, 1999). The good-enough caregiver is one who “induces stress responses in his/her infant through a misattunement, [and then] reinvokes in a timely fashion his/her psychobiologically attuned regulation of the infant’s negative affect state that he/she has triggered (Schore, 2003a, p. 93).

Winnicott’s holding function has been described further within a psychoneurobiological model as an affect-regulating mechanism (Schore, 2003a). Essentially, the mother must be sensitive to how the child feels and be able to tolerate the child’s (at times) increasingly intense affective tension, but be able to reach out and comfort the child before the child’s feelings become overwhelming (Schore, 2003a). Fonagy and Target (2002) suggest that in order to perform this parental regulatory function, the adult must be able to mirror the infant’s distressed state without herself becoming overwhelmed by it.

These interactive (bidirectional) transactions echo Heinz Kohut’s (1971) positions that internal homeostasis is maintained in the infant by the infant’s continual reciprocal interactions with self-objects. Kohut had trained in neurology and psychoanalysis and in 1971 published The Analysis of the Self. He put forward a number of elaborations on psychoanalytic principles as well as innovations, such as an emphasis on the self rather than the ego (leading to Kohut’s self psychology). Schore (2003b) outlines four basic questions Kohut posed in his seminal volume, and from which all of Kohut’s subsequent work emerged:
How do early relational affective transactions with the social environment facilitate the emergence of self (*development of the self*)? How are these experiences internalized into maturing self-regulating structures (*structuralization of the self*)? How do early-forming deficits of self-structure lead to alter self pathologies (*psychopathogenesis*)? How can the therapeutic relationship lead to a restoration of self (*the mechanism of psychotherapeutic change*)? (p. 108)

A developmental principle that is fundamental to self-psychology is that caregivers with mature psychological organizations serve as *self-objects*. The self-object performs essential regulatory functions for the infant who possesses an undeveloped psychological organization (Kohut, 1971). Schore (2003b) points to this aspect of Kohut’s theory as being a “major intellectual impetus for the expansion of the relational perspective in psychoanalysis” (p. 110). Instead of focusing only on the individual intrapsychic processes, Kohut proposed that there is an intersubjective unconscious communication taking place between both participants.

Psychobiological research (Hofer, 1994; Schore 2003b) confirms Kohut’s developmental psychoanalytic model. Schore (2003b) states that “self-objects are thus external psychobiological regulators […], and they act at nonverbal levels beneath conscious awareness to co create states of maximal cohesion and vitalization […]” (p. 14). To do this, however, the caregiver (self-object) must be able to sense and then regulate his or her own affective state as well as the child’s. This can be an extremely emotionally demanding task (Schore, 2003).

Psychoanalysis has been called the science of unconscious processes. Another aspect of unconscious communication that is proposed to begin in early development and
to continue throughout life is the process of *projective identification*. Melanie Klein (1946) defined projective identification as a process wherein largely unconscious information is projected from the sender to the recipient. This is regarded as a primitive form of communication. These non-linguistic, nonconscious transmissions can influence the receptive functions of another unconscious mind. Ogden (1979) states that “in projective identification, the projector by means of actual interpersonal interactions with the ‘recipient’ unconsciously induces *feeling states* in the recipient that are congruent with the ‘ejected’ feelings” (p. 358). Once thought of as a unidirectional process, the concept is instead considered to be an intersubjective, bi-directional, interactive process (Muir, 1995; Ogden, 1979; Schore, 2003b). This mutual reciprocal influence arises in the emotional communication between caregiver and child. It is mediated by nonverbal signs and takes place in “intimate or close relationships, such as the mother-child relationship or the patient-analyst relationship” (Migone, 1995, p. 626).

As mentioned earlier, the ability to regulate one’s own internal state while tolerating and mirroring the distressed state of another is an emotionally demanding task. In the infant-mother dyad, the mother may be unable to avoid releasing signals that she is affected by the child’s projected distress. Carpy (1989) suggests that it is actually developmentally helpful for the infant to sense that the mother is struggling to tolerate her projected distress while at the same time witnessing that it is not causing a major disruption of her maternal functioning: “It is these indications which allow the infant to see that the projected aspects of herself can indeed be tolerated” (p. 293).

The psychoneurobiological literature suggests that the “maternal comforting substrate resides in the mother’s right brain” (Schore, 2003a, p. 94). The ‘primitive’ form
of communication involved in projective identification emerges from structures in this hemisphere which is dominant for non-verbal behaviour and for responding to stress (Schore, 2003a). In terms of affect regulation, Schore (2003b) suggests that primitive mental states of mind are not only mental or cognitive states, but “are more precisely characterized as *psychobiological states*” (p. 59). This proposal is holistic in that it reunites the mind and body and brings the consideration of both into the therapeutic context. According to Schore (2003b), affective states are somatically driven, highly efficient forms of emotional communication that are essentially nonverbal. Therefore, the communication of affective states and processes, more so than of cognitions and content, is proposed to play a critical role in the clinical context.

Neuroscience, Attachment and Psychobiological Development

The construct of attachment is believed to be linked to developmental neuroscience in that the mother and child experience connections and disconnections in their vital emotional communications during the period of brain growth that especially spans through the second year of life (Schore, 1994, 2003a; Stern, 2000). These attachment transactions are said to mediate the social construction of the human brain (Eisenberg, 1995).

Affect Regulation

*Allan Schore.* Allan Schore is recognized for his work that offers a detailed interdisciplinary model of the early organization of the self by integrating infant research, neuropsychological research and research on attachment and the development of self. One of his achievements has been to translate developmental principles of self-psychology into neurobiological terms, highlighting the importance of affect and right brain activity
in health and dysfunction. As mind-body considerations, his model describes how dyadic emotional attachment communications regulate the experience-dependent development of the emotion processing limbic system. In psychoneurobiological terms, he illustrates how attachment theory is fundamentally a regulatory theory.

Developmental neuroscientists point to critical periods in terms of affective neurodevelopment and through this, the groundwork is created for the origin and development (ontogenesis) of secure and insecure attachments (Chiron, Jambaque, Nabbout, Lounes, Syrota, & Dulac, 1997; Ryan, Kuhl, & Deci, 1997, Schore, 2003a). Schore and other leading figures (Fonagy & Target, 1997, 2002; Shaver, 2002b; Siegel, 1999; Stern, 1985, 2004; van Ijzendoorn, 1995) are supporting and expanding upon Bowlby’s work by providing research which shows the effects of the earliest attachment relationships on the developing brain and nervous system. This more recent material reflects “not only the tremendous expansion of relevant developmental and brain studies over the last decade, but also the dramatic emergence of data from neuroimaging technologies in this same period” (Schore, 2003a, xiv)

Within the attachment relationship, the secure mother – at an intuitive, nonconscious level – is continuously regulating the infant’s shifting arousal levels. Attachment can be defined as the dyadic regulation of emotion (Sroufe, 1996) and emotions are the highest order direct expression of bioregulation in complex organisms (Damasio, 1998). By being exposed to the primary caregiver’s regulatory function, “the infant’s expanding adaptive ability to evaluate on a moment-to-moment basis stressful changes in the external environment, allows him or her to form coherent responses to cope with stressors” (Schore, 2003a, p. 134).
A growing body of developmental psychobiological research is documenting how the maturation of the limbic brain is significantly influenced by the social-emotional experiences that are essential to the attachment relationship (Schore, 2003a, 2003b). Neuroscience research is describing the structural systems of the developing unconscious. Schore (1994) documents the neurobiology of subjectivity and intersubjectivity which he equates with the “experience-dependent self-organization of the early developing right hemisphere” (2003a, p. 34). Furthermore, Schore suggests that “the structural development of the right hemisphere mediates the functional development of the unconscious mind” (p. 34) and that the right hemisphere is the repository of Bowlby’s unconscious ‘internal working models’ of the attachment relationship. Importantly for infant attachment processes, the right hemisphere is shown to be dominant from infancy for the first three years of life (Chiron, Jambaque, Nabbout, Lounes, Syrota, & Dulac, 1997).

**Affect Regulation in Infancy**

From the moment of birth, the primary caregiver is essential in regulating her infant’s biological states (Schore, 2003a). Along with other systems, the central and peripheral nervous systems continue to mature throughout infancy. The mother’s involvement is critical to many life-sustaining functions that ultimately become ‘auto-regulated.’ These first psychosocial contacts are involved in the establishment of the infant’s biological rhythms. By the second quarter of the first year, “with the increasing myelination of the occipital areas of the cerebral cortex” (Schore, 2003a, p. 7), the mother’s affective responses to the infant are picked up via the visual information of
mutual gaze. Through this function, the mother and child impact each other’s internal states (Schore, 2003a).

At this stage of infancy, the mother and child have extended periods of mutual gaze. This interpersonal system evokes the “transmission of reciprocal influences” (Schore, 2003a, p. 7) and is an intense form of communication. However, the mother must be able to psychobiologically attune to the evoked internal state of the infant. If the mother and the infant are synchronized in their interactions – coordinated not only their engagement, but also in their disengagement – the caregiver is then effectively facilitating the infant’s information processing. This is because she is able to sensitively adjust “the mode, amount, variability and timing of stimulation to the infant’s actual integrative capacities” (p. 7). Mutual gaze as well as facial mirroring illustrate how the “development of mutually attuned synchronized interactions is fundamental to the ongoing affective development of the infant” (p. 7).

The mother’s face essentially becomes the child’s emotional mirror. The child’s self-state is affirmed through the mother’s attuned reflection back to him or her. This process is vitalizing and affirming for both partners. The infant’s increasing capacity for experiencing “levels of self-maintaining vitality affects is thus at this stage externally regulated by the psychobiologically attuned mother” (Schore, 2003a, p. 8). This process depends upon the mother’s capacity to “engage in an interactive emotion communicating mechanism that generates these in herself and her child” (p. 8). In this way, the mother is the architect of the infant’s emerging ability to tolerate increasingly higher levels of arousal as the mother is the psychobiological modulator of the infant’s states. The evolution of affect regulation is a major task of the first year of life (Schore, 2003a).
This nonverbal, implicit communication between mother and child increases throughout the first year of the child’s life. Through this communication, the mother and child experience a ‘merger’ “that acts as a crucible for the forging of preverbal affective ties, that is, for the generation of a bond between the infant and the attachment object” (Schore, 2003a, p. 8). According to Stern (1985), positive emotions such as pleasure and interest are the major indicators of affect attunement. The central adaptive function of attachment is for optimal levels of the pleasurable states of ‘interest-excitement’ and ‘enjoyment-joy’ to be interactively evoked and maintained (Schore, 2003a).

According to Schore (2003a) neurobiological research is showing that the complex structural systems of self-regulation are located primarily in the orbital prefrontal cortex – the largest area of the human cerebral cortex. These systems are not complete at birth, nor do they emerge spontaneously as the child develops. They are formed postnatally through social contact. This area of the cerebral cortex “is so intimately interconnected into limbic areas that it has been conceived of as an ‘association cortex’ for the limbic forebrain” (Schore, 2003a, p. 14).

The infant’s early maturing right hemisphere is dominant for processing visual emotional information as well as recognition of the mother’s face and the “perception of arousal-inducing maternal facial expressions” (Schore, 2003a, p. 9). The right hemisphere is psychobiologically attuned to the “output of the mother’s right hemisphere, which is involved in the expression and processing of emotional information and in nonverbal communication” (p. 9). The right cortex is impacted by early social experiences and is activated by intense states of elation. It is part of the development of “reciprocal interactions within the mother-infant regulatory system” (p. 9). Essentially, the infant uses
the mother’s output from the “emotion-regulating right cortex as a template for the 
imprinting, the hardwiring of circuits in his own right cortex that will come to mediate his 
expending affective capacities” (p. 9).

In optimal growth-promoting environments in the second year of life, the 
interactive mechanisms described above increase in efficiency. As the child begins to 
toddle, he or she is often experiencing very high levels of elation and excitement (Schore, 
2003a). Schore cites research which shows that prior to 13 months, 90% of maternal 
interaction consists of affection, play and caregiving. This is contrasted with the toddler 
stage (from 13-17 months) wherein the mother “expresses a prohibition on the average of 
every nine minutes” (p. 16). The mother’s function evolves from a caregiver to a 
“socialization agent” as, in the second year of life, the mother must “now persuade the 
child to inhibit unrestricted exploration, tantrums, bladder and bowel function…” (p. 16).

Neurobiology of Emotional Development

Neuroscience generally recognizes a tripartite division of the brain into the 
cerebral cortex, the limbic system, and the brainstem (Schore, 2003a). The limbic system 
lies between the brainstem and the cortex. It includes the amygdala and hippocampus that 
are involved with learning, motivation, memory, and emotion. Cozolino (2002) suggests 
that the limbic system can be thought of as a mediator between the internal and external 
environments “where the primitive needs of the organism negotiate with the requirements 
of the outside world” (p. 71).

The neural networks that relate to fear, attachment, early memory and emotional 
experiences are contained in the amygdala (limbic system). “Experience sculpts the brain 
through selective excitation of neurons and the subsequent shaping of neural networks”
Long term potentiation organizes the neural networks when excitation, or repeated firing between cells is prolonged. This allows them to become interconnected and synchronized in their firing patterns. Long term potentiation is thought to be the fundamental principle of learning. Cozolino (2002) refers to neural plasticity as the ability of neurons to change the way they behave and relate to one another as the brain adapts to the environment through time. The brainstem is fully functional at birth. In contrast, the limbic system is in the process of “rapidly wiring” (p. 75) throughout early infancy while the cortex is immature at birth and develops through the first two decades of life. As the cortex gradually develops, its neural networks connect with subcortical areas and bring those areas under cortical control. An essential aspect of the development of the cortex is that it is inhibitory. This inhibitory function is thought to be central to affect regulation:

As the middle portions of the frontal cortex expand and extend their fibers down into the limbic system and brainstem, children gradually gain increasing capacity to regulate their emotions and find ways to gain soothing, first through others and eventually by themselves. (Cozolino, 2002, p. 78)

As the cortex and limbic systems are maturing and shaping after birth, this allows for highly specific environmental adaptations. Developmental affective neurobiologists point out that the caretaker relationship is the primary means by which the physical and cultural environments are translated to infants (Schore, 2003a; Siegel, 1999; Stern, 1985).

The orbitofrontal cortex plays a key role in emotional life. It is particularly linked to the right side of the brain. According to Schore (2003a), the orbitofrontal cortex is the controller for the entire right brain, which is dominant throughout infancy. It is also larger
on the right side of the brain. Through its connections to the more primitive brain systems, it can inhibit rage reactions, switch off fear, and generally ‘apply brakes’ to feelings that arise in subcortical areas. This ability to hold back and defer immediate impulses and desires is the basis for willpower and self-control, as well as the capacity for empathy. The maturation of this area is experience dependent (Schore, 2003a).

The infant’s development starts with touch, moves to visual dominance and the final stage of early emotional development of the brain is the development of a verbal self. It seems to be the process of putting feelings into words that enables the left and right hemispheres to become integrated. When words accurately describe feelings, they can then be blended into a coherent whole (Gerhardt, 2004). As the verbal self develops, the quality of caregiver feedback is critical. If the mother is well-attuned to the child’s emotional state, she will be able to acknowledge the child’s current emotional state and to symbolize it accurately in words. Then, the child can develop an emotional vocabulary and symbolize it accurately. This is how the self becomes differentiated. If caregivers fail to verbalize feelings, or if they represent them inaccurately, it will be much more difficult for the child to express feelings. If feelings remain unsymbolized, then emotional arousal (affect dysregulation) cannot be managed in a more conscious, verbal fashion. The child’s sense of self will remain more undifferentiated (Gerhardt, 2004).

The other self – the primary caregiver – essentially acts as an external psychobiological regulator of the “experience-dependent” (Schore, 2003a, p. 6) growth of the infant’s nervous system whose components are rapidly organizing, disorganizing, and reorganizing in the brain growth spurt of the first two years of life. According to Schore:
This “experience” is specifically affective, and the system of reciprocal mutual influences that is created by the caregiver-infant dyad accounts for the central role of affect in the formation of an attachment bond between the pair. These experiences are also shaping the maturation of structural connections within the cortical and subcortical limbic areas that come to mediate socioaffective functions. This interactively regulated affective interchange therefore constitutes a mechanism by which the social environment influences the development of sociobiological systems in homeostatic regulation. In optimal growth-facilitating socioemotional environments that provide modulated and varied affective experiences, the structural maturation of the brain in infancy and childhood is expressed in the ontogenetic emergence of more complex autoregulatory functional systems. In contrast, misattuned relational environments that generate high levels of negative affect act as growth inhibiting environments for developing corticolimbic systems. (2003a, p. 6)

*The Effects of Infant Stress on Future Emotional Development*

A key feature of insecure attachment is a lack of confidence in others’ emotional availability and support. The development of the infant brain/mind/body is such that infants cannot manage their own cortisol; stress needs to be managed for them. Their immature systems are unstable and reactive; therefore they can be plunged into very high cortisol levels if they are not being responded to. It is not necessarily the nature of the stress that matters, but the availability of others to help manage it. Gradually, infants become more used to distressing situations (and able to self-regulate) if they are confident that they will be contingently responded to by an adult caregiver. If they have such
experiences, then cortisol spikes are less easily initiated. The stress response system is
affected by how much early stress it has to deal with, and how well the system is helped
to recover. Therefore, there is a powerful link between emotional security (or insecurity)
and cortisol function (or dysfunction). A well-resourced and well regulated infant
develops into a child and adult who can regulate himself or herself well (Essex, Klein,
Cho, & Kalin, 2002). Research findings strongly support the importance of emotional
regulation and the critical necessity for small children of having someone continuously
available to notice and attune to them, help them to regulate, and ensure that the
attachment bond is reconnected when misattunements occur (Dettling, Gunnar, &
Donzella, 1999; Dettling, Parker, Lane, Sebanc, & Gunnar, 2000; van der Kolk & Fisler,
1994).

Relational Trauma

An event becomes traumatic when the child’s self-object tie is ruptured. If there is
not a subsequent opportunity for repair, this can severely alter the child’s self-state
(Lachmann & Beebe, 1997). In other words, when the caregiver is unavailable to the child
to provide empathy and soothing, the child “must resort to pathological forms of escape”
(Mollon, as cited by Schore, 2003b, p. 212). When the caregiver is unreliable and
inconsistent in providing soothing, “the traumatized child is unable to regulate his or her
mental state and restore emotional equilibrium” (p. 212). The infant is then at the mercy
of this dysregulated state and the child has no choice but to devote all of his or her
resources to controlling these states. The child is consumed by these states and cannot
expend resources on anything else until these states are brought under control (Schore,
This means that opportunities for socioemotional learning are forfeited at critical periods in right brain development and the child is unable to develop (Schore, 2003b).

Schore (2003b) notes that American Child Abuse and Neglect Statistics from 2000 report that the highest rate of victimization occurs in children from birth to age 3, and that “over half of fatalities due to maltreatment occur in this age group” (p. 123).

Essentially, the experience of trauma is a disruption of the link between the “self” and the mothering “empathic other”. Through this disruption, the maternal introject, or mothering (self-object regulatory) function, becomes damaged or deficient (Schore, 2003b). This deficiency is expressed in a poorly evolved right frontolimbic system, which is the centre for the brain’s major regulatory functions (Schore, 2003b).

Numerous research studies are showing how maternal neglect or deprivation (forms of relational trauma) effect the development of the infant brain (e.g. Zhang, Levine, Dent, Zhan, Xing, Okimoto, Gordon, Post, & Smith, 2002). Schore (2003a) proposes that relational trauma induces cell death which is intensified in the developing limbic system. This impacts attachment functions in the following way:

The brain of an infant who experiences frequent intense attachment disruptions and little interactive repair is chronically exposed to states of impaired homeostasis which he or she shifts into in order to maintain basic metabolic processes for survival. If the caregiver does not participate in reparative functions that reduce stress and re establish psychobiological equilibrium, the limbic connections that are in the process of developing are exposed to a toxic chemistry that negatively impacts a developing brain. (p. 289)
Research shows that permanent alterations occur in opiate, corticosteroid, corticotrophin releasing factor, dopamine, noradrenaline, and serotonin receptors through adverse early social experiences (Meerlo et al., 2001; van der Kolk, 1987). These impairments can be linked to aggression dysregulation (Dolan, Deaken, Roberts, & Anderson, 2002; Oquendo & Mann, 2000).

With the general societal valuing of independence, parents and caregivers may make misguided attempts to inculcate independence in infants by exposing them to long periods of waiting for soothing or comfort or long absences from the mother in order to achieve this aim (Gerhardt, 2004). However, this is undermining for the infant’s confidence and paradoxically results in a child who is more dependent, not less. Self-organization of the developing brain occurs in the context of another self, another brain. This relational context can be growth facilitating or growth inhibiting and will imprint into the developing right brain “either a reliance against or a vulnerability to later forming psychiatric disorders” (Schore, 2003a, xv).

Shame as a Regulatory Function

Shame, as “the primary social emotion” or the attachment emotion (Schore, 1991; Lewis, 2000), appears in the developmental phase from 14 to 16 months. Up to this point, under optimal circumstances, the child has had access to the experience of his or her psychobiological state being matched or ‘attuned’ to by the mother. According to Schore (2003a), the child has come to anticipate the experience of “a psychobiologically attuned shared positive affect state” (p. 17) with the mother. In this way, “psychobiological attunement drives the attachment process by acting as a mechanism that maximizes and expands positive affect and minimizes and diminishes negative affect” (p. 17).
Misattunements, however, mediate the socialization process. This is because the child expects to share a positive affect state with the mother. Instead the child experiences – through visual and facial cues - the expressed affective misattunement with the mother. “The ensuing break in an anticipated visual-affective communication triggers a sudden shock-induced deflation of positive affect. Shame represents this rapid state transition from a preexisting positive state to a negative state” (Schore, 2003a, p. 17).

The misattunement that the child experiences through shame (as well as other negative impacts) reflects a regulatory failure and can be linked to discontinuity of the child’s experience of what Winnicott called the child’s need for going on being (Winnicott, 1958). In contrast to the attuned state, the misattunement caused by shame creates a state of intense psycho-physiological distress. The child’s emotional development is greatly affected by the frequency and duration of his or her experience of this state (Schore, 2003a).

Developmental psychobiologists illustrate the physiological outcomes related to repeated or prolonged relational trauma (Schore, 2003a; Tronick, 1989). The parent’s active participation is necessary in “regulating the child’s shame state […] and […] enabling the child to shift from the negative affective state of deflation and distress to a reestablished state of positive affect” (Schore, 2003a, p. 19). These interactive repairs are required for the child to develop the ability to self-regulate:

If the caregiver is sensitive, responsive, and emotionally approachable, especially if she reinitiates and reenters into synchronized mutual gaze visual-affect transactions, the dyad is psychobiologically reattuned, shame is metabolized and regulated, and the attachment bond is reconnected. (Schore, 2003a, p. 19)
The rupture and repair is developmentally important (as in Winnicott’s good-enough mother and the holding function that she provides). The mother is in a state of psychobiological attunement with the child, yet is also able to manage and respond to disruptions – or misattunements – that provoke a stress response in the child. When the child knows he or she can rely on the caregiver to reinvoke attuned, regulated states, the child develops a concept of the caregiver as predictable. This permits the child to “develop the capacity for anticipation of relief and a sense of his own efficacy” (Schore, 2003a, p. 20). Therefore an internal representation is constructed of the self as effective, one whose interactions are positive and reparable (Tronick, 1989). The caregiver who can maintain affective engagement while the child is experiencing negative affect is able to reduce the child’s negative affect, both because of the engagement, and her ability to communicate a tolerance of negative affect in both individuals (Schore, 2003a).

Emotions and Self-Regulation

Emotions are the biological response of the organism to the social environment (Schore, 2006). This response can be a useful basis for reflection and guide to action. However, when emotional responses are suppressed, the flow of information and internal equilibrium is disabled. Gerhardt (2004) suggests that it can then become difficult for the individual to behave flexibly. Under these conditions the individual may behave rigidly as he or she resorts to external guidelines or abstract concepts in order to adapt to the social environment rather than drawing upon internal information.

Narrative Coherence and Reflective Function

The use of language and the ability to be in emotional attunement are two powerful interactive elements that contribute to the growth and development of the
human brain. Language and emotional attunement stimulate the brain to evolve, organize and integrate (Siegel, 1999). Fonagy and Target (1997) have referred to a reflective function in secure attachment; that is, the ability by caregivers to verbally reflect on the role of states of mind in influencing feelings, perceptions, intentions, beliefs, and behaviours. By doing this the caregivers show the child that they are attuned to the child’s emotional states of mind. “Language, in combination with emotional attunement […] creates the opportunity to blend words with feelings, a means of neural growth and neural network integration” (Cozolino, 2002, p. 210). Verbal interactions that include references to feelings, sensations, behaviours and knowledge “provide a medium through which the child’s brain is able to integrate the various aspects of its experience in a coherent manner” (Cozolino, 2002, p. 210).

When the parent is not able to display verbal coherence in regard to the child’s internal and external experiences, the child does not have the opportunity to develop the capacity to understand and manage his or her inner and outer world: “The ability of language to integrate neural structures and organize experience at a conscious level is left unutilized” (Cozolino, 2002, p. 210). When a child is left with an inability to manage experiences through a coherent narrative, the child’s ability to manage stressors (emotionally regulate) is marginalized.

Emotional attunement along with the co-construction of narratives is said to shape the networks of the brain and determine one’s attachment schema as well as one’s ability to regulate thoughts and feelings (Cozolino, 2002; Fonagy, Steele, Steele, Moran, & Higget, 1991).
Loss

In terms of the separation response, the understanding of ‘loss’ has been reformulated by Fonagy (Fonagy & Target, 2002). In general terms they suggest that the bond has been lost, but more specifically, Fonagy and Target (2002) illustrate that the opportunity to develop higher order regulatory mechanisms – the ability to appraise and reorganize mental contents – is essentially what is lost.

Experience Shapes the Brain

A psychoneurobiological perspective shows that the maturation of the infant’s right brain is experience-dependent. This results by way of experiences that are embedded in the affect-regulating transactions between the mother’s right brain and the infant’s right brain. Therefore, as Sroufe (1996) points out, attachment is “the apex of dyadic emotional regulation, a culmination of all development in the first year and a harbinger of the self regulation that is to come” (p. 172). From this perspective, the infant’s emerging social, psychological, and biological capacities cannot be understood apart from the relationship experiences with the mother.

Affect Dysregulation and Psychopathology

Research points to evidence showing that all early forming psychopathology emerges from disorders of attachment and manifest as failures of autoregulation and/or interactive regulation (Schore, 2003a, 2003b, 2006). Schore proposes that “the functional indicators of this adaptive limitation are specifically manifest in recovery deficits of internal reparative coping mechanisms. This can take the form of either underregulation associated with externalizing psychopathologies [such as attention deficit disorder or oppositional defiant disorder], or overregulation and internalizing disturbances” (2003a,
such as introjective depression. These deficits in coping manifest most obviously under socio-emotional conditions that are stressful or challenging. Unfortunately, these are the conditions in which behavioural flexibility and adaptive responses are necessary (Schore, 2003a).

Schore (2003a) suggests that an over-arching effect of early trauma and neglect is the lack of ability to regulate the intensity of one’s feelings. Thus:

…defence mechanisms are forms of emotion-regulation strategies for avoiding, minimizing, or converting affects that are too difficult to tolerate. […] These functional vulnerabilities reflect structural weaknesses and deficits in the organization of the right hemispheric regulatory system that is centrally involved in the adjustment or correction of emotional responses. (Schore, 2003a, p. 85)

It is important to note that since self-regulation emerges from the nondominant, early developing, nonverbal right hemisphere (as opposed to the later maturing, dominant verbal-linguistic left hemisphere), the regulatory core of the self is therefore nonverbal and unconscious (Schore, 2003a). Through the contributions of affective neuroscience and developmental neuropsychoanalysis, there is a convergence in understanding how early attachment experiences critically effect the trajectory of the self throughout the lifespan.
Mutual Synchrony and the Therapeutic Relationship

“[T]he limbic connectedness of a working psychotherapy requires uncommon courage. A client asks to surrender the life he knows and to enter an emotional world he has never seen; he offers himself up to be changed in ways he can’t possibly envision” (Lewis, Amini, & Lannon, 2000, p. 190).

With the convergence of psychology and neuroscience, there is a current shift in emphasis in theory and research from cognition to an intense interest in affect and right brain systems that unconsciously process emotion (Schore, 2003a, 2003b, 2006; Siegel, 1999; Shaver & Mikulincer, 2002b; Stern, 2004): “Most moment to moment psychological life occurs through nonconscious means…various nonconscious mental systems perform the lion’s share of the self-regulating burden, beneficently keeping the individual grounded in his or her current environment” (Bargh & Chartrand, 1999, p. 462). This view regarding the brain processes that are involved in the self-regulation of emotion is becoming more accepted across disciplines. Schore (2006) points out that a large body of interdisciplinary data now suggests that unconscious affect regulation is more essential than conscious emotion regulation in development, psychopathology and psychotherapy. De Gelder, Morris, and Dolan (2005) state: “…we cannot simply consciously ‘think away’ or remove our unconscious fears” (p. 18684).

Schore (2006) defines affect dysregulation as the tendency to have low threshold, high intensity emotional reactions which are followed by a slow return to baseline. This manifests when “highs and lows are too extreme, too prolonged, or too rapidly cycled and unpredictable” (unpublished). A large body of research is concluding that psychopathologies can be understood as an individual’s attempt to regulate difficult
affective states, or that affect dysregulation is a fundamental mechanism of all psychiatric disorders (American Psychological Association, 2006; Schore, 2003a, 2003b, 2006).

There is currently intense interest in the brain processes involved in the self-regulation of emotion. Recent writing in developmental affective neuroscience is declaring that we need human experiences for change (Decety & Chaminade, 2003; Schore, 2003a, 2003b): “The sense of self emerges from the activity of the brain in interaction with other selves” (Decety & Chaminade, 2003, p. 578). These human experiences involve interactive right brain processes (Schore, 2003a, 2003b). From this point of view, a distinction can be made between counselling and psychotherapy: counselling can be seen as conscious emotion regulation and psychotherapy can be viewed as unconscious affect regulation (Schore, 2006).

In order to assess the potential for adult change in the therapeutic context - as it relates to attachment status and affect regulation - the issues of brain plasticity and changes in adult attachment will be reviewed. The literature suggests that regulatory models/systems and habits are biologically imbedded in infancy (e.g. baseline levels of serotonin, cortisol and norepinephrine are set through early experience (Siegel, 1999)). This section will briefly review the capacity of adults’ systems for change. From there, the therapeutic change variables that have been extracted from a review of the literature will be discussed.

Considerations of Potential for Change in Adult Brain and Biological Systems

Buonomano and Merzenich (1998) refer to plasticity as the ability of neurons to change the way they behave and relate to one another as they adapt to changes in environmental demands. A review of developmental neuroscience (Cozolino, 2002;
Schore 2003b, 2006; Siegel, 1999) shows evidence that generally tends to support ongoing neural plasticity. However, it is noted that because executive processes are complex, abstract, and depend on the contributions of many integrated neural networks, they are more challenging to study in detail.

Cozolino (2002) suggests that the clearest evidence for ongoing neural plasticity is the fact that humans are able to learn new skills and remember new information throughout life. He points to animal research that suggests that an enriched environment “enables the animal to build and shape a more enriched, complex, and potentially resilient brain” (p. 298). These findings may be applicable to humans because of the “commonality of the fundamental working principles of our underlying neurobiology” (Cozolino, 2002, p. 299).

Overall, outcomes of neuroscience research are showing that the limbic regions of the brain (especially the orbitofrontal cortex) may continue to be open to further development throughout the lifespan (Lewis et al., 2000; Schore, 2003a, 2003b, 2006). Affective developmental neuroscientists are therefore concluding that psychotherapy can facilitate the further development of the brain’s “experience-dependent maturational processes” (Siegel, 1999, p. 295). Emotionally meaningful events can enable continued learning (and therefore brain development) from the experiences that an individual has throughout life. “Experience plays a primary role in stimulating new neuronal connections in both memory and developmental processes” (Siegel, 1999, p. 307).

Developmental affective neuroscientists suggest that therapy can function in a way that replicates the optimal conditions of early development; that is, being a supportive environment in which stressful learning can take place (Cozolino, 2002;
Siegel, 1999). Just as with the developing infant in the company of attuned caregivers, a client’s sense of safety is enhanced by the therapist’s skill, knowledge, and confidence (Cozolino, 2002).

When addressing the question of whether the therapeutic relationship can alter psychoneurobiological deficits, Schore (2003b) states the following:

An answer to this comes from current brain research, which indicates that the capacity for experience-dependent plastic changes in the nervous system remains throughout the lifespan. In fact, there is very specific evidence that the prefrontal limbic cortex, more than any other part of the cerebral cortex even in adulthood, continues to express anatomical and biochemical features observed in early ontogeny, and this property allows for structural changes that can result from psychotherapeutic treatment. (p. 202)

The therapeutic context enhances the brain’s ability to rewire through concurrent emotional and cognitive processing. Of the reparative potential of therapy Cozolino (2002) suggests the following:

Successful therapeutic techniques may be successful because of their very ability to change brain chemistry in a manner that enhances neural plasticity. The components of an empathic, emotional interpersonal context, along with exposures to manageable stress seem to be essential elements for creating change. In this context, changes in the brain may take place because unintegrated or dysregulated neural networks can be altered. (Cozolino, 2002)

Neuroscience is providing a large amount of research supporting brain plasticity.
The emotional (limbic) brain is most amenable to change during its critical (early childhood) period of development. “Limbic templates form when the brain’s plasticity is fresh, when neural networks are young and malleable” (Lewis et al., 2001, p.188). The opportunity of this critical period, paired with the unique and specialized parent-child relationship - which under optimal conditions offers consistent affect attunement and regulation - is unique to the developmental stages of infancy and childhood. By the time the individual reaches adulthood, the opportunities for intense emotionally attuned relationships - which include the influential qualities that are necessary to mitigate early childhood insecure attachments - can be limited. The adult may have developed patterns of defence/self-organization stemming from insecure attachments (such as avoiding interpersonal contact or emotionally charged situations), which make consistent long-term emotional connection difficult. In addition, adults may have psychiatric (or simply unhelpful) symptoms/self-organizations arising from the inability to manage dysregulated states. This may render the individual difficult to coexist with and/or unattractive to other adults who have more regulatory stability. Therefore, psychotherapy can be a useful relationship because it provides a specialized experiential environment that can help to create neural networks when ordinary life cannot. However, the psychotherapeutic context must have the components that seem to be required for ‘limbic revision’ (Lewis et al., 2000). One of these is time: “the neocortex rapidly masters didactic information, but the limbic brain takes mountains of repetition” (Lewis et al., 2000, p. 189).

**Considerations on the Movement to ‘Earned’ Secure Attachment Status**

If attachment theory is fundamentally a regulatory theory (Fonagy & Target, 2002; Schore, 2003a, 2003b; Siegel, 1999), then the following two modes of affect
regulation that individuals use can be considered: 1) Interactive regulation: the ability to resiliently regulate emotional states through interactions with other individuals in interconnected contexts. 2) Autoregulation: the regulation of internal psychobiological states in autonomous contexts without others (Schore, 2006).

Secure attachment involves the ability to “adaptively shift between the two above modes, depending upon context” (Schore, 2006, unpublished). Therefore, it can be inferred that the therapeutic experience can assist with the client’s ability to more successfully regulate his or her own internal, affective state – both on his or her own, and through his or her social interactions.

Main and Goldwyn’s (1984) research suggests that an adult’s ability to flexibly access information about his or her childhood and reflect upon the information in a coherent manner determines his or her likelihood of raising securely attached children. The essential elements of coherent adult attachment narratives include the following abilities: to be able to reflect upon one’s own childhood history, to conceptualize the mental states of one’s parents, and to describe the impact of these experiences on personal development (Siegel, 1999).

Attachment research (Main & Goldwyn, 1984) indicates that narrative coherence can be measured within autobiographical narrative reflections. Studies of individuals who received “earned” secure/autonomous AAI classifications (i.e. they appear to have come from suboptimal attachment histories) reveal that their own current parenting, even under stressful conditions, is sensitive and nurturing. This suggests that the adult has found ways to regulate his or her emotional states which allows him or her to have the emotional energy to be caring, responsive and attuned to his or her own child. This is
significant because the intergenerational transmissions of suboptimal parenting as a result of insecure attachments is thought to be due to the persistence of incoherent adult stances toward attachment. “Earned secure/autonomous status is most often achieved through supportive personal or therapeutic relationships” (Siegel, 1999, p. 313).

*Mutual Synchrony, Narrative Coherence and Changes in Self-Organization*

Both left and right hemisphere modes of information processing are required for the creation of narratives. Echoing other neurobiologists, Siegel (1999) proposes that narratives have a bilateral integration process:

The left hemisphere’s drive to understand cause-effect relationships is a primary motivation of the narrative process. Coherent narratives, however, require participation of both the interpreting left hemisphere and the mentalizing right hemisphere. Coherent narratives are created through interhemispheric integration. (p. 331)

Impediments to bilateral integration are proposed to be at the core of unresolved trauma. Autobiographical narratives may lack coherence and organization because of blocks to these integrating processes. Interhemispheric integration is essential for memory consolidation (Siegel, 1999). Therefore, both implicit (right hemisphere) and explicit (left hemisphere) memory are shaped by interpersonal experience. Narratives are drawn from and influenced by both consciously accessible explicit memory as well as one’s implicit recollections. Interpersonal experiences shape implicit and explicit memory and directly affect the life stories of clients (Siegel, 1999).

Implicit elements of clients’ life experiences are embedded within various means of expression (e.g. client narratives, body expression and postures, creative expression,
and dreams) (Cozolino, 2002). These ‘hidden’ contents of the implicitly remembering mind can be revealed and expressed through the safety, empathy, and compassion of the therapeutic alliance. Making the contents of the implicit memory available to consciousness can cause dysregulated states in the client (van der Kolk & Fisler, 1984). This is in service of co-creating a more regulated, coherent, modulated self-state: “Integration, as observed in coherent narratives, directly shapes self-regulation” (Siegel, 1999, p. 333).

Mutual synchrony - or limbic resonance - is composed of different forms of communication. A client’s experience of resonance shapes secure attachment experiences and facilitates integration (Beebe, 1998; Bugental, 2005; Schachner, Shaver & Mikulincer, 2005). Left-hemisphere to left-hemisphere resonance is generated by verbal discourse. Right-hemisphere to right-hemisphere resonance arises out of nonverbal components of communication such as tone of voice, gestures, postures, and facial expressions. Therefore, the nonverbal aspects of attachment are critical to the therapeutic alliance: “The ability to encode, or express, and to decode, or understand, nonverbal cues are crucial to effective communication of emotions and are associated with social adjustment and relationship satisfaction” (Schachner et al., 2005, p. 141).

The client’s subtle, nonverbal expressions of mind states are perceived by the therapist and responded to with a shift in the therapist’s own state - not only with words. Again, much like the psychobiological attunement that is part of the optimal mother-infant relationship, there is a resonance between the primary emotional, psychobiological state of the client and that of the therapist (Schore, 2006). From this paradigm, client experiences that facilitate the move to secure attachment “involve […] an intimate dance
of resonant processes involving left-to-left, right-to-right, and bilateral-to-bilateral communication. This highly complex form of collaborative communication allows the dyad to move into highly resonant states” (Siegel, 1999, p. 334).

These interactive experiences that take place over time are said to facilitate the client’s mind to develop its own capacity for integration (Lewis et al., 2001). This can positively affect clients’ abilities to self regulate states that were previously difficult to regulate on their own (Schore, 2006; Siegel, 1999).

Schore (2006) and others (Davies, 2004; Meares, Butt, Henderson-Brooks & Samir, 2005) point out that all of the techniques and tools of therapy rest upon the foundation of the relationship. From a stance of using the therapeutic relationship to create changes in affect regulation and attachment status, the therapist must be deeply committed to understanding and resonating with the client’s experience while also maintaining the awareness that interpersonal experience shapes brain structure and function (Schore 2006).

Substantial skilfulness is required in order to keep an objective focus on the client’s emotional needs while at the same time joining and resonating with the client’s states of mind (Schore, 2006). Simultaneous to this, the therapist must have developed his or her own emotional, regulatory resilience to withstand the journey into those states and serve as the object for the transference of client’s early relational trauma (experience) as it emerges (Davies, 2004).

**Mutual Synchrony in the Therapeutic Context**

Schore (2006) defines ‘affect synchrony’ as the “dyadic regulatory mechanism for expanding positive affective states” (unpublished). An amplification of positive states
occurs in moments when external sensory stimulation of a contingently responsive therapist resonates with a client’s genetically encoded endogenous rhythms. Synchrony develops as a consequence of each partner’s learning the rhythmic structure of the other and modifying his or her behaviour to fit that structure (Schore, 2006).

As clients reflect upon memories in the therapeutic attachment setting, they can experience intensely dysregulated states and through this they can learn – initially through interactive regulation – how to tolerate these states. Clients can reflect upon these experiences and eventually learn how to regulate them in a more adaptive manner (Schore, 2006). Siegel (1999) suggests that much of this emotional processing “is in its essence nonverbal and is probably mediated via right hemisphere processes” (p. 297). Therefore, the interactively synchronizing relationship allows clients “to make left-hemisphere, verbally mediated, interpreter-driven sense out of their right-hemisphere autobiographical representations” (Siegel, 1999, p. 297). Siegel (1999) suggests that this process is integrative and that it probably has direct effects on the right hemisphere’s capacity to regulate primary emotional states. When a secure attachment is developed between therapist and client, the client’s mind is prepared for the above integrative processes.

The Therapeutic Alliance

Recently, Safran and Muran (2006), pointed toward relevant avenues of future research on the therapeutic alliance. They suggest that a critical task is “to continue to clarify how and in what way” (p. 290) the therapeutic relationship is central in the change process. They add that future research needs to be focused on understanding “the role that relational factors play in the change process” (p. 290). Likewise, Horvath (2006) point out
that further explanations are required of how the therapeutic alliance works across therapies as the alliance concept is left “somewhat incoherent and disconnected from other aspects of theorizing about the therapy process” (p. 259). Safran and Muran (2006) provide examples of how to focus research efforts in this regard. These include investigating the role of mutual regulation between client and therapist in the change process as well as examining how mutual regulation influences the client’s capacity for affect regulation.

In 1994, Schore noted that the bulk of psychotherapy research came from client verbal output represented by transcripts. He pointed out that this resulted in a complete omission of the prosodic and visuafffective transactions that, he suggests, are the essential communications between client and therapist. This is significant because if research is focused solely on verbal and cognitive output at the exclusion of nonverbal and affective psychotherapeutic processes, this will result in a severely restricted understanding of the dyadic therapy process. Essentially, Schore (1994) suggests we will not be able to develop a complete understanding of the mechanisms of socioemotional disorders that emerge from limitations of right hemispheric affect regulation if left hemisphere activities are the sole focus of investigation.

In recent years, researchers, clinicians and theorists in the realm of developmental change (including developmental affective neuroscientists) have examined aspects of developmental change that are dependent on interactions between infant and parent for their value in casting light on the processes of change in adult psychotherapies (Beebe, 1998; Fonagy, 1998; Schore, 2003b; Stern, 1998). The Process of Change Study Group out of Boston includes Beebe, Stern, Tronick, Lyons-Ruth and studies these processes.
How it Works: Considerations of the Necessary Components of Therapy

Upon review of the clinical applications of affect regulation theory (Schore, 2003b), developmental affect neuroscientists (Cozolino, 2002; Schore, 2003b; Siegel, 1999) do not appear to propose one specific ‘secular’ modality as essential in assisting with the affect regulation of all clients. In fact, it is stated across the literature that a variety of psychotherapeutic techniques and tools can be useful in helping clients achieve self-organization. However, when reviewing variables and tenants of change that are described through the paradigm of neurology (developmental affect neuroscience), there appears to be a current integration and convergence of the relational schools (attachment theory, object relations, self psychology, intersubjective dynamic) with developmental and neurobiological findings. These realms converge and flow into an understanding of psychopathogenesis (Schore, 2003b, 2006).

In regard to client change, the main point that is underscored is that the alliance is directly responsible for change rather than only facilitative – that all the techniques of therapy rest upon the relationship. The individual’s left hemisphere makes sense of experiences through narrative explanation (reflection), but according to current attachment/regulation theory and research (Schore 2006; Siegel, 1999), the foundation of the therapeutic process is the mutual synchrony – the right-hemisphere to right-hemisphere resonance between both members of the therapeutic relationship. The “flow of states between the two members of the therapeutic relationship becomes more complex as the individuals themselves achieve increasingly coherent states of interhemispheric resonance (Siegel, 1999, p. 299). Over time, the mind has the challenge of integrating new self-organization. Psychotherapy can be useful because it involves not only
interactive synchrony, but also because it simultaneously focuses on reflective narrative explorations. It is through this state of “cooperative activation that coherent narratives emerge, and through this process that the mind is able to achieve maximal complexity and thus stable self-organization” (Siegel, 1999, p. 299).

Of this right hemisphere focus, Schore states, “Note that the system that underlies therapeutic change is in the nonverbal right as opposed to the verbal left hemisphere. The right hemisphere, the biological substrate of the human unconscious […] is also the locus of the emotional self” (2003b, p. 147). Also, the emphasis of the object relations approach – of the central role of nonconscious self-object dynamics, those which act at nonverbal levels beneath conscious awareness – point to the right brain, the centre of the dynamic unconscious (Schore, 2003b).

The right hemisphere stores autobiographical memory and early attachment experiences (Schore, 2006). A major effect of early relational trauma is the loss of (right brain) implicit ability to regulate intensity of feelings. Mancia (cited in Schore, 2006) comments that “the discovery of the implicit memory has extended the concept of the unconscious and supports the hypothesis that this is where the emotional and affective - sometimes traumatic - presymbolic and preverbal experiences of the primary mother-infant relations are stored (unpublished).

Therefore, in working with the effects of relational trauma, the empathic therapist helps the client to re-experience the trauma in affectively tolerable doses in the context of a safe environment, so that the overwhelming traumatic feelings can be mastered (regulated) and adaptively integrated into the client’s emotional life (Schore, 2006). Affects are not merely by-products of cognition; “they have unique temporal and
physiological characteristics that, more than thoughts, define our internal experience of self” (Schore, 2006).

Key variables that facilitate change within the therapeutic relational model are next discussed. These variables are placed in the categories of client, therapist, and relationship in order to facilitate organization of the features of therapy.

Necessary Components of Therapy: Client Variables

Bowlby (1988) believed that the therapist is viewed as an attachment figure regardless of whether or not the client is aware of this construct. Through the client’s interactions with the therapist, his or her implicit relational structures are expressed and projected. It is this material that the client brings to the therapeutic context. The organization of the client’s experience emerges and becomes evident through his or her actions, expressions and attitudes. The natural ruptures and reunions that occur in therapy are likely to activate the attachment behavioural system and in this specialized environment the client has the opportunity to explore the relationship with the therapist. Here, the client can have these patterns brought to his or her attention, reappraise their functionality and learn new methods of regulating affect (Schore, 2003b).

Amini, Lewis & Lannon (1996) suggest that in order for implicit affective learning to take place, the client must have a vivid affective experience with the therapist. The therapist must possess both the skill and self-awareness to provide and express a state of safety and security so that this can happen; however the client must have the capacity to interact with the therapist. Additionally, the client’s expectations and perceptions of the professional service to be offered must be understood by the therapist (Street & Downey, 1996).
As therapy progresses, the client is able to tolerate a wider range of affective experiences and to develop the capacity for mentalization (Fonagy, 1998) as well as develop progressively more coherent narratives. Mentalization is defined as a capacity for affect regulation and reflective function. Schore (2006) translates this through the neurological paradigm: through the ability to mentalize, the client comes to consciously, explicitly reflect upon how his or her nonconscious implicit system operates. The client is able to understand how he or she regulates affective states via interactive or autoregulation. In this way, the client’s narratives become increasingly coherent. Therefore, the client can experience an evolution of affects – from their early form, in which they are experienced as bodily sensations – into subjective states that can gradually be verbally articulated (Stolorow & Atwood, 1996).

Necessary Components of Therapy: Relationship Variables

A division of the American Psychological Association recently conducted a comprehensive interdisciplinary review of the relationship in therapy titled Psychotherapy Relationships that Work: Therapist Contributions and Responsiveness to Patients (Norcross, 2002). It listed 11 elements and eight processes within the framework of therapeutic relationships. According to this review, the elements of the therapy relationship are: the alliance, cohesion, empathy, goal consensus and collaboration, positive regard, congruence, feedback, repair of alliance ruptures, self disclosure, management of countertransference and relational interpretation. Horvath (2006), in a review of research on the alliance, states that there is a “strong convergence” (p. 261) of evidence that shows that components of the therapeutic relationship are linked closely to positive client change. Although the alliance has been shown to be important across all
forms of psychotherapy, it is noted that the overarching strength of this finding has come at the expense of a “clear framework for the therapeutic relationship, its components and dynamics” (p. 261). The reviewers suggested that the components of the relationship be distilled so that more effective training and guidance can be offered to clinicians. In other words, Horvath (2006) asks, what are the small-scale, micro-level events that make up an effective alliance? Horvath contends that it may be possible to identify a certain range of relational processes that are most useful in reaching varieties of therapeutic changes sought in various therapeutic contexts.

Fonagy (1998) suggests that there is a two-part foundation to the specialized therapeutic relationship: 1) that the specialized therapeutic parameters provide an alternative to “ordinary” relationships – those which entangle clients “in their implicit relational structures rather than allowing them to take a distance from past expectancies” (p. 349); and 2) the specialized therapeutic relationship provides “predictability of interpersonal behaviour” (p. 349), and this is the substance from which the client’s relationship processes can emerge. Essentially, the therapeutic relationship can be said to serve “as a backdrop against which change of implicit relational knowing structures can take place” (Fonagy, 1998, p. 349).

**Relationship: The Intersubjective Field**

Stern (2004) defines the intersubjective field as a flexible, changeable domain that is shared between people and which includes the feelings, thoughts, and knowledge about the nature of their current relationship. The abstract concept of intersubjectivity is useful here because it is apparent that this field contains more than shared cognitions. Rather than being a shared mental field, it is a co-created psychobiological field which is
established by two people as they shift from left hemisphere to right hemisphere communications (Stern, 2004). Schore (2006) states that there is an increased intimacy at these ‘heightened affective moments’ as “two open right brain/mind/body systems at close emotional proximity are psychobiologically interacting, homeostatically co-regulating each other” (unpublished).

These implicit, nonverbal processes are currently being acknowledged by a variety of sources. For example, the APA *Presidential Task Force on Evidence-Based Practice* (2006) states that “Central to clinical expertise is interpersonal skill, which is manifested in forming a therapeutic relationship, encoding and decoding verbal and nonverbal responses, creating realistic but positive expectations, and responding empathically to the patient’s explicit and implicit experiences and concerns” (p. 277). Schore (2006) suggests that the intersubjective field within the therapeutic alliance is a matrix of reciprocal implicit right hemisphere communications.

Client change can come about from unique experiences that the client and therapist have with each other (Stern, 1998): “The therapist is a new object whose involvement permits a departure from past expectancies with other people” (Fonagy, 1998, p. 350). Stern describes the experiences that are unique to the therapeutic dyad as ‘moments of meeting’ (1998): they involve the intersubjective recognition of a shared subjective reality. In this paradigm, Fonagy suggests that “each partner contributes something that is both unique and authentic. The spontaneity required places it by definition beyond theory and technique” (1998, p. 350) as theory and technique are derived from explicit rather than implicit structures.
Lyons-Ruth (1998) suggests that it is the moment of meeting – when two states of consciousness are matched, in the sense that the way one would ‘know’ oneself would be matched by the way one was ‘known’ by another - that reorganizes the range of interactive regulation and expectancies between the therapist and client (the dyadic ‘system’), rendering it more inclusive and hence more coherent. In this process, “new forms of regulation, new initiatives and new possibilities of agency ensue” (Beebe, 1998, p. 336). Tronick (1998) suggests that the moment of forming a dyadic state of consciousness carries a powerful subjective experience of fulfillment. “It is this moment that carries therapeutic action, the power to change each person’s mental organization, at a procedural level” (Beebe, 1998, p. 336). These moments of reciprocal recognition or shared awareness occur with and without words. “Sometimes the narrative content is important, sometimes it is not” (Beebe, 1998, p. 337).

Safran and Muran (2006) refer to the role that unconscious mutual influence plays in the therapeutic relationship: from a relational perspective, “treatment is conceptualized as an ongoing series of unconscious enactments…” (p. 287) and the exploration of these enactments is a major focus of contemporary relational work. This would be related to the neurobiological view that that posits implicit right brain to right brain (limbic resonance/mutual synchrony) transactions as the foundation of change in therapy. Neuroscience research (e.g. Decety & Chaminade, 2003) is concluding that intersubjective processes are largely dependent upon the resources of the right hemisphere – that unconscious, nonverbal and emotional information is mainly resourced from this area of the brain. It seems that these conceptualizations of attunement, attachment, intersubjectivity, synchrony and resonance are all related to right-hemisphere, implicit
relational transactions between individuals. Therefore, neurobiological research seems to act as a descriptive bridge by which intersubjective human processes can be conceptualized.

Schore (2006) states that recent advances in attachment and intersubjectivity suggest that a major focus of therapeutic treatment is not so much on increasing the client’s autoregulatory coping skills as it is on helping the client to reactivate his or her ability to use interactive regulation. In other words, instead of teaching the client coping strategies (left hemisphere/cognitive techniques), the therapist can encourage clients to allow themselves to reactivate the ability to take in comfort from another who can metabolize their dysregulation and help them return to homeostasis. Similarly, Amini et al. (1996) suggest that psychotherapy works because it is an attachment relationship capable of regulating neurophysiology and altering underlying neural structure.

Interactive regulation of attachment dynamics operates in the emotional bond between the client and therapist. Lewis et al. (2000) acknowledge that therapists who have differing philosophies of clinical training may “recoil” (p. 171) from the implied suggestion that encouraging a reliance or dependence upon another individual (the therapist) may be necessary for change. They point out that many clinicians believe that reliance fosters a detrimental dependency. “Instead, they say, [clients] should be directed to ‘do it for themselves’” (p. 171). However, Lewis et al. (2000) state that “people do not learn emotional modulation as they do geometry or the names of state capitals. They absorb the skill from living in the presence of an adept external modulator, and they learn it implicitly” (p. 171). Facts and knowledge are acquired explicitly by the neocortical brain, but emotional knowledge is not learned explicitly; instead, through therapeutic interactive
regulation the client’s own regulatory capacity increases, which “germinates and becomes a natural part of the self, like knowing how to ride a bike or tie one’s shoes” (Lewis et al., 2000, p. 171). It is suggested that a therapist who fears dependence will communicate a pathologic value in regard to the urge to rely. Lewis et al. (2000) argue that “a parent who rejects a child’s desire to depend raises a fragile person” (p. 171) and suggest that it is these children who, as adults, “are frequently among those who come for help” (p. 171). Imparting the implied value of non-reliance and independence is likened to repeating the original relational trauma (Lewis et al., 2000).

Therefore, implicit (nonconscious) affect regulation is an essential mechanism of the therapeutic alliance and thereby the change process of psychotherapy (Schore, 2006). This means that the right hemisphere is dominant in psychotherapeutic treatment. The work of psychotherapy is not defined by what the therapist says or does (left hemisphere focus), rather, the key mechanism of the work of psychotherapy is how to be with clients, especially during affectively stressful moments (a right hemisphere focus) (Schore, 2003b; Siegel, 1999). This can parallel the developmental/relational construct in which the child is learning how ‘to be’ by ‘being’ with another. Stern (2004) believes that the vast majority of what an individual knows about how to be with others resides in implicit relational knowing. Similarly, Schore (2006) suggests that therapy has more to do with interactive implicit affective learning of object relational knowledge than with the tracking of explicit conscious verbal content.

‘Mutual Synchrony’ emerges as a consequence of each partner’s learning the “rhythmic structure of the other and modifying his or her behavior to fit that structure” (Schore, 2006, unpublished). This is likened to the psychobiological communications of
the mother-infant attachment relationship where there are crescendos and decrescendos of the mother’s affective state that are in resonance with similar crescendos and decrescendos in the infant’s internal states of positive and negative arousal (Schore, 2006). Schore (2006) suggests that the art of the therapeutic relationship is derived from the same kind of person-to-person attunement (mutual synchrony) that is essential to the human being in the developmental stage of infancy. On the physiological level, empathic relationships co-regulate the participant’s autonomic activity. The social bonds of attachment reduce stress-induced autonomic arousal (Schore, 2006).

In this current convergence of concepts and models from cognitive and social neuroscience, developmental and social psychology, psychobiology and neurochemistry, developmental neuropsychiatry and affective neuroscience, as well as contemporary psychoanalysis (relational, object relations), it is being proposed that the fundamental mechanisms of psychotherapy are relational and intersubjective; that ‘what works’ is the nonverbal communication of affective states and the attachment mechanism of implicit interactive affect regulation (Schore, 2006).

A Foundation of Safety and Trust: Therapist Variables

Traumatic memories and dysregulated affective states become embedded in brain functioning and interfere with adaptation and normal learning processes (Schore, 2006). In the therapeutic environment, ‘tolerable doses’ of fear or intense emotion may need to be aroused in order to relearn more adaptive responses to minor threats. This is reprocessed in the safety of the therapy situation and can act as a stress ‘inoculation’ (Cozolino, 2002; Schore, 2006). Therefore, the therapist’s ability to provide an atmosphere of safety and trust prior to the processing of dysregulated affective states...
cannot be underestimated. However, the therapist’s verbalizations alone cannot convincingly or successfully transmit trust or safety. The client - at a most essential level - feels trust and safety on a nonconscious level. It is the clinician’s nonverbal activity and pre-verbal communications that create the safe holding environment (Schore, 2006). How can the therapist and client co-create a therapeutic environment in which the client - at a nonconscious level - feels trust and safety? This context must allow for the client to experience and tolerate affects that have otherwise been too threatening to consciously experience (Schore, 2006). The following aspects are variables that - from the paradigms and research outlined above - are foundational for establishing safety and trust: therapist self-awareness (regulatory skills), therapist ability to be comfortable with both left and right hemisphere modes of processing, therapist transmission of empathy, therapist acknowledging and making use of transference and countertransference. These variables are reviewed below.

*Therapist Empathy and Self-Awareness*

As clients process traumatic experiences, the focus is on the self, alone, without connection to a safe person. This is because the trauma originated by the child being essentially abandoned when he or she was experiencing dysregulated affective states. The primary caretaker was not an effective ‘object’ of interactive regulation.

According to Smith (2004), what differentiates therapy from the simple re-experiencing of trauma is the empathically attuned presence of the therapist. The mechanism of healing is initiated when the activated traumatic memory becomes paired with the (new) mental representation of a context of safety and comfort. This mechanism
is similar to the mother’s emotional attunement (attachment) and affect regulation with the infant/child.

However, it is crucial that the therapist be comfortable with affective dysregulation and nonverbal, right hemisphere processing. Schore (2006) believes that if the therapist remains ‘detached’ or resides in a cognitive mode (moving into verbal/cognitive explanations or processing) at a time when the client is in a predominantly right hemisphere state, then, essentially the therapist can be said to be abandoning the client again. When the client has the new experience of the pairing of a dysregulated affective state that is ‘held’ by an empathic, safe, trusting ‘other’, there may be long moments of silence during which the brain is integrating this new experience. Schore (2006) points out that the right brain circuits are re-organizing and integrating as the client’s high arousal state decreases. The allowance of silence during these moments is critical as the movement into verbal, explanatory mode would shift the client back into the left hemisphere. Schore (2006) states that the verbal interpretation and narrative recreation can take place after these important periods and suggests that it is ideal if the client initiates the verbalization.

When the context becomes safe enough for the client to lower his or her defences, the alteration of regulatory structures becomes possible (Schore, 2006). The therapist’s own self-regulatory movements reveal his or her inner states to the client. Much like the ‘good enough mother’, the therapist’s efforts to regulate his or her own inner states show the client that he or she is in contact with the client (Schore, 2006). Personal therapy for therapists helps to extend the range of experience that they can draw upon in their work with clients (Schore, 2006). According to Amini et al. (1996) the most effective
interventions are based on the therapist’s awareness of his or her own physical, emotional, and ideational responses to the client’s veiled messages.

Accordingly, when the therapist has increasingly expanded self-integration and awareness in regard to his or her state of mind with respect to attachment, then he or she has a larger capacity for assisting clients to achieve integration and awareness. This understanding is derived from the primary attachment relationship within the developmental psychobiological perspective in which parents that have secure or ‘earned’ secure states of mind with respect to attachment function in certain ways (including attunement and sensitivity) with their infants that result in attachment security in their children. Therefore, from an attachment point of view, the more secure the therapist is, the greater the likelihood is that he or she can assist clients with achieving greater security (Beebe, 1998).

Therapist self-awareness broadens ‘clinical intuition’ – which is referred to as the art of psychotherapy (Schore, 2006). From a social cognitive neuroscience perspective, intuition is defined as subjective experience associated with the use of knowledge gained through implicit learning (Lieberman, 2000). Therefore, with this perspective it can be said that clinical efficacy involves more than the technical skills of the left hemisphere, it essentially involves complex understanding of many nonconscious right brain functions that are fundamental for survival (Schore, 2003a, 2003b, 2006).

Transference and Countertransference

Countertransference can be viewed as the autonomic responses that are reactions on an unconscious level to nonverbal messages (Jacobs, 1994, as cited in Schore, 2006). Since the information that the therapist derives from the use of countertransference is
implicit, phenomenological and subjective, Shaw (2004) - who believes that the body is the very basis of human subjectivity - suggests that “if psychotherapy is an investigation into the intersubjective space between client and therapist, then as a profession we need to take our bodily reactions much more seriously than we have so far” (p. 271). To work this way, it is essential that the therapist have the self-awareness to understand his or her bodily-based affective states as the intersubjective approach demands a considerable degree of self-revelation on the part of the therapist.

Genuine emotional responses will be evoked in the therapist who is emotionally attuned with the client. “The gravitational tug” (Lewis et al., 2000, p. 178) of the client’s emotional world draws the therapist away from his or her own world, “as it should” (p. 178). There are many accounts of the utility of the transference-countertransference dynamic (Cashdan, 1988; Lyons-Ruth, 2000; Schore, 2003a, 2003b, 2006; Shaw, 2004). Navigating the transference relationship requires considerable self-knowledge and skill in order to live within the tension of maintaining ethical and self-awareness while emotionally entering the world of the client.

To work with adults who have experienced childhood trauma, “the [clinician]…must be both the object of the [client’s] transferential rage over abuse, abandonment, and betrayal, as well as the one who helps the [client] contain, soothe, modulate, and ultimately come to terms with such experience” (Davies, 2004, p. 717). A major source of negative transference is implicit (right hemisphere) memories of intensely dysregulated affective states in early attachment trauma (Schore, 2006). Through the transference in the therapeutic working alliance, the trauma can be awakened – thus making it alive in the present – and the intrusion of unconscious traumatic memory offers
an opportunity to process the trauma. Through the transference, the therapist is experiencing an analog of the misattuning other. The trauma that was inflicted through the misattunement interfered with the emergence of the implicit self (Schore, 2006).

The therapeutic relationship which acknowledges and works with transference material provides the client with a *new experience* (Schore, 2006). The client is able to activate a nonconscious, dysregulated experience (a trauma) in the therapeutic setting with the safety and security of an empathic supportive other. The high arousal experienced alongside the therapeutic safety creates a new possibility for the client: that he or she is able to soothe and that dysregulated affective states (terror, rage, fear) do subside and that there is safety. In this way - through the interactive regulation with an attuned, empathic therapist - the client learns what he or she did not learn in childhood, that the client can regulate his or her physiological arousal (Schore, 2006). Past experiences of the client, or verbal details per se, are not useful for their own sake. Rather, the focus is on the emergence of missing or unintegrated experiences (nonconscious, affective, right-hemisphere, nonverbal) that are resulting in current life difficulties through which the therapeutic relationship serves as a stage for integration and resolution.

The therapist must have the self-awareness to observe his or her own emotional responses while knowing when to “move the relationship in a different direction” (Lewis et al., p. 178). Because change in therapy is iterative, these kind of re-regulating experiences require the element of time as neural patterns are encoded over a myriad of interactions:
These novel pathways have the initial fragility of spring grass, but they take deep root within an environment that provides simple sustaining limbic nutrients. With enough repetitions, the fledgling circuits consolidate into novel Attractors. When that happens, identity has changed. The [client] is no longer the person he was. (Lewis et al., 2001, p. 179)

Bucci (2002) suggests that individuals “recognize changes in the emotional states of others based on perceptions of subtle shifts in their facial expression or posture, and recognize changes in our own states based on somatic or kinesthetic experience” (p. 216). Much like the mother who is implicitly modelling for the child her own struggles to regulate her own dysregulated state, the therapist must be able to empathically resonate with the client – psychobiologically feeling their difficult, intense states. Without this ability to self-manage, the therapist cannot help the client to regulate. Such work implies a profound commitment by both participants in the therapeutic scenario and a deep emotional involvement on the therapist’s part. This may be illustrated in the research by Dalenburg (2004) and Hill et al. (2003). The research generally shows that therapists who are genuine and self-disclosing in response to clients’ intense affective dysregulation are more effective at resolving these intense states than therapists who display no outward emotional affects. In a theoretically driven study that examined interpersonal history of therapist and in-session behaviours, Henry, Strupp, Butler, Schacht, and Binder (1993) showed that therapists who are hostile towards themselves appear to be particularly at risk for counter-therapeutic interactions with their clients.

Safran and Muran (2006) discuss the finer points of transference in the therapeutic relationship, pointing out that by some accounts, all aspects of the therapeutic relationship
are transferential “insofar as the perception of the present is always shaped by one’s past” (p. 287). Similarly, Fonagy (1998) claims that it is “inconceivable to imagine an immaculate present unmarred by past experience” (p. 351). By other accounts, a distinction can be made between the transferential aspects of the relationship and the “more rational or mature dimension” (Safran & Muran, 2006, p. 287) of the client-therapist collaboration.

**Therapist Management of Ruptures and Repairs in the Relationship**

According to Safran and Muran (2006), alliance ruptures are “essentially transference-countertransference enactments” (p. 288). Safran (2003) conceptualizes alliance ruptures as periods of tension or breakdown in collaboration or communication between client and therapist. Winnicott’s (1971) conceptualization of the ‘good-enough’ mother – one who fails in doses with which the developing infant can cope – has an essential place in development as the rupture and repair is a crucial growth mechanism in the child’s gradually increasing ability to learn to regulate negative affective states. Ruptures or failures increase the child’s emotional ‘musculature;’ his or her range of tolerance of painful negative states. This reduces the use of dissociation as a coping mechanism (Schore, 2003a, 2003b). In the therapeutic relationship, the therapist’s empathy inevitably fails. However, the failure can be useful as it is an opportunity for repair. A number of studies have highlighted the therapeutic benefits that may be gained through therapeutic alliance rupture-repair processes over time. For example, Stiles et al. (2004) showed that rupture and repair sequences in the therapeutic alliance over time were associated with therapeutic gains.
The repair of mismatches can lead to the emergence of trust and new ways of being together in the interaction (Meares et al., 2004; Tronick, 1998). This is useful for increasing the capacity of the therapeutic relationship to contain and hold further dysregulated affective states since Schore (2006) points out that as treatment of severe self pathologies progresses there are increasing possibilities of “misattunement-generated stress within negative transference-countertransference ruptures” (unpublished).

Much like the action of the parent who helps the child build the capacity for regulating his or her own affective states through the parent’s interactive regulation, the skilled therapist assists the client in building a more robust, flexible ability to autoregulate. This is a progression from affects in their early form, “…in which they are experienced as bodily sensations…” (Schore, 2003b, p. 144). Eventually, the client can more fully understand his or her emotional states and articulate them.

The therapist must be able to be mindful that the dysregulation of negative affect is at the core of regulatory impairments (Schore, 2006). Therefore:

In order to optimally regulate [the client’s] stressful psychophysiological CNS and ANS arousal deficits and re-establish homeostatic equilibrium, the therapist must be empathically resonating, while under relational stress, in a right dominant state of nonverbal communication and implicit interactive regulation. (unpublished)

An essential step in interactive affect regulation is the ability of the therapist to “detect, recognize, monitor, and at least partially autoregulate the countertransference stressful alterations” (Schore, 2006, unpublished) in his or her own physiological state that have been evoked by the client’s transferenceal communication. In this way, the self-reflective, empathic therapist acts as an interactive affect regulator of the client’s
dysregulated states. Schore suggests that the above clinical mechanism is a central component of therapeutic action with traumatically attached clients who are not psychologically minded, lack a reflective capacity, and do not have words for feelings (2006). If the therapist misattunes and is subsequently unable to repair, Schore (2006) suggests that he or she will project back to the client unregulated stressful negative affect through his or her tone of voice, facial expression “and frequently in a verbal interpretation of a resistance analysis” (unpublished).

Essentially, the therapist who is unable to ‘hold’ the client’s dysregulated affect brings about a resulting loss for the client of the opportunity for interactive regulation. In this way, the therapist is participating (or colluding) in a re-enactment of an earlier abandonment that occurred while the client (child) was in distress. Schore (2006) suggests that this inability could “iatrogenically trigger dissociation” (unpublished) in some clients.

Therefore, the therapist must be able to enter dysregulated states (with the client) in order to regulate arousal. In doing this, the therapist implicitly models to the client that he or she is affected by the client’s communication, that he or she struggles to tolerate the negative affect and that the therapist can ‘self-right’.

**Therapist Variables: Right Hemisphere Receptive State Dominance**

In this work that acknowledges left hemisphere verbal processes along with right hemisphere to right hemisphere implicit transactions, the therapist shifts from a sole intention of tracking verbal content. Thus, psychotherapy shifts from being a ‘talking cure’ to a ‘communicating cure’ (Schore, 2006). Mandal and Ambady (2004) state that human beings “rely extensively on nonverbal channels of communication in their day-to-day emotional as well as interpersonal exchanges” (p. 23) and that “the verbal channel,
language, is a relatively poor medium for expressing the quality, intensity and nuancing of emotion and affect in different social situations...the face is thought to have primacy in signalling affective information” (p. 23).

Recent models of adult psychotherapy highlight the nonverbal affective communication within the therapeutic alliance (Beebe, 2004; Schore, 2003b; Stern, 1994; Tronick, 1998). For example, Lyons-Ruth (2000) states:

Within the intersubjective field co-created by the [client] and therapist, most relational transactions rely heavily on a substrate of affective cues that give an evaluative valence or direction to each relational communication. These occur at an implicit level of rapid cueing and response that occurs too rapidly for simultaneous verbal transaction and conscious reflection. (p. 91)

In working with this range of communication, the empathic therapist is consciously attending to the client’s explicit verbalizations in order to assess the client’s dysregulating symptomatology (Schore, 2003b). Additionally, the therapist is also listening at another level; an experiential, subjective level “that implicitly processes dynamic moment-to-moment affective communications levels beneath awareness” (Schore, 2006, unpublished).

Relationship

The therapeutic relationship that includes the variables of the analytic relationship is said to specifically produce changes in the client’s unconscious affect regulating structures (Schore, 2003b). The ‘working through’ of therapy involves “the actual reorganization of the relevant aspects of brain function” (Gedo, 1995, p. 352) in which “cortex and midbrain collaborate to provide better control” (p. 352). Working through can
function as “the completion of development” (p. 352). As the core of therapy, this process is accomplished by “the mastery of affective intensities” (p. 353) and it facilitates the emergence of “new channels of intrapsychic communication” (p. 353). As a result, clients who were formerly unable to read their affective-somatic signals become able to interpret the meanings of personal experience. In working through, the “reliance on former modes of behavioural regulation is gradually superseded by more effective adaptive measures” (Gedo, 1995, p. 344). Schore (2003b) suggests that this regulatory structure describes the functions of the brain’s orbitofrontal region.

Therapists are familiar with exploring declarative memories (Fonagy, 1998). However, when recalling that Main (1996) found it more appropriate to evaluate attachment security in adult narratives not from the explicit content of the narratives, but rather from the manner in which these stories were related (coherent, reflective, balanced, and detailed), it is evident that the procedural memory - which is nonvoluntary, implicit, principally perceptual, nondeclarative, and nonreflective (Fonagy, 1998) - can elucidate components of the personality with more accuracy than a sole reliance on declarative memory can provide. Fonagy (1998) states that procedural memory is “more dominated by emotional and impressionistic information than its autobiographical counterpart” (p. 348) and the procedural knowledge that it contains makes itself evident through performance. The individual engages in performance (i.e. emotionally charged or incoherent narratives) and the embedded knowledge can be accessed. Therefore, Fonagy declares that “it seems likely that the schematic representations postulated by attachment and object relations theorists are most usefully construed as procedural memories, the
function of which is to adapt social behaviour to specific interpersonal contexts” (1998, p. 348).

Harris (2004) highlights the finding that a best predictor of overall success of therapy is the quality of the alliance. He provides an outline of “the likely impact of attachment styles on the [client’s] way of building such an alliance” (p. 150) as well as suggestions of “possible responses for a therapist facing such issues” (p. 150). For example, clients who have had an experience of inconsistently responsive parenting will continue to hope that they will find an occurrence of responsiveness in subsequent relationships. The individual may be “hyperactivating” (Harris, 2004, p. 150) his or her attachment system in his or her present life. This can manifest as a pattern of anxiously demanding intimacy, or becoming highly involved in relationships. The intensity of this behaviour, however, can have an alienating effect on others. This state of mind with respect to attachment may be enacted in the therapeutic relationship with the therapist. In order to provide a new experience for the client (disconfirm prior working models), the therapist may need to consider options such as practicing flexibility in his or her responsiveness to the client in order to disconfirm the prior experience of inconsistent responsiveness (Harris, 2004).

Accordingly, a study by Hilliard, Henry, and Strupp (2000) shows that early interpersonal history of both clients and therapists have a number of direct and indirect influences on the process and outcomes of therapy. Along with the therapist understanding his or her own present state of mind with respect to attachment, Harris (2004) suggests that a key feature of assessment for an attachment-informed psychotherapist is the history of the client’s key caregiver’s responsiveness or
insensitivity (and if there was a loss of a key caregiver) and the resulting attachment patterns of the client. This kind of assessment, according to Harris (2004), can be helpful “in facilitating understanding of that person’s particular developmental trajectory” (p. 150). Additionally “the specific subtype of insecure attachment will give a pointer to the particular direction a therapy may be likely to go, for example in building a working alliance or in anticipating the nature of the transference” (Harris, 2004, p. 150).

A skilled therapist helps clients become aware of their right brain unconscious processing. This can happen when the therapist has developed the ability to read, interpret, and reflect the nonverbal communication of the right hemisphere expression in the body. Cozolino (2002) outlines several contextual components:

1) An emotionally safe and empathic relationship so that neural reorganization can take place. It is this condition that serves as a buffer and scaffold that prepares the client for the stress required for neural reorganization.

2) The activation of a tolerable level of anxiety and stress that allows new learning to take place but only after the first condition has been established.

3) The use of language: The co-construction of autobiographical narratives “are grounded in the evolution of the cerebral cortex, language and our complex social structures” (Cozolino, 2002, p. 292).

Facts and insights are collected quickly by the neocortical brain. However, according to the regulation literature (Cozolino, 2002; Lewis et al., 2000; Schore, 2003a, 2003b), psychotherapy fundamentally changes people because it is possible for one mammal to restructure the limbic brain of another mammal (Lewis et al., 2000). Limbic connections create neural patterns and the process of “overhauling emotional knowledge
[...] demands the messy experience of yanking and tinkering that comes from a limbic bond” (Lewis et al., 2000, p. 177). Over time, the therapist does not just hear about an emotional life: through the right-brain to right-brain resonance, both members of the dyad live it.

Summary

The recent convergence of neuroscience and psychology is revealing how right-hemisphere mechanisms are integrally involved in attachment and the development of the self. Neuropsychiatry is establishing how the neurobiology of the developing mind in infancy can be paralleled with and applied to the processes of psychotherapy. As insecure attachment - relational trauma - is fundamentally understood as emotion dysregulation, these theorists and researchers are suggesting that the goal of psychotherapy is the psychobiological dyadic regulation of affect in more adaptive ways. This results in changing neural pathways in the brain, the right-hemisphere in particular.

Therefore, because there is a growing body of evidence that is demonstrating that unconscious regulatory functions are fundamental to psychological processing and overt behaviour, neuroscience is influencing a move in psychology – away from a long-standing focus on cognitive processes - to a convergence on emotion and implicit relational processes.
CHAPTER V: SYNTHESIS AND IMPLICATIONS

Interdisciplinary perspectives are concluding that the early social environment, mediated by the primary caregiver, directly influences the trajectory of the individual’s socioemotional development. This is because experience shapes the brain (Schore, 1994, 2003a, 2003b; Siegel, 1999), and the experiences that the individual has at critical pre-verbal stages of brain development are embedded in the non-verbal, right hemisphere and occur primarily through the attachment experiences between the infant and mother. In early human development - especially the first two years of life - the attachment relationship functions as a growth-facilitating environment and the primary caregiver serves as a psychobiological regulator of the infant’s rapidly maturing corticolimbic control system in the right prefrontal cortex (Schore, 2003a, 2003b). This system mediates regulatory, homeostatic, and attachment functions. The developmental importance of these early interactions means that the primary caregivers are “the architects of the way in which experience influences the unfolding of genetically pre-programmed but experience dependent brain development” (Siegel, 1999, p. 85). In other words, the right brain - which is the foundation of unconscious affect regulation and critical to adaptive stress-coping capacities and interpersonal behaviour - is dependent upon and shaped by the caregiver-infant interactions that occur during the first two years of life (Schore, 2003a, 2003b). It is through these human connections - be they optimal or suboptimal - that the child develops internal regulatory adaptive abilities. Under optimal conditions, the infant develops a secure attachment which is accompanied by an internal representation of a regulated-self-in-interaction-with-an-attuning-other (Schore, 2003a). However, in a suboptimal environment that includes chronically stressful interactions
with an emotionally misattuned other (i.e. the child experiences relational trauma), the child develops an enduring implicit representation of a dysregulated-self-in-interaction-with-a-misattuning-other. This model of insecure transactions is embedded in the child’s developing corticolimbic structures as imagistic, visceral, and non-verbal implicit memories (Cozolino, 2002; Schore, 2003a). It is proposed that as the infant matures, these maladaptive and enduring internal working models - as an affective schema - can have long-term neurological, biological and psychological consequences for the brain/mind/body which can compromise the genetically vulnerable individual’s ability to modulate stress, especially when the individual is exposed to novel experiences (Schore, 2003a; Siegel, 1999). As the individual may avoid or have a diminished capacity to cope with challenging or novel situations, his or her childhood and future adult interpersonal relationships may be compromised and/or the individual may resort to a variety of pathological coping strategies (e.g. substance abuse, disordered eating, anxiety, mood disorders, depression) which are, essentially, unhelpful attempts to cope with internal states that are dysregulated.

With the convergence of neuroscience and psychology, this developmental paradigm has been paralleled and applied to an understanding of the essential processes that occur in the therapeutic relationship. The therapeutic context can be helpful when it functions as a corrective attachment relationship consisting of right-brain-to-right-brain implicit communications through which left-brain verbal, reflective, and narrative coherence emerges (Schore, 2003b). As the right brain regions appear to retain substantial plasticity throughout the life-span (Schore, 2003b) the therapist and client can access the individual’s implicit self-organization through nonverbal, psychobiological attunement.
Through this relational component, the client’s unconscious, pre-symbolic, dysregulated internal relationship models and implicit self-organization can be consciously processed in the left-hemisphere and transformed to “a mature symbolic representational level [through which the individual can create a] self-reflective position that can appraise the significance and meaning of these affects” (Schore, 2003b, p. 280).

An outcome of this empathic relationship is that the client is able to integrate formerly dysregulated states into a more coherent, adaptive narrative and is not overwhelmed by negative and positive affect but instead has more emotional flexibility and can consciously reflect upon affective states as “signals” (Schore, 2003b, p. 281) that carry important information. In order to function in both these modes, the therapist must not only be intellectually well-grounded at the level of theory and technique, but must also be well-resourced and be able to sense, express and effectively regulate his or her own affective states. The therapist’s “affect tolerance is a critical factor determining the range, types, and intensities of emotions that are explored or disavowed in the transference-countertransference relationship and the therapeutic alliance” (Schore, 2003b, p. 281). It is through the implicit modelling of these regulatory capacities that the therapist conveys a sense of safety and compassion to the client. Through this reparative relationship, the client can have new experiences which permit him or her to improve self-regulatory skills as well as increase his or her ability to effectively reach out to other people in his or her social environment for interactive regulation. This is because the client has had the opportunity to pair formerly dysregulated states with a new experience of safety, trust and understanding by an empathic, attuned ‘other’ who implicitly models psychobiological regulation. The specialized experiential environment that therapy

When individuals have improved regulatory skills, they are not consumed with expending regulatory resources in unhelpful ways in order to bring dysregulated affective states under control. The establishment of ‘earned’ secure internal models allows for more complex modes of intrapsychic organizations and interpersonal behaviours, and a developmental progression of the ability, in a variety of familiar and novel contexts, to maintain a coherent, continuous, and unified sense of self, a function of the right brain, the biological substrate of the human unconscious mind. (Schore, 2003b, p. 281)

When individuals can flexibly regulate their affective states, they have an enlarged range of inner resources to devote to a variety of forms of learning, particularly, socioemotional learning. The well-regulated individual has a larger capacity for being helpful to others.

A central principle of the psychoneurobiological perspective is that there is continuity between early traumatic attachment and later socioemotional development. Generally, the research findings of, for instance, the Boston Change Process Group, are concerned with the processes that are preconditions for positive development in infants and are paralleled with the processes of psychotherapy with children and adults. Since they study infant development, the focus of interest is on psychological development during a period when attachment is of overriding significance and when the child lacks the ability to symbolize. There may be limitations to these parallels which may require further investigation as this comparison may result in an over emphasis on attachment and pre-verbal intersubjectivity as optimal therapeutic variables. However, clinical
researchers are currently describing and affirming a continuity in infant and adult coping strategies (Schore, 2003a, 2003b).

Psychoanalysis has its roots in a white, heterosexual, middle-class, European social and cultural tradition; therefore, it has made limited inroads into working with issues of diversity and minority groups who lack social power. However, the basic premise of object relations is that the need for relationship is a primary human requirement, and the self is constructed through social interactions made up of internal relationships at both conscious and nonconscious levels. The convergence of object relations with neuroscience research has resulted in more practical and diverse ways of applying these insights – and with more diverse populations. For example, the attachment and regulatory information is extremely useful for preventative psycho-educational approaches with expectant and new parents as well as for helping to influence public policy related to daycare quality and training and influencing the length of parental leave for working parents (Gerhardt, 2004). This interdisciplinary approach has helped make the abstract concepts of current psychoanalytic models more concrete and accessible. With current relational approaches, it is clear that the therapist no longer functions as the detached expert interpreter, but is a skilled, empathic collaborator who can implicitly model effective regulatory skills while managing ruptures and repairs in the therapeutic relationship, thus offering a specialized relationship through which formerly dysregulated emotional states can be integrated in a more adaptive, coherent manner. McWilliams (2005) reminds us that the most consistent finding in the outcome literature “is that the quality of the relationship between therapist and [client] has more impact on outcome than any other variable” (p. 147).
We are in the midst of a movement that has been calling for ‘empirically supported’ or ‘evidence-based’ practices (McWilliams, 2005). Because pharmaceutical interventions make claims of having superior outcomes to psychotherapeutic treatment (McWilliams, 2005), there has been a rush by psychology to focus research on brief therapies to show that “psychological treatments can relieve depression as fast as medication can” (McWilliams, 2005, p. 145). As an outcome of this focus, brief therapies have been lauded because of this base of evidence even though “experienced practitioners, not to mention several decades of outcome research, have determined [problems such as depression] to require both time and trust” (p. 145). In terms of research, in the Journal of Neuropsychiatry and Clinical Neurosciences, Etkin, Phil, Pittenger, Polan, and Kandel (2005) conclude that “there is no longer any doubt that psychotherapy can result in detectable changes in the brain” (p. 156). Andreasen (2001, as cited by Schore, 2003b), a biological psychiatrist, concludes that psychodynamic therapy can be viewed as a long-term rebuilding and restructuring of the memories and emotional responses that have been embedded in the limbic system. As right-hemisphere, regulatory revision is said to require time and repeated experiences (Lewis et al., 2000; Schore, 2003b, 2006; Siegel, 1999), the implications for the effectiveness of brief, time-limited therapies in working with early-forming relational trauma may warrant further assessment and discussion. It is notable that American insurance companies, realizing that “personalities are not transformed by brief, inexpensive interventions” (McWilliams, 2005, p. 144), “unilaterally opted to deny reimbursement for Axis II conditions” (p. 144). An outcome of this is that the construct of ‘comprehensive’ mental health care has been redefined as “brief treatment for discrete disorders and pharmacological management of
so-called ‘biologically based’ disorders” (McWilliams, 2005, p. 144). This creates a climate where adequate psychotherapy for the seriously mental ill is “virtually nonexistent” (p. 144). When recalling the limitations of many research studies (e.g. participant lack of variability in areas such as age, race, socioeconomic status, education level, physical condition or ethnicity and sacrificing external validity in favour of internal validity), McWilliams (2005) suggests that “the mental state that defines science so narrowly that only artificially operationalized concepts can be studied needs to be exposed as a caricature of science” (p. 148).

In the realm of personality styles of therapists, benefits could be derived from further understanding of the therapist’s attachment style and his or her clinical effectiveness with various attachment styles of clients. McWilliams (2005) points to research showing that “both pre-treatment qualities of clients and stable characteristics of the therapist contribute significantly to psychotherapy outcome” (p. 147). The paradigms reviewed here suggest that therapist self-awareness and ability to self-regulate is necessary in order to be an effective therapeutic instrument. However, “the advocacy of therapy for the therapist seems to have been disappearing from the professional scene” (McWilliams, 2005, P. 142). In fact, McWilliams surmises that it has been “over 50 years since anyone had made a comprehensive, systematic argument for the advisability of therapy for the therapist (p. 142) and suggests that the “erosion of the conviction that one needs to experience therapy to provide it to others is only one symptom of what has been happening to psychotherapy in recent years” (p. 142). In regard to the current training and values of programs in applied psychology we might ask if training that is primarily devoted to cognitive, technique-driven models is preparing clinicians adequately. Is this
profession in a “forced transition from offering relationships that heal people to providing manualized treatments that curb symptoms[?]” (Norcross, 2005, p. 152). Additionally, is clinician training presenting trainees with brief or token considerations of the importance of ‘non-verbal body language’ at the expense of a more thorough consideration of the potential impact of the prosodic and visuffective transactions which are suggested to be the essential communication that takes place between client and clinician (Schore, 1994)? Perhaps a further balance can be cultivated which encompasses both empirically derived techniques and strategies as well as implicit, nonverbal modes of communicating and the aspects of this realm such as transference-countertransference, projective identification and right-brain, implicit affect regulation.

It seems that interdisciplinary communication and integration of information resources is useful in order “to articulate a vision of mental health care that is more humane and less technocratic” (McWilliams, 2005, p. 146). This is why current research by integrative researchers and clinicians such as Schore (1994, 2003a, 2003b) is so promising: in avoiding “interdisciplinary squabbles when the survival of our work as a fundamentally humane enterprise is at risk” (McWilliams, 2005, p. 147) he and others are bringing together diverse streams of understanding regarding the human condition and its dysregulation to offer a more complete picture of mind and body, emotional heath and dysfunction.
References


23, 416-432.


Psychiatry, 130*, 201-210.

Penguin Books, Canada.


resources. *Counselling Psychology Quarterly, 15*(2), 145-152.


Development, 4*(2), 189-192.


APPENDIX A

The Relational Field

Empathy ← Compassion

Client's Historical Developmental Experiences

Bilateral Hemisphere Integration

Left Hemisphere

Right Hemisphere

Client

Counsellor

Bilateral Hemisphere Integration

Counsellor's Historical Developmental Experiences

Currents of Communication

B. Brain to B. Brain
Body-based; silence; state of “felt” resonance & understanding; eye-contact; attunement; client feels empathetically “felt”; intersubjectivity; gestures, posture, expression.

L. Brain to L. Brain
Discursive; concepts and language; cognitive; psychoeducational; tracing verbal content.

Client B. Brain to Therapist L. Brain
Therapist reads non-verbal content.
Therapist recognizes body based feeling states and symbolizes these in words. Assists client with developing and expanding reflective capacity for client's non-verbal, implicit memories and experiences.

Client L. Brain to Therapist B. Brain
"Clinical intuition"
Therapist awareness of countertransference and client's transference. Therapist implicitly modeling the capacity to hold and tolerate difficult, emotional affective states.