Attachment, Affect Regulation and Mutual Synchrony in Adult Psychotherapy

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This paper examines attachment theory in the context of 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 those underlying mechanisms that expand adaptive and regulatory capacities and to 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. We propose a model of therapeutic communication that takes these factors into account for the therapist, the client and the relationship.

ATTACHMENT, AFFECT REGULATION AND MUTUAL SYNCHRONY IN ADULT PSYCHOTHERAPY

Pistole (1999) points out that "the human relationship is the primary component interwoven explicitly or implicitly through all counselling" (p. 437). Much work has been done to examine the relationship in psychotherapy, but formulations that ground the contribution of various aspects of relatedness in neurobiology and attachment are still in their early

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phases. To some extent, beginning therapists are coached to "be with" their clients and to make active use of this state of being when engaging in the more concrete tasks of psychotherapy, such as talking and listening. This state of being 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). This paper synthesizes work in the areas of developmental neurobiology, attachment, and the therapeutic relationship, and poses the question of what a therapy based on this knowledge might look like.

There are numerous authors writing in the intersection of neuroscience and psychotherapy today (Grosjean, 2005.) Our interest is in the role that the limbic system might play in the mediation of nonconscious, affect–based communication (Carr, Iacoboni, Dubeau, Mazziotta, & Lenzi, 2003.) Further, following the work of Schore (2003a; 2003b), we also examine the notion of hemispheric lateralization of emotion and narrative as they may relate to psychotherapeutic phenomena. Conceptually, our work has led us to consider the potential of an integrated view of hierarchy (e.g., limbic–to–cortical) and laterality (e.g., emotion versus narrative lateral processing). A relationally based activation of unconscious material, triggering somatic arousal states, emotional states and finally, verbal expression serves as a model for framing the research.

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). Mutual synchrony—or limbic resonance—is composed of different forms of communication. An individual's experience of dyadic resonance shapes secure attachment experiences and facilitates integration (Beebe, 1998; Bugental, 2005; Schachner, Shaver & Mikulincer, 2005). Verbal discourse generates left–hemisphere to left–hemisphere resonance. Right–hemisphere to right–hemisphere resonance arises from nonverbal components of communication such as tone of voice, gestures, postures, and facial expressions. It is proposed that 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).

Schore (2003a) suggests that the nonspecific factors 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 these represent a major factor in the therapeutic process. Therefore, as therapists' awareness of subtle cues of sensory perceptual communication increase, they may achieve more successful and meaningful interactions with clients.

The evolving field of developmental neuroscience (Cozolino, 2002; Schore, 2003b; Siegel, 1999) illustrates 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 about the human capacity for change within corrective or reparative relationships at later points in development.

Lewis et al. (2000) suggest that if an individual's adult relationships are troubled, it is because as a child he or she 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 "when a limbic connection has established a neural pattern, it takes a limbic connection to revise it" (p. 177).

The relevance of the consideration of attachment and affect in adult psychotherapy lies in the fact that psychology has been focusing its attention on therapist–offered techniques or client characteristics. Meanwhile, there has been less investigation into the implicit interplay between therapist and client. However, Krystal (in Schore 2003b), notes that ". . .the "infantile nonverbal affect system" continues to operate throughout life" (p. 26) 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).

Attachment Theory

Attachment theorists and researchers (Ainsworth, 1985; Bowlby, 1973; Main, 1996; van Ijzendoorn, 1995) have shown 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. As an outcome of her research, Ainsworth developed classifications that described three categories of infant attachment styles: *secure, anxious–avoidant,* and *anxious–ambivalent* (Bowlby & Ainsworth, 1991). Main and Solomon subsequently added a fourth categorization of attachment, which they termed *disorganized* (Main, 1996).

It is the interactive relationship, between primary caregiver and child, that shapes the child's brain and mental states. Siegel (1999) suggests that a necessary "emotional attunement or mental state resonance" (p. 117) results from communication between child and caregiver that "relies on the alignment of internal experiences, or states of mind" (p. 117).

The caregiver's attachtnent status and ability to regulate her own nervous system and emotional states is the essential platform from which the child's abilities emerge. While insecure attachments themselves are not equivalent to mental disorder, it is believed they create a risk for psychological and social dysfunction. According to developmental theorists, however (Schore, 2003a; Siegel, 1999), individuals who have the greatest risk of developing significant psychiatric disturbances are those who have disorganized/disoriented attachment.

Main and her colleagues develaped a subset of the secure/autonomous attachment status, which they named *earned* secure/autonomous status (Main, 1996; Pearson, Cohn, Cowan, & Cowan, 1994; Phelps, Belsky, & Crnic, 1998). When interviewed, these individuals described experiences from their childhood that would point to some form of insecure attachment. However, analysis of transcripts of these individual's narratives found 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).

There is 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 (Main, 1996) that the coherence or incoherence of narratives relates to attachment status. Therefore, the ability to process consciously 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, italics in the original). The mechanism here seems related to

successfully linking right–hemisphere, unconscious processes, with left–hemisphere, verbal processes in a coherent manner.

Attachment and the Therapeutic Relationship

Lyddon & Sherry (2001) suggest that the psychotherapy relationship may be viewed as a medium in which therapists can "directly experience and observe their clients' attachment patterns and [. . .] ultimately disconfirm dysfunctional working models and attachment patterns" (p. 412). If this potential is realized within the psychotherapist–client relationship, the effects upon the client will be significant.

Fonagy and Target (2002) point out that attachment theory is also of 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). They suggest that ultimately, self–regulation can 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. This regulatory system is created through the function of attachment to a caregiver. This may be the most important evolutionary function of attachment. Fonagy and Target (2002) propose that we 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 the caregiver.

Other neuropsychological research (Polan & Hofer, 1999; Schore, 2003a, 2003b) supports the focus on self–regulation. These researchers 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). 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).

Early experiences that help the brain/mind/body achieve coherent self organization and form the foundation for secure attachment include:

> 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)

Links to the Psychoanalytic Paradigm

Winnicott (1960) developed some basic principles that parallel and relate to attachment research findings. His highly influential psychological principles have provided a framework for understanding the growth and integration of the person that can also be applied to the nervous system (Cozolino, 2002; Schore, 2003b; Siegel; 1999, Winnicott, 1960, 1988).

Winnicott described the essence of mothering as providing a *holding environment* wherein empathy and devotion offer a supportive milieu 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 adequately attune to her infant's needs and abilities despite the complex and always changing processes of growth and adaptation. Developmental neuroscientists Lewis et al. (2000), Schore (2003a) and Siegel (1999) discuss and describe this regulatory pattern of disruption and repair. 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).

Importantly, these mis–attunements are not intentional in the sense that the caregiver does not plan them. Undoubtedly, the infant will have demands that the caregiver cannot easily meet. The mis-attuntements are the natural product of the limits of the caregiver's capacity when faced with the ever–growing demands of the infant. These subtle gaps or mis–attunements provide the context of regulatory disruption and repair.

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 also be able to reach out and comfort the child before the child's feelings become overwhelming (Schore, 2003a). Fonagy and Target (2002) suggest that to perform this parental regulatory function, the adult must be able to mirror the infant's distressed state without herself becoming overwhelmed by it.

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).

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 the child's projected distress affects her. Carpy (1989) suggests that it is helpful developmentally 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" (Carpy, 1989 p. 293). Schore offers that the "maternal comforting substrate resides in the mother's right brain" (Schore, 2003a, p. 94). 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.

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 notes 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 (Bowlby, 1969).

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 that the process of putting feelings into words enables the left and right hemispheres become integrated. When words accurately describe feelings, they can 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 with words. Then, the child can develop an emotional vocabulary and symbolize it accurately. This is how the self differentiates. 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).

Therefore, it is the other self—the primary caregiver—who essentially acts as an external psychobiological regulator of the "experience–dependent" (Schore, 2003a, p. 6) growth of the infant's nervous system which is rapidly organizing, disorganizing, and reorganizing in the brain growth period of the first two years of life.

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. Emotional attunement and the construction of narratives stimulates 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 unable to display verbal coherence concerning 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).

Mutual Synchrony and the Therapeutic Relationship

The recent convergence of psychology and neuroscience has initiated a shift in research towards mechanisms of affect and right brain systems that process emotion in a nonconscious manner (Schore, 2003a, 2003b, 2006; Siegel, 1999; Shaver & Mikulincer, 2002; 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 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).

Developmental 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).

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)

Embedded within various means of expression (e.g. client narratives, body expression and postures, creative expression, and dreams) are implicit elements that reveal aspects of clients" life experiences (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, 1994). 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).

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).

Schore (2006) and others (Davies, 2004; Meares, Butt, Henderson–Brooks & Samir, 2005; Norcross, 2002) emphasize 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).

Skill and competence are required 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 (Binder, 2004; 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." 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 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 develops between therapist and client, the client's mind is prepared for the above integrative processes.

Attachment theory is fundamentally a regulatory theory (Fonagy & Target, 2002; Schore, 2003a, 2003b; Siegel, 1999). Two modes of affect regulation emerge from this assertion: *interactive regulation*—the ability to regulate emotional states resiliently through interactions with other individuals in interconnected contexts, *autoregulation*—the ability to regulate 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). Therefore, it is possible to infer that the therapeutic experience can assist the client to successfully regulate his or her own internal, affective state both independently and through his or her social interactions.

Links to the Therapeutic Alliance

Recently, Safran and Muran (2006), pointed toward 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 focus on understanding "the role that relational factors play in the change process" (p. 290). Likewise, Horvath (2006) points 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. Incorporating an understanding of mutual synchrony and its base in attachment can shed light on this need to examine further the role of the therapeutic alliance.

CONSIDERATIONS ON THE NECESSARY COMPONENTS OF THERAPY

Researchers in neuroscience (Cozolino, 2002; Schore, 2003b; Siegel, 1999), and researchers in psychotherapy process (e.g., Norcross, 2002) do not appear to propose one specific modality as essential in assisting with affect regulation in all clients. A variety of psychotherapeutic techniques and tools may be useful in helping clients achieve self–organization. Concerning client change, key points underscored in the literature are that the alliance is directly responsible for change and that technique ultimately rests on the relationship (Norcross, 2002; Saketopoulou, 1999). 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 inter–hemispheric 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). While clearly a materialistic stance on the nature of the dynamic unconscious, Schore at least provides some impetus to explore this notion.

Schore (2006) believes that the right hemisphere stores autobiographical memory and early attachment experiences. A major effect of early relational trauma is the loss of a 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."

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 (i.e., 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; see also Moreland & Zajonc, 1977.)

A discussion of neurodevelopmental processes and attachment lends itself to a consideration of the kind of psychotherapeutic practice that might result from attention to these issues. The implications of an attachment/neurodevelopmental model for psychotherapy are discussed below within the broad categories of *client variables*, *therapist variables*, and *relationship variables* (Castonguay & Beutler, 2006).

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, the client's implicit relational structures are expressed and projected. This is the material 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 (Safran & Muran, 1996) are likely to activate attachment–based responses (Baldwin, Wampold, & Imel, 2007). 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.

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) interprets 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).

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 (Rossi, 2002; 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 therapeutic alliance and can act as a stress "inoculation" (Cozolino, 2002; Schore, 2006). Therefore, the need for the therapist's ability to provide an atmosphere of safety and trust prior to the processing of dysregulated affective states cannot be understated. However, the therapist's verbalizations alone cannot convincingly (or successfully) transmit trust or safety. The client most essentially feels trust and safety on a nonconscious level. The clinician's nonverbal activity and preverbal communications create the safe holding environment (Schore, 2006; Winnicott, 1971).

How can the therapist and client cocreate 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 experience consciously (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 with 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 (Schore, 2006). 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 and affect regulation with the infant/child.

It is crucial, however, 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. Allowing silence during these moments is critical as a movement into verbal; explanatory mode would shift the client back into the left hemisphere. Schore (2006) states that the verbal interpretation and narrative re–creation 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 defenses, 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 derives from the primary attachment relationship within the developmental psychobiological perspective in which parents who 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 (Bugental, 1987; 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

Much has been said about transference and countertransference since the terms where first introduced. In this context, the essence of their relevance is in their ubiquity in the interpersonal context. Although not entirely parallel, we draw from the understanding of more primitive experiences of unconscious communications that need to be raised to consciousness as part of the therapeutic process, within a larger transference–countertransference matrix (Ogden, 1994).

The notion of unconscious communication between a therapist and client is not new to the psychoanalytic paradigm. Klein (1946) defined projective identification as a process wherein largely unconscious information is projected from the sender to the recipient. These nonlinguistic, nonconscious transmissions can influence the receptive functions of another unconscious mind. Ogden (1979) states that "in projective identifi-

cation, 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 now considered an intersubjective, bidirectional, interactive process (Muir, 1995; Ogden, 1982; Schore, 2003b). This 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).

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 initially 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). It is essential that the therapist have the self–awareness to understand his or her bodily–based affective states as part of the intersubjective relational experience in therapy.

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 or emergence of unconscious traumatic memory offers an opportunity to process the trauma. Through the transference, the therapist is experienc-

ing an analog of the mis–attuning other. The trauma that was inflicted through the mis–attunement interfered with the emergence of the implicit self (Schore, 2006).

The therapeutic relationship that 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 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: he or she is able to soothe, dysregulated affective states (terror, rage, fear) do subside, and 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 he or she can regulate his or her physiological aronsal (Schore, 2006). The client's past experiences 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 reregulating experiences require the element of time as neural patterns are encoded over many 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 modeling for the child her own struggles to regulate her own dysregulated state, the therapist must be able to resonate empathically with the clients, 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.

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 and Muran (1996) conceptualize alliance ruptures as periods of tension or breakdown in collaboration or communication between client and therapist. Of course, the complexity of alliance ruptures cannot be underestimated (Samstag, Muran, & Safran, 2004). Castonguay and Beutler (2006) describe many variations on key therapist, client, treatment and relationship variables depending on the disorder being treated. In our work, 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 strengthen 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 might 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.

The therapist must be able to be mindful that the dysregulation of negative affect is at the core of regulatory impairments (Schore, 2006). An essential step in interactive affect regulation is the ability of the therapist to be active in the regulation of his or her own physiological state that has been evoked by the client's transferential communication. In different terms, Baldwin, Wampold, & Imel (2007) suggest, "that therapist variability drives the alliance–outcome correlation" (p. 849). 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

mis–attunes 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" (Riesenberg–Malcolm, 1999).

Essentially, the therapist who is unable to "hold" the client's dysregulated affect brings about a loss of opportunity for the client to achieve interactive regulation. In this way, the therapist is participating in a re–enactment of an earlier abandonment that occurred while the client (as a child) was in distress. 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 therapeutic 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. . .[that] the face is thought to have primacy in signaling 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)

Working with this range of communication, the empathic therapist consciously attends to the client's explicit verbalizations to assess the

client's dysregulating symptomatology (Schore, 2003b). Additionally, the therapist also listens at an experiential, subjective level.

Necessary Components of Therapy: Relationship Variables

Norcross (2002) reviewed the elements of the therapeutic relationship and described them as: 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, suggested that the components of the therapeutic relationship must be distilled so that more effective training and guidance can be offered to clinicians. More specifically, Horvath (2006) asks: What are the small–scale, micro–level events that make up an effective alliance? He 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 there is a two–part foundation to the specialized therapeutic relationship:

1) 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 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 this field contains more than shared cognitions. Rather than being a shared mental field, it is a cocreated psychobiological field 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 coregulating each other.

These implicit, nonverbal relational 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 emerge 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) submits 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. Decety and Chaminade (2003) conclude that intersubjective processes are largely dependent upon the resources of the right hemisphere; 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.

Schore (2006) states that recent advances in attachment and intersubjectivity theory propose that a major focus of therapeutic treatment is not on increasing the client's autoregulatory coping skills but on helping the client reactivate his or her ability to use interactive regulation. Instead of teaching clients coping strategies, which are left hemisphere/cognitive techniques, the therapist encourages clients to let themselves reactivate the ability to take comfort from another who is able to 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 with different philosophies of clinical training may "recoil" (p. 171) from the implied suggestion that reliance (or dependence) upon another individual (the therapist) may be necessary for change. They acknowledge that many clinicians believe that reliance fosters a detrimental dependency. "Instead, [clinicians] 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, the client's regulatory capacity increases through therapeutic interactive regulation. Through this relational experience, the client's regulatory capacity "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 about 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 nonreliance and independence is likened to repeating the original relational trauma (Lewis et al., 2000).

Therefore, implicit 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. 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 derives 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 proposed that the fundamental mechanisms of psychotherapy are relational and intersubjective. "What works" is the nonverbal communication of affective states and the attachment mechanism of implicit interactive affect regulation (Schore, 2006).

IMPLICATIONS FOR FURTHER EXPLORATION

The therapeutic relationship that includes the variables of the analytic relationship specifically produces changes in the client's unconscious affect–regulating structures (Schore, 2003b). The "working through" (Peterfreund, 1983) 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).

Therapists are familiar with exploring declarative memories (Fonagy, 1998). However, 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).

According to the regulation literature (Cozolino, 2002; Lewis et al., 2000; Schore, 2003a, 2003b), psychotherapy 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 experientially encounter it.

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 may parallel with and be 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.

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, presymbolic, 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. 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 modeling 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 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 therapy provides "can instill neural lessons when ordinary life cannot" (Lewis, et al., 2000, p. 180).

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, see also Castonguay & Beutler, 2006.) The paradigms reviewed here suggest that therapist self–awareness and ability to self–regulate is necessary in order to be an effective therapeutic instrument.

Concerning the current training and values of programs in applied psychology, we might ask if training 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, does clinician training present trainees with brief, 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 visual-affective 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 that 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.

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