The Right Brain Implicit Self

Lies at the Core of Psychoanalysis

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Abstract: In this contribution I expand my continuing work on the centrality of right brain structures and unconscious processes from the neuropsychoanalytic perspective of regulation theory, an overarching model of the development, psychopathogenesis, and treatment of the implicit self. In an introduction I highlight the essential role of not only implicit cognition, but implicit affect, communication, and regulation in current relational psychoanalytic models. I then briefly discuss recent developmental and neurobiological studies of implicit processes in early development and psychopathogenesis. In the bulk of this work I explore the essential role of implicit affective processes in psychotherapeutic change processes. I focus particularly on the expression of right brain unconscious mechanisms in affect-laden enactments, and on the therapist’s moment-to-moment navigation through these heightened affective moments by not left brain explicit secondary process cognition, but right brain implicit primary process affectively-driven clinical intuition. Direct access to these right brain implicit processes by both patient and therapist is central to effective treatment.
Introduction

For the last two decades my work on regulation theory has focused on the origin, psychopathogenesis, and psychotherapeutic treatment of the early forming subjective implicit self. These neuropsychoanalytic studies of the evolution of psychic structure attempt to more deeply understand the essential psychological processes and biological mechanisms that underlie the psychobiological substrate of the human unconscious described by Freud. Over this same time period the study of implicit unconscious phenomena has finally become a legitimate area of not only psychoanalytic but also scientific inquiry. In 2002 the neuroscientist Joseph LeDoux wrote in the journal *Science*, “That explicit and implicit aspects of the self exist is not a particularly novel idea. It is closely related to Freud’s partition of the mind into conscious, preconscious (accessible but not currently accessed), and unconscious (inaccessible) levels” (p. 28).

Over the course of my writings I have provided a substantial amount of interdisciplinary evidence which supports the proposition that the early developing right brain generates the implicit self, the structural system of the human unconscious (Schore, 1994, 2003a, 2005, 2007). Current neuroscience authors are concluding, “The right hemisphere has been linked to implicit information processing, as opposed to the more explicit and more conscious processing tied to the left hemisphere” (Happaney, Zelazo, & Stuss, 2004, p. 7). And with respect to hemispheric information strategies psychophysiological researchers are reporting, “in most people the analytical…verbal component being associated with left-hemispheric structures, while the nonverbal, symbolic, and unconscious components are associated with activity in structures of the
right hemisphere (p. 71). The temporal differences of right implicit and left explicit processing is described by Buklina:

[T]he more ‘diffuse’ organization of the right hemisphere has the effect that it responds to any stimulus, even speech stimuli, more quickly and, thus earlier. The left hemisphere is activated after this and performs the slower semantic analysis…the arrival of an individual signal initially in the right hemisphere and then in the left is more ‘physiological.’ (2005, p. 479; see Figure 1).
Figure 1. Implicit processing of right brain and subsequent connections into left brain explicit system. Note the vertical axis of right brain on the right side of the figure.

An essential theme of this contribution is that current clinical and experimental studies of the rapid acting unconscious, right brain “physiological” implicit system can
do more than support a clinical psychoanalytic model of treatment, but rather this interdisciplinary information can elucidate the mechanisms that lie at the core of psychoanalysis. The body of my work strongly suggests the following organizing principles. The concept of a single unitary “self” is as misleading as the idea of a single unitary “brain.” The left and right hemispheres process information in their own unique fashion, and represent a conscious left brain self system and an unconscious right brain self system. Despite the designation of the verbal left hemisphere as “dominant” due to it’s capacities for explicitly processing language functions, it is the emotion processing right hemisphere and it’s implicit homeostatic-survival and communication functions that is truly dominant in human existence (Schore, 2003a). The early-forming implicit self continues to develop, and it operates in qualitatively different ways from the later-forming conscious explicit self. Recall Freud’s (1920) assertion that the unconscious is “a special realm, with its own desires and modes of expression and peculiar mental mechanisms not elsewhere operative.” In essence, my work is an exploration of this “special realm.”

This neuropsychoanalytic perspective echoes Freud’s fundamental assertion that the central questions of the human condition, which psychoanalysis directly addresses, can never be found in knowledge of how the conscious mind of the explicit self system works, but rather in a deeper understanding of the implicit psychobiological mechanisms of the unconscious mind. Other fields of study are now appreciating the importance of this unconscious realm in all levels of human existence. In the broader psychological literature Bargh and Morsella (2008, p. 73) conclude, “Freud’s model of the unconscious as the primary guiding influence over every day life, even today, is more specific and
detailed than any to be found in contemporary cognitive or social psychology.” Thus, not only psychoanalysis but a large number of disciplines in both the sciences and the arts are now experiencing a paradigm shift from explicit conscious cognition to implicit unconscious affect (Schore, 2009a). In a recent editorial of the journal *Motivation and Emotion*, Richard Ryan asserts, “After three decades of the dominance of cognitive approaches, motivational and emotional processes have roared back into the limelight” (2007, p. 1). A large number of interdisciplinary studies are now converging upon the centrality of these implicit right brain motivational and emotional processes that are essential to adaptive functioning.

**Role of Implicit Learning in Contemporary Psychoanalysis**

In this work I differentiate a surface, verbal, conscious, analytic explicit self vs. a deeper nonverbal, nonconscious, holistic, emotional corporeal implicit self. These two lateralized systems contain qualitatively different forms of cognition and therefore unique ways of “knowing,” as well as different memory systems and states of consciousness. Neuroscientists contend, “Because the right and left hemispheres store different forms of knowledge and mediate different forms of cognitive activity, different neuronal architectures probably exist within the association cortices of the hemispheres” (Heilman, Nadeau, & Beversdorf, 2003, p. 374). And cognitive scientists now assert that when an individual generates thoughts, “conscious thought stays firmly under the searchlight, [whereas] unconscious thought ventures out to the dark and dusty nooks and crannies of the mind” (Dijksterhuis & Meurs, 2006, p. 138). This latter implicit process is, of course, essential to all psychodynamic clinical approaches.
But I will argue that implicit (nonconscious) functions are much more than just thinking, learning, memory, and attention, processes highlighted by cognitive psychology. A psychological theory of cognition, even unconscious cognition, can not penetrate the fundamental questions of development, psychopathology, and the change process of psychotherapy. In addition to *implicit cognition* (right brain unconscious processing of exteroceptive information from the outer world and interoceptive information from the inner world) the implicit concept also includes *implicit affect, implicit communication, and implicit self-regulation*. The ongoing paradigm shift from the explicit cognitive to the implicit affective realm is driven by both new experimental data on emotional processes and updated clinical models for working with affective systems.

Freud (1915) stressed that the work of psychotherapy is always concerned with affect states. In my first book I expanded upon this therapeutic principle, asserting that affects are “the center of empathic communication,” and that “the regulation of conscious and *unconscious feelings* is placed in the center of the clinical stage” (Schore, 1994). Consonant with these ideas, the essential clinical role of *implicit affect* is underscored in current neuroscience research reporting unconscious processing of emotional stimuli is specifically associated with activation of the right and not left hemisphere (Morris, Ohman, & Dolan, 1998), and documenting a “right hemispheric dominance in processing of unconscious negative emotion” (Sato & Aoki, 2006) and a “cortical response to subjectively unconscious danger” (Carretie, 2005). This work establishes the validity of the concept of unconscious (and also dissociated) affect, a common focus of the treatment of pathological defenses.
In this same volume I offered a model of *implicit communications* within the therapeutic relationship, whereby right brain-to-right brain transference-countertransference communications represent interactions of the patient’s and therapist’s unconscious primary process systems (Schore, 1994). A body of studies indicates that although the left hemisphere mediates most linguistic behaviors, the right hemisphere is important for the broader aspects of communication. This research also indicates that “The right hemisphere operates in a more free-associative, primary process manner, typically observed in states such as dreaming or reverie” (Grabner et al., 2007, p. 228).

Congruent with this model Dorpat (2001) describes the implicit process of “primary process communication” expressed in “both body movements (kinesics), posture, gesture, facial expression, voice inflection, and the sequence, rhythm, and pitch of the spoken words (p. 451).” He suggests affective and object-relational information are transmitted predominantly by primary process communication, while secondary process communication has a highly complex and powerful logical syntax but lacks adequate semantics in the field of relationships. Stern (2004) argues that the “comfortable, rich, implicit pre-verbal world is fractured into unrecognizable pieces by attaching language to his implicit experiences…The loss is of wholeness, felt truth, richness, and honesty” (p. 144). In light of the fact that the left hemisphere is dominant for certain aspects of language but the right for emotional communication, I have proposed the psychotherapy process is best described not as “the talking cure” but “the communicating” cure (Schore, 2005). Chused (2007) now asserts, “I suspect our field has not yet fully appreciated the importance of this implicit communication (p. 879).”
With regard to *implicit cognition*, I have recently suggested that primary process cognition underlies clinical intuition, a major factor in therapeutic effectiveness (Schore & Schore, 2008). Indeed, the definition of intuition, “the ability to understand or know something immediately, without conscious reasoning” (Soanes & Hawker, *Compact Oxford English Dictionary of Current English*, 2005) clearly implies right and not left brain processing. Neuroscientists now define the creative process of intuition as “difficult to articulate, affect-laden recognition or judgments, which are based on prior learning and experience” (Volz, Rubsamen, & von Cramon, 2008). Bohart (1999) contends that in the psychotherapy context, “what I extract perceptually and intuitively from lived experience is far more compelling that thought information” (p. 294). In an important article on this theme Welling concludes,

> The psychotherapist who considers his methods and decisions exclusively the result of conscious reasoning is most likely mistaken. No therapist can reasonably deny following hunches, experiencing sudden insights, choosing directions without really knowing why, or having uncanny feelings that turn out to be of great importance for therapy. All these phenomena are occurrences of intuitive modes of functioning. (2005, p. 19)

Lastly, the central theme in all of my writings is *implicit affect regulation* in the organization of the self. An inability to implicitly regulate the intensity of emotions is major outcome of early relational trauma, and this deficit is a central focus of the psychotherapy a large number of psychiatric disorders. Citing my work Greenberg now proposes,
An issue of major clinical significance then is generating theory and research to help understand to what extent automatic emotion processes can be changed through deliberate processes and to what extent only through more implicit processes based on new emotional and/or relational experiences. Stated in another way the question becomes how much emotional change requires *implicit experiential learning vs. explicit conceptual learning*. (2008, p. 416, my italics)

In agreement with current trends in modern relational psychoanalysis he concludes, “The field has yet to play adequate attention to implicit and relational processes of regulation.”

In the following I discuss and update my work on the right brain implicit self. After a brief discussion of implicit processes in early development, psychopathogenesis, and dissociation, I describe the essential role of implicit unconscious affect in psychotherapeutic change processes. The bulk of this work represents a clinical expansion of regulation theory, wherein I focus on the expression of right brain unconscious mechanisms in affect-laden enactments, and in the therapist’s moment-to-moment navigation through these heightened affective moments by not explicit secondary process cognition, but by implicit primary process clinical intuition. Direct access to implicit affective processes will be shown to be essential to the co-creation of corrective emotional experiences and indeed, to effective treatment.

**Implicit Processes in Early Development and Psychopathogenesis**

The concept of the unconscious, once uniquely studied by psychoanalysis, is crossing interdisciplinary boundaries. Infant researchers now assert, “Preverbal
communication…is the realm of non-consciously regulated intuitive behavior and implicit relational knowledge. Whether information is transferred or shared, which information gets across, and on which level it is ‘understood’, does not necessarily depend on the sender’s intention or conscious awareness” (Papousek, 2007, p. 258). This relational information is transmitted in psychobiological exchanges embedded in the co-created attachment bond. During spontaneous right brain–to-right brain visual-facial, auditory-prosodic, and tactile-proprioceptive emotionally charged attachment communications, the sensitive, psychobiologically attuned caregiver regulates, at an implicit level, the infant’s states of arousal (Schore, 1994). Note that implicit relational knowledge is not purely psychological, but essentially psychobiological, mind and body.

These nonverbal interactions with the social environment are occurring during a critical period of growth of the early developing right hemisphere (Chiron et al., 1997). A large body of experimental data now support the developmental principle that implicit affective interactions directly impact the experience-dependent maturation of the right hemisphere (Schore 1994, 2003 a,b, 2009 b,c). The highest centers of this hemisphere, especially the orbitofrontal cortex, the locus of Bowlby’s attachment system, act as the brain’s most complex affect and stress regulatory system. Confirming this interpersonal neurobiological model, a near-infrared spectroscopy study of infant-mother attachment at 12 months concludes, “our results are in agreement with that of Schore (2000) who addressed the importance of the right hemisphere in the attachment system” (Minagawa-Kawai et al., 2009). Neuroscientists now contend that throughout the lifespan, “The neural substrates of the perception of voices, faces, gestures, smells and pheromones, as
evidenced by modern neuroimaging techniques, are characterized by a general pattern of right-hemispheric functional asymmetry” (Brancucci et al., 2009, p. 895).

But the right brain imprints not only regulated but dysregulated attachment experiences, and therefore relational trauma (Schore, 2001, 2009b). During early socialization critical periods trauma-induced arousal dysregulation precludes the aforementioned facial-visual, auditory-prosodic, and tactile-proprioceptive attachment communications and thereby alters the development of essential right brain functions. In contrast to an optimal attachment scenario, in a relational growth-inhibiting early environment the primary caregiver of an insecure disorganized disoriented infant induces traumatic states of enduring negative affect in the child. This caregiver is inaccessible and reacts to her infant's expressions of emotions and stress inappropriately and/or rejectingly, and therefore shows minimal or unpredictable participation in the various types of arousal regulating processes. Instead of modulating she induces extreme levels of stressful stimulation and arousal, very high in abuse and/or very low in neglect. And because she provides no interactive repair the infant’s intense negative affective states last for long periods of time.

During these episodes of the intergenerational transmission of attachment trauma the infant is matching the rhythmic structures of the mother’s dysregulated states of both hyperarousal and dissociative hypoarousal (see Schore 2002, 2007, 2009 b,c). In a recent prospective study Dutra et al. (2009) observe maternal disrupted affective communications and lack of involvement in the regulation of stressful arousal are associated with the child’s use of dissociation, “one of the few available means for achieving a modicum of relief from fearful arousal.” This in turn leads the child “not to
acknowledge pain and distress within a set of caregiving relationships that are vital for survival” (p. 388). The massive psychobiological stress associated with disorganized-disoriented attachment trauma sets the stage for the characterological use of right brain pathological dissociation over all subsequent periods of human development (Schore, 2002, 2009b, c). In this manner, “traumatic stress in childhood could lead to self-modulation of painful affect by directing attention away from internal emotional states” (Lane et al., 1997, p. 840).

At all points of the life span pathological dissociation is expressed as the inability of the right brain cortical-subcortical implicit self system to recognize and process external stimuli (exteroceptive information coming from the relational environment) and on a moment-to-moment basis integrate them with internal stimuli (interoceptive information from the body, somatic markers, the “felt experience”) (Schore, 2003b, 2007). It thus interrupts the right brain’s capacity to generate a conscious affect. Recall Freud’s speculation, “Unconscious ideas continue to exist after repression as actual structures in the system Ucs, whereas all that corresponds in that system to unconscious affects is a potential beginning which is prevented from developing” (1915, p. 178).

These data clearly suggest a paradigm shift in psychoanalytic models of psychopathogenesis, from oedipal repression to preoedipal dissociation, the “bottom-line defense.”

Neuroscientists contend that the right hemisphere is centrally involved in “maintaining a coherent, continuous and unified sense of self” (Devinsky, 2000). The survival strategy of pathological dissociation is expressed as a dis-integration of the right brain emotional-corporeal implicit self, the biological substrate of the human
unconscious. Individuals with an attachment history of what Kestenberg (1985) referred to as “dead spots” in the infant's subjective experience subsequently access pathological dissociation (“feigned death”) in moments of relational stress, and characterologically experience episodes of “psychic death” and an inability to sustain an inner sense of “aliveness” (Bach, 2008). Thus there is a deficit in implicitly generating and integrating what Stern (2004) calls “now moments,” the basic fabric of lived experience created in continuous small packages of interactions with others. These are the smallest molar unit of psychologically meaningful relational experience that exhibits temporal and rhythmic patterning, and they operate at an implicit/procedural “core” level of consciousness. Dissociation is “a basic part of the psychobiology of the human trauma response: a protective activation of altered states of consciousness in reaction to overwhelming psychological trauma” (Loewenstein, 1996, p. 312).

The fragile unconscious system of such personalities is susceptible to mind-body metabolic collapse, and thereby a loss of energy-dependent synaptic connectivity within the right brain, expressed in a sudden implosion of the implicit self, a rupture of self-continuity, and a loss of an ability to experience a conscious affect. This collapse of the implicit self is signaled by the amplification of the affects of shame and disgust, and by the cognitions of hopelessness and helplessness. Because the right hemisphere mediates the communication and regulation of emotional states, the rupture of intersubjectivity is accompanied by an instant dissipation of safety and trust, a common occurrence in the treatment of the right brain deficits of severe personality disorders (Schore, 2007, 2009b).

Clinical research on dissociation is directly relevant to the treatment of such patients. In a transcranial magnetic stimulation study of adults Spitzer et al. (2004) report,
“In dissociation-prone individuals, a trauma that is perceived and processed by the right hemisphere will lead to a ‘disruption in the usually integrated functions of consciousness’” (p. 168). In functional magnetic resonance imaging research Lanius et al. (2005) show predominantly right hemispheric activation in PTSD patients while they are dissociating. They conclude that patients dissociate in order to escape from the overwhelming emotions associated with the traumatic memory, and that dissociation can be interpreted as representing a nonverbal response to the traumatic memory. This bottom-line defense represents the major counterforce to the emotional-motivational aspects of the change process in psychotherapy (Schore, 2007). Research shows that insecurely attached dissociative patients dissociate as a response to negative emotions arising in psychodynamic psychotherapy, leading to a less favorable treatment outcome (Spitzer et al., 2007).

**Implicit Processes in Psychotherapy**

A major tenet of my work dictates that the relevance of developmental attachment studies to the treatment process lies in the commonality of implicit right brain-to right brain affect communicating and regulating mechanisms in the caregiver-infant and the therapist-patient relationship (the therapeutic alliance). Not only psychoanalytic-based treatment models, but all forms of psychotherapy are now articulating the centrality of the therapeutic alliance, and are turning to attachment theory as the prime theoretical model (Schore, 2000). Within the therapeutic dyad not left brain verbal explicit patient-therapist discourse but right brain implicit nonverbal affect-laden communication directly
represents the attachment dynamic. Just as the left brain communicates its states to other left brains via conscious linguistic behaviors so the right nonverbally communicates its unconscious states to other right brains that are tuned to receive these communications. On this matter Stern suggests,

Without the nonverbal it would be hard to achieve the empathic, participatory, and resonating aspects of intersubjectivity. One would only be left with a kind of pared down, neutral ‘understanding’ of the other’s subjective experience. One reason that this distinction is drawn is that in many cases the analyst is consciously aware of the content or speech while processing the nonverbal aspects out of awareness. With an intersubjectivist perspective, a more conscious processing by the analyst of the nonverbal is necessary. (2005, p. 80)

Studies show that 60% of human communication is nonverbal (Burgoon, 1985).

Writing on therapeutic “nonverbal implicit communications” Chused (2007) asserts, “It is not that the information they contain cannot be verbalized, only that sometimes only a nonverbal approach can deliver the information in a way it can be used, particularly when there is no conscious awareness of the underlying concerns involved” (p. 879). These ideas are echoed by Hutterer and Liss (2006), who state that nonverbal variables such as tone, tempo, rhythm, timbre, prosody and amplitude of speech, as well as body language signals may need to be re-examined as essential aspects of therapeutic technique. It is now well established that the right hemisphere is dominant for nonverbal (Benowitz et al., 1983) and emotional (Blonder, Bowers, & Heilman, 1991) communication.
Recent neuroscientific information about the emotion processing right brain is also directly applicable to models of the psychotherapy change process. Decety and Chaminade describe right brain operations essential for adaptive interpersonal functioning, ones specifically activated in the therapeutic alliance: “Mental states that are in essence private to the self may be shared between individuals...self-awareness, empathy, identification with others, and more generally intersubjective processes, are largely dependent upon...right hemisphere resources, which are the first to develop” (2003, p. 591). Referring to other fundamental processes explored in psychotherapy, Uddin et al. conclude, “The emerging picture from the current literature seems to suggest a special role of the right hemisphere in self-related cognition, own body perception, self-awareness and autobiographical memories” (2006, p. 65). And with respect to the relational mechanism within the therapeutic alliance, Keenan and his colleagues assert, “The right hemisphere, in fact, truly interprets the mental state not only of its own brain, but the brains (and minds) of others.” (2005, p. 702).

This hemisphere is centrally involved in ‘implicit learning’ (Hugdahl, 1995), and “implicit relational knowledge” stored in the nonverbal domain is now proposed to be at the core of therapeutic change (Stern et al., 1998). Describing the right hemisphere as “the seat of implicit memory,” Mancia (2006) observes, “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” (p. 83). Right brain autobiographical memory (Markowitsch et al., 2000) which stores insecure attachment histories is activated in the therapeutic alliance, especially under relational
stress. Cortina and Liotti (2007) point out that “experience encoded and stored in the implicit system is still alive and carried forward as negative expectations in regard to the availability and responsiveness of others, although this knowledge is unavailable for conscious recall” (p. 207). These expectations are in turn expressed in the alliance. Such affective communications “occur at an implicit level of rapid cueing and response that occurs too rapidly for simultaneous verbal transaction and conscious reflection” (Lyons-Ruth, 2000, pp. 91-92).

More specifically, spontaneous nonverbal transference-countertransference interactions at preconscious-unconscious levels represent implicit right brain-to-right brain nonverbal communications of fast acting, automatic, regulated and especially dysregulated bodily-based stressful emotional states between patient and therapist (Schore, 1994). Transference is therefore an activation of right brain autobiographical memory, as autobiographical negatively valenced, high intensity emotions are retrieved from specifically the right (and not left) medial temporal lobe (Buchanan, Tranel, & Adolphs, 2006). Neuropsychoanalytic models of transference (Pincus, Freeman, & Modell, 2007) now contend that “no appreciation of transference can do without emotion” (p. 634), and that “transference is distinctive in that it depends on early patterns of emotional attachment with caregivers” (p. 636).

Transference can be described as “an established pattern of relating and emotional responding that is cued by something in the present, but oftentimes calls up both an affective state and thoughts that may have more to do with past experience than present ones.” (Maroda, 2005, p. 134). Writing on unconscious emotional memories Gainotti asserts, “the right hemisphere may be crucially involved in those emotional memories
which must be reactivated and reworked during the psychoanalytical treatment” (2006, p. 167). These right brain communications are turn processed by the psychobiologically attuned empathic clinician. Rizzuto observes, “I suggest that the analyst listens with his or her entire unconscious memory as a tool, that is, an affective, relational, and representational memory to be able to hear the whole patient” (2008, p. 744). Interestingly, these emotional communications are more efficiently processed in the clinician’s left ear (right hemisphere; Sim & Martinez, 2005).

**Implicit Processes in Clinical Enactments**

The quintessential clinical context for a right brain transferential-countertransferential implicit communication of a dysregulated emotional state is the heightened affective moment of a clinical enactment. There is now agreement that enactments, "events occurring within the dyad that both parties experience as being the consequence of behavior in the other” (McLaughlin, 1991), are fundamentally mediated by nonverbal unconscious relational behaviors within the therapeutic alliance (Schore, 2003a; Ginot, 2007). These are transacted in moment-to-moment right brain-to-right brain visual-facial, auditory-prosodic, and tactile-proprioceptive emotionally-charged attachment communications, as well as in gestures and body language, rapidly expressed behaviors that play a critical role in the unconscious communications embedded within the enactment. These rapid implicit transactions occur in milliseconds, in the temporal domain of Stern’s (2004) “present moment,” an event that lasts 4 seconds or less.
Inter-subjective communications impact not only mental but psychobiological systems in both patient and therapist. Aron observes, “patient and analyst mutually regulate each other’s behaviors, enactments, and states of consciousness such that each gets under the other’s skin, each reaches into the other’s guts, each is breathed in and absorbed by the other... the analyst must be attuned to the nonverbal, the affective... to his or her bodily responses. (1998, p. 26). This dyadic psychobiological mechanism allows for the detection of unconscious affects, and underlies the premise that “an enactment, by patient or analyst, could be evidence of something which has not yet been ‘felt’ by them” (Zanocco et al., 2006, p. 153).

In Affect Regulation and the Repair of the Self I offered a chapter, “Clinical Implications of a Psychoneurobiological Model of Projective Identification” (Schore, 2003a). The entire chapter on moment-to-moment implicit nonverbal communications within an enactment focuses on phenomena which take place in “a moment,” literally a split second. In it I offer a slow motion analysis of the rapid dyadic psychobiological events that occur in a clinical heightened affective moment. Freud’s dictum, “It is a very remarkable thing that the Ucs of one human being can react upon that of another, without passing through the Cs” (1915, p. 194, my italics) is thus neuropsychoanalytically understood as a right brain-to-right brain communication from one relational unconscious to another. Freud’s concept of the state of receptive readiness as “evenly suspended attention” can also be identified as a function of the right hemisphere, which uses an expansive broad attention mechanism that focuses on global features (as opposed to the left that narrowly focuses on local detail; Derryberry & Tucker, 1994).
That chapter also discusses how a spontaneous enactment can either blindly repeat a pathological object relation through the therapist’s deflection of projected negative states and intensification of interactive dysregulation and defensiveness, or creatively provide a novel relational experience via the therapist’s autoregulation of projected negative states and coparticipation in interactive repair. Although these are the most stressful moments of the treatment, in an optimal context the empathic therapist can potentially act as an implicit regulator of the patient’s conscious and dissociated unconscious affective states. This dyadic psychobiological corrective emotional experience can lead to the emergence of more complex psychic structure by increasing the connectivity of right brain limbic-autonomic circuits.

Consonant with this conception of implicit communication (and citing my right brain neurobiological model) Ginot asserts,

By allowing implicit relational and emotional patterns to be fully experienced within the analytic process, enactment enables both participants, and especially the analyst, to attain an unmediated connection with what cannot yet be verbalized, a connection that essentially construes an empathic resonance. (2009, p. 290)

As opposed to earlier left brain cognitive models that viewed enactments as the clinician’s technical mistakes or the patient’s acting out, Ginot proposes, “the analyst’s sensitivity, or her right brain readiness to be fully attuned to nonverbal communication, is a necessary therapeutic skill. Becoming entangled in an enactment, although at first out of awareness, is a surprising facet of such sensitivity” (2009, p. 297). In earlier work she argued, “Increasingly, enactments are understood as powerful manifestations of the
intersubjective process and as inevitable expressions of complex, though largely unconscious self-states and relational patterns” (Ginot, 2007, p. 317). These unconscious affective interactions “bring to life and consequently alter implicit memories and attachment styles.” Furthermore, such intense manifestations of transference-countertransference entanglements “generate interpersonal as well as internal processes eventually capable of promoting integration and growth.”

In parallel work Zanocco (2006) characterizes the critical function of empathic physical sensations in the enactment and their central role in “the foundation of developing psychic structure of a human being.” Enactments reflect “processes and dynamics originating in the primitive functioning of the mind,” and they allow the analyst to access a way of interacting with those patients who are not able to give representation to their instinctual impulses. These early “primary” activities are expressed in “an unconscious mental activity which does not follow the rules of conscious activity. There is no verbal language involved. Instead, there is a production of images that do not seem to follow any order, and, even less, any system of logic” (p. 145). Note the allusions of imagery to implicit primary process cognition and right brain representations (see top of Figure 1).

That said, it is important to repeat the fact that this relational mechanism is especially prominent during stressful ruptures of the therapeutic alliance. Ginot observes, As these interactions might give expression to dissociated painful, angry, and defensive self-states, the empathic aspects in enactments do not depend on the analyst’s ability to experience empathy for the patient’s difficulties. The empathic component is found in the analyst’s readiness and ability to
resonate with what is not verbalized but nonconsciously transmitted nonetheless. (p. 2009, 300)

Enactments occur at the edges of the regulatory boundaries of affect tolerance (Schore, in press), or what Lyons-Ruth describes as the “fault lines” of self-experience where “interactive negotiations have failed, goals remain aborted, negative affects are unresolved, and conflict is experienced” (2005, p. 21). In light of the principle that an enactment can be a turning point in an analysis in which the relationship is characterized by a mode of resistance/counterresistance (Zanocco et al., 2006), these moments call for the most complex clinical skills of the therapist.

This is due to the fact that such heightened affective moments induce the most stressful countertransference responses, including the clinician’s implicit coping strategies that are formed in his/her own attachment history. These right brain systems regulate intense states of object relational-induced negative affect. Recall the “right hemispheric dominance in processing of unconscious negative emotion” (Sato & Aoki, 2006). Davies (2004) documents, “It seems to me intrinsic to relational thinking that these ‘bad object relationships’ not only will but must be reenacted in the transference-countertransference experience, that indeed such reenacted aggression, rage, and envy are endemic to psychoanalytic change within the relational perspective” (p. 714). Looking at the defensive aspect Bromberg (2006) reports, “Clinically, the phenomenon of dissociation as a defense against self-destabilization…has its greatest relevance during enactments, a mode of clinical engagement that requires an analyst’s closest attunement to the unacknowledged affective shifts in his own and the patient’s self-states” (p. 5)
On the other hand, Plakun (1999) observes that the therapist’s “refusal of the transference,” particularly the negative transference, is an early manifestation of an enactment. The therapist’s “refusal” is expressed implicitly and spontaneously in nonverbal communications, not explicitly in the verbal narrative. Russell (1998) contends that “The most important source of resistance in the treatment process is the therapist’s resistance to what the patient feels” (p. 19). Bromberg offers the principle,

A therapeutic posture that systematically tries to avoid collisions between the patient’s and analyst’s subjectivities is eventually experienced as disconfirming the vitality of the patient’s dissociated self-states that are trying to find relational existence. If the analyst is not responding affectively and personally to these parts, they are robbed of a human context in which to be recognized and come alive. (2009, p. 358, my italics)

A relational perspective from dynamic system theory clearly applies to the synergistic effects of the therapist’s transient or enduring countertransference affective “mindblindness” and the patient’s negatively biased transferential expectation in the co-creation of an enactment.

Making this work even more emotionally challenging, Renik (1993) offers the important observation that countertransference enactments cannot be recognized until one is already in them. Rather spontaneous activity is expressed by the clinician’s right brain, described by Lichtenberg, Lachmann, and Fosshage (1996) as a “disciplined spontaneous engagement.” These authors observe that such events occur “at a critical juncture in analysis” and they are usually prompted by some breach or miscommunication that requires “a human response”. Although there is a danger of “exchanges degenerating
into mutually traumatizing disruptions” that “recreate pathogenic expectations”, the clinician’s communications signal a readiness to participate authentically in the immediacy of an enactment. This is spontaneously expressed in the clinician’s facial expressions, gestures, and unexpected comments that result from an “unsuppressed emotional upsurge.” These communications seem more to pop out than to have been planned or edited, and they provide “intense moments that opened the way for examination of the role enactments into which the analyst had fallen unconsciously.”

These “communications” are right brain primary process emotional and not left brain rational logical secondary process communications. Thus explicit, conscious, verbal voluntary responses are inadequate to prevent, facilitate, or metabolize implicit emotional enactments. Bromberg (2006) refers to this in his assertion, “An interpretative stance…not only is thereby useless during an enactment, but also escalates the enactment and rigidifies the dissociation” (p. 8). Andrade concludes,

As a primary factor in psychic change, interpretation is limited in effectiveness in pathologies arising from the verbal phase, related to explicit memories, with no effect in the pre-verbal phase where implicit memories are to be found. Interpretation – the method used to the exclusion of all others for a century – is only partial; when used in isolation it does not meet the demands of modern broad-based-spectrum psychoanalysis. (2005, p. 677)

But if not an explicit verbal response and analytic reasoning, then what type of implicit cognition would the therapist use in order to guide him through stressful negative affective states, such as terror, rage, shame, disgust, etc? What implicit right brain coping strategy could not only autoregulate the intense affect, but at the same time allow
the clinician to maintain “an attunement to the unacknowledged affective shifts in his own and the patient’s self-states”?

**Implicit Processes and Clinical Intuition**

In my introduction I proposed that the therapist’s moment-to-moment navigation through these heightened affective moments occurs not by explicit verbal secondary process cognition, but by implicit nonverbal primary process clinical intuition. Current brain research on human decision-making articulates dual-process theories that clearly differentiate reasoning, which is slow, controlled, and effortful, from intuition, which is fast, emotional, effortless, and creative (Kuo et al., 2009). From a social neuroscience perspective, intuition is now being defined as “the subjective experience associated with the use of knowledge gained through implicit learning” (Lieberman, 2000, p. 109). The description of intuition as “direct knowing that seeps into conscious awareness without the conscious mediation of logic or rational process” (Boucouvalas, 1997, p. 7) describes a right and not left brain function. Bugental (1987) refers to the therapist’s “intuitive sensing of what is happening in the patient back of his words and, often, back of his conscious awareness” (p. 11). In his last work Bowlby (1991) speculated, “Clearly the best therapy is done the by therapist who is naturally intuitive and also guided by the appropriate theory” (p. 16).

In a groundbreaking article Welling (2005) notes that intuition is associated with preverbal character, affect, sense of relationship, spontaneity, immediacy, gestalt nature, and global view (all functions of the holistic right brain). He further points out that
“There is no cognitive theory about intuition” (p. 20), and therefore “What is needed is a model that can describe the underlying formal process that produces intuition phenomena” (p. 23-24). Developmental psychoanalysis and neuropsychoanalysis can make important contributions to our understanding of the sources and mechanism of not only maternal but clinical intuition. In line with the previously cited conclusion of Papousek (2007), Orlinsky and Howard (1986) contend that the "non-verbal, prerational stream of expression that binds the infant to its parent continues throughout life to be a primary medium of intuitively felt affective-relational communication between persons" (p. 343). And so there are direct commonalities between the spontaneous responses of the maternal intuition of a psychobiologically attuned primary caregiver and the intuitive therapist’s sensitive countertransferral responsiveness to the patient’s unconscious nonverbal affective bodily-based implicit communications.

In the neuroscience literature Volz and von Cramon (2006) conclude that intuition is related to the unconscious, and is “often reliably accurate.” It is derived from stored nonverbal representations, such as “images, feelings, physical sensations, metaphors” (note the similarity to primary process cognition). Intuition is expressed not in literal language but is “embodied” in a “gut feeling” or an initial guess that subsequently biases our thought and inquiry. “The gist information is realized on the basis of the observer’s implicit knowledge rather than being consciously extracted on the basis of the observer’s explicit knowledge” (p. 2084).

With direct relevance to the concept of somatic countertransference, cognitive neuroscience models of intuition are highlighting the adaptive capacity of “embodied cognition.” Allman et al. (2005) assert, “We experience the intuitive process at a visceral
Intuitive decision-making enables us to react quickly in situations that involve a high degree of uncertainty which commonly involve social interactions” (p. 370). These researchers demonstrate that right prefrontal-insula and anterior cingulate relay a fast intuitive assessment of complex social situations in order to allow the rapid adjustment of behavior in quickly changing and therefore uncertain social situations. This laterization is also found in a neuroimaging study by Bolte and Goschke (2005), who suggest that right hemisphere association areas play a special role in intuitive judgments.

In parallel psychoanalytic work Marcus (1997) observes, “The analyst, by means of reverie and intuition, listens with the right brain to the analysand’s right brain” (p. 238). Stern (2004) proposes that the clinician can focus her attention on brief moments and intuitively grasp the relational and emotional essence of that present moment, without being verbalized. Other clinicians hypothesize that the intuition of an experienced expert therapist lies fundamentally in a process of unconscious pattern matching (Rosenblatt and Thickstun, 1994), and that this pattern recognition follows a nonverbal path, as verbal activity interferes with achieving insight (Schooler & Melcher, 1995). Even more specifically Bohart (1999) contends that intuition involves the detection of “patterns and rhythms in interaction.” But if not verbal stimuli, then which patterns are being intuitively tracked?

Recall, “transference is distinctive in that it depends on early patterns of emotional attachment with caregivers” (Pincus et al., 2007), and enactments are powerful expressions of “unconscious self-states and relational patterns” (Ginot, 2007). Van Lancker and Cummings (1999) assert, “Simply stated, the left hemisphere specializes in analyzing sequences, while the right hemisphere gives evidence of superiority in
processing *patterns*” (p. 95). Indeed, “*Pattern recognition* and comprehension of several types of stimuli, such as faces, chords, complex pitch, graphic images, and voices, has been described as superior in the normal right hemisphere” (Van Lancker Sidtis, 2006, p. 223). Updated models of psychotherapy describe the primacy of “*making conscious the organizing patterns of affect*” (Mohaupt et al., 2006). The intuitive psychobiologically attuned therapist, on a moment-to-moment basis, implicitly focuses her countertransference/countertransference broad attentional processes upon *patterns* of rhythmic crescendos / decrescendos of the patient’s regulated and dysregulated states of affective autonomic arousal (for clinical work with the autonomic nervous system, see Schore, in press).

Intuition thereby represents a complex right brain primary process, an affectively charged embodied cognition that is adaptive for “implicit feeling or knowing,” especially in moments of relational uncertainty. In the heightened affective moment of an enactment a rupture in the therapeutic alliance is characterized by a high degree of uncertainty and a density of negative affect. To optimally solve this relational problem on a moment-to-moment basis the therapist must both remain psychobiologically attuned to the patient in a state of right brain evenly suspended attention and at the same time access an intuitive fast, emotional, and effortless right brain decision process to navigate through the stressful intersubjective context.

Welling (2005) offers a phase model, in which the amount of information contained in the intuition increases from one phase to another, resulting in increased levels of complexity. An early “detection phase” related to “functions of arousal and attention” culminates in a “metaphorical solution phase,” in which the intuition presents itself in the form of kinesthetic sensations, feelings, images, metaphors, and words. Here
the solution, which has an emotional quality, is revealed, but in a veiled nonverbal form. These descriptions reflect the activity of the right hemisphere, which is dominant for attention (Raz, 2004), kinesthesia (Naito et al., 2004), unique modes of perception associated with mental creativity (Asari et al., 2008), and the processing of novel metaphors (Mashal et al., 2007). In contrast to the left brain’s deliberate, conscious, analytical search strategies, the right brain generates the subjective experience of insight, whereby a novel solution is computed unconsciously and subsequently emerges into awareness suddenly (Bowden & Jung Beeman, 1998; Sandkuhler & Bhattacharya, 2008; Kounios & Beeman, 2009). Insight is defined by the Oxford dictionary as “the capacity to gain an accurate and intuitive understanding.”

Phases of intuitive processing are generated in the subcortical-cortical vertical axis of the therapist’s (and patient’s) right brain, from the right amygdala, right insula, and right anterior cingulate to the right orbitofrontal system (Figure 1; also see Figure A-2 in Schore, 2003a). The latter, the highest level of the right brain acts as an “inner compass that accompanies the decoding process of intuition” (Welling, 2005). The orbitofrontal system, the “senior executive of the emotional brain,” is specialized for contexts of “uncertainty or unpredictability” (Elliott, Dolan, & Frith, 2000). It functions as a dynamic filter of emotional stimuli (Rule, Shimamura, & Knight, 2002) and provides “a panoramic view of the entire external environment, as well as the internal environment associated with motivational factors” (Barbas, 2007). It also acts in nonconscious intuitive processes as “a fast detector and predictor of potential content that utilizes coarse facets of the input” (Volz et al., 2008), responds to novel visual stimuli (Rolls et al., 2005), formulates a theory of mind, now defined as “a kind of affective-
decision making” (Happeney et al., 2004), and is centrally involved in “intuitive decision-making” (Allman et al., 2005).

I have suggested that the right orbitofrontal cortex and its subcortical and cortical connections represent what Freud described as the preconscious (Schore, 2003a). Alluding to preconscious functions, Welling describes intuition as:

…a factory of pieces of thoughts, images, and vague feelings, where the raw materials seem to float around half formless, a world so often present, though we hardly ever visit it. However, some of these floating elements come to stand out, gain strength, or show up repeatedly. When exemplified, they may be easier to recognize and cross the border of consciousness. (2005, p. 33)

Over the course of the treatment, but especially in heightened affective moments of enactments, the psychobiologically attuned clinician accesses this preconscious domain, as does the free associating, affect communicating patient. Rather than conscious reasoning and technical explicit skills the clinician’s intuitive implicit capacities may be responsible for the negotiated outcome of an affectively-charged enactment, and may dictate the depth of the therapeutic contact, exploration, and change processes.

**Implicit Process Central to Change: Affect Regulation**

Although enactments are the most stressful moments of the treatment, in an optimal context the therapist can potentially act as an implicit regulator of the patient’s conscious and dissociated unconscious affective states. According to Ginot (2007), “This focus on enactments as communicators of affective building blocks also reflects a growing
realization that explicit content, verbal interpretations, and the mere act of uncovering
memories are insufficient venues for curative shifts” (p. 317). This clearly implies that
the resolution of enactments involves more than the standard Freudian idea of making the
unconscious conscious by defense interpretations. But if not these explicit factors, then
what implicit relational experience is essential to the change process, especially in
developmentally impaired personalities who access pathological dissociation and are not
psychologically minded?

At the most fundamental level the implicit change mechanism must certainly
include a conscious or unconscious affective experience that is communicated to an
empathic other. But in addition, an optimal intersubjective context provides not only
right brain implicit affective communication but also an opportunity for right brain
interactive regulation of dysregulated intense affective states, the core of the attachment
dynamic. The importance of this connection is stressed by Whitehead (2006): “Every
time we make therapeutic contact with our patients we are engaging profound processes
that tap into essential life forces in our selves and in those we work with…Emotions are
deepened in intensity and sustained in time when they are intersubjectively shared. This
occurs at moments of deep contact” (p. 624). Ogden and her colleagues conclude that the
psychotherapy change mechanism lies not in verbal exchanges but rather in a background
of the empathic clinician’s psychobiologically attuned interactive affect regulation, a
relational context that allows the patient to safely contact, describe and eventually
regulate his/her inner experience. I suggest that the regulation of stressful and
disorganizing high or low levels of affective-autonomic arousal facilitates the repair and
re-organization of the right brain, the biological substrate of the human unconscious.
It is now clear that affective processes lie at the core of the implicit self, and that a deeper understanding of affect is closely tied to the problem of the regulation of these bodily-based processes. The essential adaptive capacity of emotion regulation can be defined as “the process of initiating, maintaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states, emotion-related physiological processes, and the behavioral concomitants of emotion” (Eisenberg et al. 2001, p. 1114). Affect regulation, a central mechanism of development, psychopathogenesis, and the change process of psychotherapy, is usually defined as set of conscious control processes by which we influence, consciously and voluntarily, the conscious emotions we have, and how we experience and express them (e.g., Ochsner & Gross, 2005). But, as developmental attachment studies clearly show, right brain interactive implicit affect regulation occurs on nonconscious levels. Clinicians vary in not only the implicit capacity of negative and positive affect tolerance, but also in the ability to implicitly regulate positive and negative affect states (J. Schore & A. Schore, 2008).

In a groundbreaking article in the clinical psychology literature Greenberg (2007) describes a “self-control” form of emotion regulation involving higher levels of cognitive executive function that allows individuals “to change the way they feel by consciously changing the way they think.” This explicit form of affect regulation is performed by the verbal left hemisphere, and unconscious bodily-based emotion is usually not addressed. This mechanism is at the core of verbal-analytic understanding and controlled reasoning, heavily emphasized in therapeutic models of not only classical psychoanalysis but also cognitive behavioral therapy. In contrast to this conscious emotion regulation system, Greenberg describes a second, more fundamental implicit affect regulatory process
performed by the right hemisphere. This system rapidly and automatically processes facial expression, vocal quality, and eye contact in a relational context. Therapy attempts not control but the “acceptance or facilitation of particular emotions,” including “previously avoided emotion,” in order to allow the patient to tolerate and transform them into “adaptive emotions.” Citing my work he asserts, “it is the building of implicit or automatic emotion regulation capacities that is important for enduring change, especially for highly fragile personality-disordered clients” (2007, p. 416).

Both scientists and clinicians now assert that affect dysregulation is a fundamental mechanism of all psychiatric disorders, and that an impaired ability to regulate the intensity of affect is the most enduring consequence early relational trauma. This deficit in implicit affect regulation underpins later problems in emotional and interpersonal functioning. Due to early forming inefficient coping strategies self pathologies and personality disorders, especially in periods of relational stress, experience under- and/ or overregulation of affects. This deficit in solving social problems with right brain implicit emotional regulating functions is frequently accompanied by an over-reliance on left brain explicit analytic reasoning. The limitation of this hemispheric strategy is described by Keenan et al. (2005): “the left hemisphere often fills in information that it is unaware of…However, the filling in of left hemisphere does not require insight, self-awareness, or any higher-order state. The left hemisphere appears to do so in a rather blind manner” (p. 702). In contrast, the right hemisphere has the ability to see the “big picture” and “find the thread that unites” (Drago et al., 2009, p. 141). Heilman et al. (2003) observe, “A possible method of resolving a previously unsolved problem is to see this problem ‘in a new light’ and a means of seeing a problem in a new light is to use a different form of
Due to ongoing therapeutic right brain interactive regulation of arousal and affect, the patient’s implicit sense of safety and trust increases, and ruptures of the attachment bond are now more easily negotiated. These negotiations involve not only nonverbal but also verbal affective communications, especially in spontaneous expressions that occur in the intimate context of a regulated heightened affective moment. It has been assumed in the psychoanalytic and broader psychotherapeutic literature that all forms of language reflect left hemispheric functioning. Current neuroscience now indicates this is incorrect. Indeed, in a recent review Ross and Monnot conclude, “Thus, the traditional concept that language is a dominant and lateralized function of the left hemisphere is no longer tenable.” (2008, p. 51). They report,

Over the last three decades, there has been growing realization that the right hemisphere is essential for language and communication competency and psychological well-being through its ability to modulate affective prosody and gestural behavior, decode connotative (non-standard) word meanings, make thematic inferences, and process metaphor, complex linguistic relationships and non-literal (idiomatic) types of expressions. (p. 51)

This right brain mechanism underlies Joseph’s clinical observation, “In my experience, fresh and heartfelt metaphorical language or direct, straightforward, and even blunt language is often the most direct route to truth, richness, and honesty. That is a type of language that often evokes an emotional outpouring from others” (2008, p. 253). As opposed to left brain neutral, detached secondary process language, this emotional
language is saturated in right brain nonverbal prosodic, facial, and gestural communications.

Even more than the late acting rational, analytical and verbal left mind, the growth-facilitating psychotherapeutic relationship needs to directly access the deeper psychobiological strata of the implicit regulatory structures of both the patient’s and the clinician’s right brain/mind/bodies. Effective psychotherapy of attachment pathologies and severe personality disorders must focus on unconscious affect and the survival defense of pathological dissociation, “a structured separation of mental processes (e.g., thoughts, emotions, conation, memory, and identity) that are ordinarily integrated” (Spiegel & Cardeña, 1991, p. 367). The clinical precept that unregulated overwhelming traumatic feelings can not be adaptively integrated into the patient’s emotional life is the expression of a dysfunction of “the right hemispheric specialization in regulating stress-and emotion-related processes” (Sullivan & Dufresne, 2006).

As described earlier this dissociative deficit specifically results from a lack of integration of the right lateralized limbic-autonomic circuits of the emotional brain (see Figure 1). A psychotherapeutic increase of interconnectivity within the unconscious system of the implicit self thus promotes the complexity of defenses, right brain coping strategies for regulating stressful bodily-based affects that are more flexible and adaptive than pathological dissociation. This structural maturation of the right lateralized vertical axis (see Figure 1) is expressed in further development of the right brain core of the self and its central involvement in “patterns of affect regulation that integrate a sense of self across state transitions, thereby allowing for a continuity of inner experience” (Schore,
This right brain therapeutic mechanism supports the integration of what Bromberg (2006) calls dissociated “not-me” states into the implicit self.

**Regulated Enactments, Corrective Emotional Experiences and Expansion of the Right Brain Implicit Self**

Recall Ginot’s assertion that enactments “generate interpersonal as well as internal processes eventually capable of promoting integration and growth.” Indeed, long-term affectively-focused psychotherapy can generate corrective emotional experiences. In classical writings, Alexander and French posited,

> In all forms of etiological psychotherapy, the basic therapeutic principle is the same: To re-expose the patient, under more favorable circumstances, to emotional situations which he could not handle in the past. The patient, in order to be helped, must undergo a corrective emotional experience suitable to repair the traumatic influence of previous experiences. (1946, p. 46)

Recent data from developmental affective neuroscience and traumatology now clearly suggest that corrective emotional experiences of the psychotherapeutic change process involve not just cathartic discharge but right brain interactive regulation of affect.

Regulated enactments positively alter the developmental growth trajectory of the right brain and facilitate the top-down and bottom-up integration of its cortical and subcortical systems (Schore, 2003a). These enhanced right amygdala - ventral prefrontolimbic connections allow therapeutic “now moments” of lived interactive experience to be integrated into autobiographical memory. Autobiographical memory, an
output of the right brain, is the highest memory system that consists of personal events with a clear relation to time, space, and context. In this right brain state of autonoetic consciousness the experiencing self represents emotionally-toned memories, thereby allowing for “subjective time travel” (Kalbe et al., 2008) and the capacity to project the self into the future. This developmental progression is reflected in a functional expansion in implicit self-regulation, affect, communication, and cognition, essential functions of the right brain, the locus of “the highest human mental function, responsible for creativity and integration of past, present, and future experience” (Rotenberg, 2004, p. 864).

Current neuroscientific models view creativity as the production of an idea that is both novel and useful in a particular social setting (Flaherty, 2005). Researchers now conclude that although the left hemisphere is specialized for coping with predictable representations and strategies, the right predominates for coping with and assimilating novel situations (Podell et al., 2001) and ensures the formation of a new program of interaction with a new environment (Ezhov & Krivoschekov, 2004). Indeed,

The right brain possesses special capabilities for processing novel stimuli…Right-brain problem solving generates a matrix of alternative solutions, as contrasted with the left brain’s single solution of best fit. This answer matrix remains active while alternative solutions are explored, a method suitable for the open-ended possibilities inherent in a novel situation. (Schutz, 2005, p. 13)

These right brain data are directly relevant to recent psychoanalytic models of the change process. D.B. Stern (1997) states effective psychotherapy is less a bringing to
light pre-existing truth than perceiving and interpreting novelty. Bromberg emphasizes the critical role of therapeutic “safe surprises:”

Interpersonal novelty is what allows the self to grow because it is unanticipated by both persons, it is organized by what takes place between two minds, and it belongs to neither person alone…It is through the novelty and surprise of this reciprocal process that the therapeutic action of psychoanalysis takes shape, and it may well be what accounts for the enhanced spontaneity and flexibility of a patient’s personality structure that results from a successful analysis. (2009, p. 89-90)

Psychoanalysis has a long history of exploring the role of the unconscious in creativity (Kris, 1952; Reik, 1948), and current authors have applied these ideas to the problem of the clinician’s capacity for interpersonal novelty and creativity (Horner, 2006; Arnold, 2007). I suggest that the clinician’s creativity, a right hemispheric process (Jausovec & Jausovec, 2000; Grabner et al., 2007), is an essential element of clinical expertise, and that basic research on this individual difference variable applies to psychotherapists. Summarizing this body of studies Ansburg and Hill (2003) assert that highly creative (as opposed to analytic) thinkers are more likely to produce nonconsciously primed solutions, gather information using diffuse instead of focused attentional processes that occur beneath awareness, sample a wider range of environmental input, and generate innovative connections when they unwittingly encounter a trigger in the environment. They conclude, “Instead of relying solely on explicit memory processes, creative individuals may be able to take better advantage of their implicit memory processes” (2003, p. 1149).
The relational neuropsychoanalytic perspective of regulation theory suggests that an optimal therapeutic experience can also expand the patient’s right brain implicit creative functions. Indeed, the right hemisphere is more critical than the left in learning a new task and building an experiential base (Shrira & Martin, 2005). Heightened affective moments are potential mediators of the therapeutic change process, and thus the emotion processing right brain, the psychobiological substrate of the human unconscious, is the site of both an implicit enactment and a corrective emotional experience. According to Friedmann and Natterson,

Enactments are interactions of analysand and analyst with communicative and resistive meanings that lead to valuable insight and can constitute corrective emotional experiences. Enactments that are recognized and defined become valuable dramatizing moments that have condensing, clarifying, and intensifying effects upon consciousness. (1999, p. 220)

Echoing this principle in the clinical psychology literature, Hayes and her colleagues conclude,

Although change can happen in a gradual and linear way, there is increasing evidence across disciplines that it can also occur in discontinuous and nonlinear ways. This latter type of change is often preceded by an increase in variability and a destabilization or loosening of old patterns that can be followed by system reorganization. In post-traumatic growth, life transition, and psychotherapy, destabilization often occurs in the context of emotional arousal which, when accompanied by emotional processing and meaning-making, seems to contribute to better outcomes. (2007, p. 721)
The growth facilitating environment of the therapeutic relationship can promote the experience-dependent maturation of the right brain implicit self. Psychoneurobiological re-organizations of the right brain human unconscious underlie Alvarez’s (2005) assertion, “Schore points out that at the more severe levels of psychopathology, it is not a question of making the unconscious conscious: rather it is a question of restructuring the unconscious itself” (p. 171). The implicit functions of the emotional right brain are essential to the self-exploration process of psychotherapy, especially of unconscious affects that can be potentially integrated into a more complex implicit sense of self. At the most fundamental level, the work of psychotherapy is not defined by what the therapist explicitly, objectively does for the patient, or says to the patient. Rather the key mechanism is how to implicitly and subjectively be with the patient, especially during affectively stressful moments when the “going-on-being” of the patient’s implicit self is dis-integrating in real time.

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