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Right Brain-to-Right Brain Psychotherapy: Recent Clinical and Scientific Advances*

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In my ongoing studies I continue to suggest that the mental health field is currently experiencing a paradigm shift, in large part due to the integration of neuroscience within updated models of clinical treatment (see Schore, 2003b, 2012, 2019a). Indeed, neuroscience as a whole is now in a rapid period of growth, due both to advances in technology and to its expanding connections with other scientific and clinical disciplines. This expansion is being fueled by the rediscovery of brain lateralization, first established in the nineteenth century at the dawn of modern neurology, and the recent discoveries of the different structural and functional organizations of the right and left brains, the unconscious and conscious minds. My clinical and theoretical models represent ongoing investigations of the right brain and its adaptive bodily-based emotional, relational, and survival processes.

With respect to the origins of these two lateralized self systems a large body of research indicates an earlier maturation of the emotional imagistic right brain than the analytic linguistic left brain (see Schore, 1994, 2012, 2003a,b, 2019a,b). Clinical and neuropsychoanalytic studies support Sigmund Freud's (1923) classic formulation that the unconscious mind develops before the conscious mind, and that "thinking in pictures...approximates more closely to unconscious processes than does thinking in words, and it is unquestionably older than the latter both

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ontogenetically and phylogenetically" (p. 21). Consonant with this conceptualization, in his wide ranging studies of the unique specializations of the dual brain hemispheres the neuropsychiatrist Iain McGilchrist (2015) now asserts that "The right hemisphere both grounds our experience of the world at the bottom end, so to speak, and makes sense of it, at the top end," that this hemisphere is more in touch with both affect and the body, and that "neurological evidence supports what is called the primacy of affect and the primacy of unconscious over conscious will" (p. 44).

For the past three decades I have offered interdisciplinary research and clinical data demonstrating that the right brain is the psychobiological substrate of the human unconscious. This right-lateralized deep core of the subjective self evolves in the early mother-infant attachment relationship, and over the lifespan this dynamic system, at levels beneath conscious awareness, intersubjectively communicates with other right brains, that are tuned to receive these communications. This nonverbal communication system lies at the foundation of the evolutionary mechanism of attachment, expressed as the implicit (unconscious) interactive regulation of emotion, and thereby the regulation of biological synchronicity between and within organisms. Thus synchronized right brain-to-right brain affectively charged attachment dynamics act as a biopsychosocial mechanism by which humans are sociophysiologically connected to others in order to co-regulate their internal homeostatic states (Schore, 2003a).

Applying this developmental model of the mother-infant dyad to the clinical context I have described how the co-created psychotherapeutic relationship acts as a dynamic intersubjective context of rapid communications of emotional states within the evolving therapeutic alliance. These spontaneous right brain-to-right brain nonverbal communications of self-states take place in the present moment, a time frame of fractions of a second to 2 to 3 seconds. Importantly, this "relational unconscious" not only communicates with but also synchronizes and is expanded by another relational unconscious (Schore, 2019a, b; 2020a,b). This synchronized coupling of right brain patterns allows the therapeutic dyad to mutually share unconscious implicit communicative, emotional, and regulatory functions, thereby facilitating psychotherapeutic growth and development of the patient's right brain.

In my two recent volumes Right Brain Psychotherapy and The Development of the Unconscious Mind I continue to expand my theoretical and clinical studies of regulation theory, a theory of the development, psychopathogenesis, and treatment of the subjective self. This

interpersonal neuropsychoanalytic model describes the essential hidden intersubjective context, the process dimension of psychotherapy. Towards that end I offer both scientific and clinical data indicating that recent discoveries in the interpersonal neurobiology are directly relevant to a more complex understanding of the underlying mechanisms of therapeutic action in all forms of psychotherapy (Schore, 2019a,b). In these volumes I describe the essential interpersonal functions of spontaneous nonconscious right brain-to-right brain communications beneath the words of the patient and clinician, and of rapid nonverbal regulatory communications embedded in implicit intersubjective relational processes. Special attention is focused on reenactments of early attachment dynamics and on the growth-facilitating effects of mutual regressions in heightened affective moments of the treatment. Citing extensive clinical material I suggest that psychotherapeutic reen-actments and mutual regressions shed direct light upon the essential dynamic functions of the deepest hidden levels of the unconscious mind, which Freud demonstrated to be centrally involved in all aspects of the human experience.

This "two-person" interpersonal neurobiological model highlights the ongoing neuroplastic development of the right brain as a primary mechanism of change in all forms of psychotherapy, including adult, child, couples, and group psychotherapy. In a recent Special Issue of the journal Psychotherapy entitled "Evidence-based psychotherapy relationships," the editors Norcross and Lambert (2018) assert, "decades of research evidence and clinical experience converge: the psychotherapy relationship makes substantial and consistent contributions to outcome independent of the treatment" (p. 313 my italics). I also offer information about very recent advances in neuroscience methodology and technology that allows for a deeper understanding of the interactions of two right brain systems in the therapeutic relationship co-constructed by the clinician and the patient. The right brain-to-right brain model, first proposed in 1994, is now directly supported in groundbreaking paradigm shifting hyperscanning research of both the patient's and therapist's interacting brains, showing a right-lateralized interbrain synchronization between them during an emotionally-focused psychotherapy session (Zhang et al., 2018, 2020). These advances provide a valuable opportunity for a deeper understanding of the implicit relational processes that operate between both members of the therapeutic dyad at levels beneath conscious awareness.

With respect to this "hidden" unconscious nonverbal attachment bond of emotional communication embedded in the co-created patient-therapist relationship, my ongoing work

describes how the rapid, dynamically fluctuating moment-to-moment state-sharing between the patient and the empathic therapist represents an organized dialogue, a nonverbal turn taking conversation occurring within milliseconds. In this interactive matrix both partners spontaneously match states and then simultaneously adjust their social attention, stimulation, and subjective arousal in response to their partner's signals (Schore, 2003b). It is this right brain-to-right brain state sharing that allows each person's conscious and especially unconscious states of mind to be known to the other implicitly (Schore, 2019a,b; 2021a,b).

More specifically, at levels beneath conscious awareness the psychobiologically attuned, intuitive clinician, from the first point of contact, is learning the nonverbal moment-to-moment rhythmic structures of the patient's internal states, and is relatively flexibly and fluidly modifying her own behavior to synchronize with that structure, thereby co-creating a context for the organization of a therapeutic alliance. Note that this right-lateralized interbrain synchronization allows for the dyadic emergence of a right brain-to-right brain communication system. Neuroscience authors are now describing "a form of therapeutic conversation that can be conceived···as a dynamic interplay between right hemispheres" (Meares, 2017), and asserting "The right hemisphere, in fact, truly interprets the mental state not only of its own brain, but the brains (and minds) of others" (Keenan et al., 2005, p. 702).

In such nonconscious moment-to-moment bodily-based communications the sensitive, intuitive therapist can subjectively attend to "barely perceptible cues that signal a change of state" in both the patient and herself, and to intersubjectively detect the patient's "nonverbal behaviors and shifts in affects." This right brain state sharing in turn allows the therapist in a state of therapeutic presence to enter into the patient's changing feeling state, in order to "follow the affect" (Schore, 1994) and to act as an implicit affect regulator of the patient's emotional states. Psychotherapeutic synchronized and interactively regulated right-lateralized communications facilitate neuroplastic structural changes in the patient's right brain regulatory systems, which in turn allow for optimal treatment outcomes in both symptom-reducing and growth-promoting psychotherapies.

My work describes attachment dynamics in secure as well as insecure early attachments, including histories of disorganized-disoriented insecure attachment associated with abuse and neglect. Utilizing a neuropsychoanalytic perspective I continue to describe the underlying implicit neurobiological mechanisms of the right brain in affective communications of regulated and

dysregulated attachment dynamics, stressful transference-countertransference transactions, and implicit interactive affect regulation, which all operate at levels beneath conscious awareness (Schore, 1994, 2003b, 2012, 2019a). My work specifically focuses on the enduring negative impacts of what I have termed developmental "relational trauma" (Schore, 2001) on the individual's right-lateralized subjective self's capacity for communicating with other minds, that is, intersubjectivity, as well as for attachment, the interactive regulation of emotion. This relational trauma is associated with the affect blunting defense of dissociation.

In this work conscious and especially unconscious dysregulating experiences are communicated within the emotional attachment bond co-created between patient and therapist on a millisecond time scale, right brain-to-right brain, especially in moments of affective shifts into and out of stressful dysregulated subjective emotional states. These transferential relational stressors of the emotional bond embedded in therapeutic alliance are an essential element in dyadic rupture and repair transactions, a central relational mechanism of the treatment. In rupture-repair these affective transactions can be interpersonally synchronized and interactively regulated, re-establishing the right brain-to-right brain affective bond between two right brains. Over time this interpersonal emotional communication system allows the evolving therapeutic relationship to generate increasing levels of safety and trust, and thereby jointly process reenactments of early developmental stress-related attachment dynamics.

In addition to the attachment mechanism, stressful transference-countertransference communications of early developmental trauma, and clinical enactments of ruptures of the attachment bond, the clinical construct of mutual regression acts as a core mechanism that promotes emotional growth and development in psychotherapy, especially in psychodynamic psychotherapy. In order for this to be achieved there needs to be a mechanism that can transiently shift hemispheric dominance from the therapist's left brain into his or her right brain, the repository of the patient's emotionally stressful and painful autobiographical attachment memoires. A long tradition in the neurological sciences has defined regression as a "taking off of the higher" and "at the very same time a letting go, or expression of the "lower" (Schore, 2019a). From a neuropsychoanalytic perspective the mechanism of regression from the "higher" left into the "lower" right hemisphere, acting at rapid and thereby unconscious levels, provides transient shifts in brain laterality (Schore, 2019a, 2021a). In such the empathic therapist's right brain can receive and respond to the patient's right brain's conscious

and especially unconscious early attachment communications. Early in the last century Carl Jung (1912) described the importance of supporting the patient's therapeutic regressions back to earliest stages of life to make contact with a vital generative core of the self that was hidden in the unconscious, the "lost heart to the self:" He stated, "Therapy must support the regression, and continue to do so until the 'prenatal' stage is reached. . . . Hence the regression leads back only apparently to the mother . . . but goes back beyond her to the prenatal realm . . . [to] the germ of wholeness. . . . It is [the] inherent possibilities of "spiritual" or "symbolic" life and of progress which form the ultimate, though unconscious goal of regression." (paragraphs 508-510).

In light of the current two-person relational model the construct of regression is now being transformed from an intrapsychic regression within one brain to an interpersonal mutual regression shared by two interacting brains. In this manner the patient-therapist therapeutic dyad can access an interpersonal synchronization mechanism that can transiently induce a callosal reversible dominance of the hemispheres in both patient and therapist, from the verbal and cognitive functions of their later-developing "higher" left hemisphere to the nonverbal and social-emotional functions of their early developing "lower" right hemisphere. This spontaneous synchronized state shift of a mutual regression allows the therapeutic dyad to transition from "top-down" to "bottom up" work (Schore, 2021a). In this manner the developmentally dysregulated emotional and relational stressors in a therapeutic reenactment of dissociated affects associated with early relational attachment trauma can be re-experienced, communicated, come into consciousness, shared, and regulated.

In recent writings in relational psychoanalysis Aron and Bushra (1998) have used the construct of regression to describe a particular "loosening of structure" in which the clinician "is not seen as remaining in a 'normal,' 'rational' state holding the patient who regresses to a primitive or childish state," but rather a "mutual regression" in which both move "through a wide range of states, each mutually regulating the other's experience as the process unfolds. For this process to work, patient and analyst must differentially surrender to one another and become transformed" (p. 408, italics added). Aron and Atlas (2015) now assert, "Just as we may 'get stuck' in enactments, unable to work our way out of them so to we may inhibit or avoid entering into or surrendering to therapeutically generative enactments" (p. 322). Indeed, mutual regressions into regulated therapeutic enactments provide a growth-promoting context

that over time can transform an insecure into a secure attachment pattern.

Overall, the clinical interpersonal neurobiological therapeutic principle of working with mutual regressions and relational trauma in a mutual enactment and indeed with any disturbance of affect regulation dictates that the psychobiologically attuned empathic therapist facilitates the patient reexperiencing overwhelming affects in incrementally titrated, increasing affectively tolerable doses in the context of a safe and trusting environment, so that overwhelming traumatic feelings can be regulated, come into consciousness, and be adaptively integrated into the patient's emotional life. In this manner, adaptive, interactively regulated mutual regressions within synchronized reenactments "generate interpersonal as well as internal processes eventually capable of promoting integration and growth" (Ginot, 2007, p. 317), including the growth of the patient's right brain unconscious self image.

Furthermore, in very recent work I have offered a contribution on the interpersonal neurobiology of intersubjectivity (Schore, 2021b), an unconscious nonverbal communication between the infant's and mother's mind that emerges in the second month of life. Here I discuss the early and enduring adaptive origins of mutual play in psychotherapy, including the imaginative games of child psychotherapy. In that work I offer recent scientific and clinical evidence documenting that the early appearing right brain-to-right brain intersubjective maternal-infant protoconversation that appears in the first few months of life represents the foundation of an imaginative and resonant playful sharing of our inner subjectivity with another subjective self. My colleague Russel Meares (2016) argues that in optimal developmental contexts, the right brain-to-right brain nonverbal protoconversation continues in the second year, a time when a toddler develops a burgeoning playful imagination and shows an expanded need for novel experiences. This earliest form of symbolic play allows the toddler to play with ideas and generate fantasies, including fantasied interactions with other minds. Furthering these ideas I would add that upon entering early childhood these products of the emergent imagination can also be shared with a valued other in the intersubjective play of creative storytelling.

This interpersonal neurobiological model applies to mutual regressions in the imaginative games of all forms of integrative play therapy (Drewes, Bratton, & Schaefer, 2011), including sandtray therapy. Homeyer & Sweeney (2010) define sandtray therapy as "an expressive and projective mode of psychotherapy involving the unfolding and processing of intra-and interpersonal issues through the use of specific sandtray materials as a nonverbal medium of

communication, led by the client(s) and facilitated by a trained therapist" (p. 4). In 2004 I met with Sachiko Taki-Reece here in Los Angeles, where she introduced me to sandplay. In her subsequent writings on this she describes sandplay as a nonverbal psychotherapy "evoking imagination, and the treasures of the imaginal realm, and all in the context of loving attention." Incorporating my work she emphasizes "the relational aspect of sandplay" where the therapist, acting "intuitively," "without interpretation," provides "a safe space and a client will play freely in that space." This shared space includes "more and more symbolic expression." She observes "a nonconscious sense of safety recreated···by the therapist; the therapist's non-verbal behavior, by the therapist's tone of voice, by her resonance with him and also by her not being in front of him but behind him. The sandplay therapist is non-directive, just more or less following him."

In astute clinical observations Taki-Reece (2004) described the sandplay therapist's skills that "include how to form resonance to sense of connectivity with the child and how to be responsive to the child." In this context of a "two person psychology," "the therapist's timing is right on, in synchrony," and the "patient feels the background presence of the therapist," and is open to "surprise." She states that relational sandplay therapy accesses a co-created "joint therapeutic alliance" "on a nonverbal level" that in turn allows for a rapid therapeutic access to a "right hemispheric representation" of child's inner world. In this therapeutic interaction the child is accompanied by "the background presence···of someone trustworthy in his world." This relational context of "interactive regulation" allows for "a background regulatory presence," in which child experiences "a continuity of being together with his imagination" which facilitates change by acting as "growth facilitating environment." I'd add that from the neuropsychoanalytic perspective of regulation theory this "right hemispheric representation" is jointly entered into by a synchronized mutual regression.

In very recent work my colleague Madeline De Little offers "Using the sand tray in the context of the latest research in neuroscience to transform clients' defences" (2020), where she incorporates my work and others in interpersonal neurobiology. She describes how right brain-to-right brain "collaborative" attachment communications in which "the implicit self of therapist interacts with implicit self of patient," allow for increasing safety and trust in the therapeutic relationship, and how the "the use of play, imagination, and creativity using figurines in the sand tray transforms the client's defences" (p. 263). Her sand tray approach is centered

in the therapeutic relationship of nonverbal affective communication in which the "fully present" clinician's tracks moment-to-moment nonverbal changes in patient's body associated with defensive dissociation, and with choice and placement of figurines. These occur in therapeutic enactments and mutual regressions.

Citing sand tray case material she observes, "The client and the therapist attain a tacit agreement that the client is safe enough, that they are in the process together, and that they are going back and down into the unconscious to explore stored dissociated, impactful, and painful memories that have no words" (pp. 263-264). De Little's therapeutic approach to sand tray is thus directed towards transforming the dissociative defense by "eliciting the projective identification into figurines and the subsequent enactment (s) that bring about profound "aha' moments of transformation" (p. 259). Of special importance are the patient's affective responses to figurines, right hemispheric images and novel metaphors, unconventional, unfamiliar, unique images outside of conscious awareness. Regulation and symbolization of defensive patterns are associated with shifts of energy and integration within patient's brain. The author emphasizes that in the work, "The therapist stays in a state of mutual regression throughout the session and only comes out of this deeply connected sate to ask process questions of the sand tray and of the client's body" (p. 272)

Returning to the clinical applications of regulation theory, the clinical skills for working in and with an array of child and adult therapeutic relationships are enhanced right hemispheric implicit emotional and relational functions, including the adaptive capacity to empathically synchronize, receive, and express bodily-based nonverbal communications, the ability to sensitively register slight changes in child's emotional expressions, an immediate awareness of one's subjective and intersubjective experience, and the regulation of one's own and the patient's affect. These intuitive therapeutic skills improve with clinical experience. In earlier writings I concluded, "Psychotherapy, 'a relationship of care,' can alter more than the left-lateralized conscious mind; it also can influence the growth and development of the unconscious "right mind.' It is undoubtedly true that both brain hemispheres contribute to effective therapeutic treatment, but in light of the current relational trend that emphasizes 'the primacy of affect,' the right brain, the 'social,' 'emotional' brain is dominant in all forms of psychotherapy" (Schore, 1914, p. 395). This includes adult and child psychotherapy.

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