Early Emotional Attachment, the Development of the Right Brain, and the Relational Origins of the Unconscious Mind

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In recent years the unconscious, the central theoretical construct of psychodynamic theory, has reappeared in a new form in the scientific and clinical literatures. Psychoanalysis has been called the scientific study of the unconscious mind (Brenner, 1980), clearly implying both that the unconscious is the definitional realm of study and that this realm is accessible to scientific analysis. Although originally closely tied to the psychoanalytic theory of repression, the construct of the unconscious is now being used across a number of psychological and neurobiological disciplines to describe essential implicit, spontaneous, rapid, and involuntary processes that act beneath levels of conscious awareness. Yet, despite current significant advances in brain laterality research, many clinicians and social scientists continue to hold older and now unsupported ideas that the “primitive” nonverbal unconscious mind is a miniature of the “more complex” verbal conscious mind, and that the “nondominant” right hemisphere is a lesser mirror of the “dominant” left hemisphere.

In my last book, I asserted that a deeper understanding of human development can never be attained by narrowly focusing infant studies on the precursors of language, voluntary behavior, and conscious thought (Schore, 2012). *The Development of the Unconscious Mind* offers chapters on the early maturing yet long enduring essential impact of the unconscious mind.

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on all later aspects of human development. In the following, I will over a large body of evidence indicating that the development of the unconscious mind begins in the prenatal, perinatal, and postnatal stages of human infancy and continues across all later stages of the life span. This model supports Freud’s description of the human mind: “Every earlier stage of development persists alongside the later stage which has arisen from it. . . the primitive stages can always be re-established; the primitive mind is, in the fullest meaning of the word, imperishable” (1915a/1957, p. 285). Indeed, in 1920, Freud proclaimed that “the unconscious is the infantile mental life.”

In expanding Freud’s thesis, I will suggest that an integration of current findings in the neurobiological and developmental sciences can offer a deeper understanding of the origins and dynamic mechanisms of the system that represents the core of psychoanalysis, the system unconscious. The construct of the unconscious has thus shifted from an intangible, immaterial, metapsychological abstraction of the mind to a psychoneurobiological heuristic function of a tangible brain that has material from. The direct relevance of this reformulation to a deeper understanding of clinical phenomena is a central theme of Right Brain Psychotherapy, the companion to the book from which this passage was excerpted.

In my inceptive 1994 volume Affect Regulation and the Origin of the Self, I first integrated developmental psychology, developmental neuroscience, and developmental psychoanalysis in order to tie together the conceptual, clinical, and research links between early attachment, psychoanalytic object relational development, the experience-dependent maturation of the right brain, and the origins of the human unconscious. This first relationship, the one with the mother, acts as a template, as it permanently shapes the individual’s capacities to enter into all later emotional relationships. These early experiences shape the development of a unique personality, its adaptive capacities as well as its vulnerabilities to and resistances against particular forms of future psychopathologies, much of which are expressed at unconscious levels. Indeed, they profoundly influence the emergent organization of an integrated system that is both stable and adaptable, and thereby the formation of the subjective self.

This conceptualization was the first expression of interpersonal neurobiology, a perspec-

Sigmund Freud, by Max Halberstadt
tive of human development that enables us to understand that the structure and function of the mind and brain are shaped by experiences, especially those involving emotional relationships. To put this concisely, “the self organization of the developing brain occurs in the context of a relationship with another brain, another self” (Schore, 1996, p. 60). Over the past three decades, a huge body of interdisciplinary evidence across all mammalian species, including humans, documents the indelible, enduring impact of specifically the mother on the infant’s prenatal and postnatal subcortical brain development (Schore, 1994, 2003a, b, 2012). Thus I have continued to offer data supporting the organizing principle that the “first relationship” (Stren, 1977), “the earliest relationship,” (Brazelton & Kramer, 1990) with another human is mediated by unconscious right brain–to–right brain attachment communications between the mother and infant, and that this primordial bond is mediated by rapid emotional communications between the mother’s right brain unconscious and the infant’s emerging right brain unconscious (Schore 1994, 2003a, 2003b, 2012). In other words, early affective experiences during critical periods of right brain development permanently influence the development of the right–lateralized psychic structures that process unconscious information.

This, a central thesis of my work dictates that the right brain represents the psychobiological substrate of Freud’s unconscious. Recent information suggests maternal–fetal placental transactions occurring in the last trimester in utero may shape the primordial emergence of the deep unconscious (Schore, 2017). The con-
tinuity of this right brain unconscious mechanism across the life span underscores Fischer and Pipp's observation, “A young infant functions in a fundamentally unconscious way, and unconscious processes in an older child or adult are to be traced back to the primitive functioning of the infant or young child” (1984, p. 88). These authors also conclude that the unconscious does not remain static during childhood but undergoes subsequent systematic developments.

Although a number of important developmental psychoanalysts studied the critical role of the unconscious in human infancy, John Bowlby integrated psychoanalysis and contemporary ethology and neuroscience to propose that in intimate emotional attachment contexts, human feelings are detected through “facial expressions, posture, tone of voice, physiological changes, tempo of movement, and incipient action” (1969, p. 120). In a number of contributions, I have offered neurobiological evidence that attachment communications are expressed in right-lateralized visual–facial, tactile–gestural, and auditory–prosodic emotional nonverbal communications (Schore, 1994, 2003a, 2003b, 2012). As opposed to later forming left-hemispheric secondary process verbal communication, right-hemispheric nonverbal attachment communication has been described by Dorpat as “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” (2001, p. 451). The right hemisphere is dominant for the perception of nonverbal emotional expressions embedded in facial and prosodic stimuli, even at unconscious levels (Blonder, Bowers, & Heilman, 1991; George et al., 1996; Wexler et al., 1992), for primary process cognition (Galin, 1974; Joseph, 1996), and for nonverbal communication (Benowitz et al., 1983). At all later stages of human development, “The neural substrates of the perception of voices, faces, gestures, smells, and pheromones, as evidenced by modern neuroimaging techniques, are characterized by a general right–hemispheric functional asymmetry” (Brancucci et al., 2009, p. 895). At levels beneath awareness, humans tend to display right hemispheric “Left Gaze Bias,” whereby they direct their initial gaze to the left side of the other’s face, and look longer exploring the left side (Salva et al., 2012).

In classic studies of the two-person psychology of the early mother–infant face–to–face protoconversation, Trevarthen (1993) observed that visual eye–to–eye messages are coordinated with auditory vocalizations (tone of voice,
“motherese”) and tactile and body gestures as a channel of communication, and that the resultant dyadic resonance ultimately permits the intercoordination of positive affective brain states. This interactive mechanism requires older brains to engage with mental states of awareness, emotion, and interest in younger brains and involves a synchronized coordination between the motivations of the infant and the subjective feelings of adults. In this manner, “The emotions constitute a time–space field of intrinsic brain states of mental and behavioral vitality that are signaled for communication to other subjects and that are open to immediate influence from the signals of these others” (p. 155). In other studies, Trevarthen asserted that “the intrinsic regulators of human brain growth in a child are specifically adapted to be coupled, by emotional communication, to the regulators of adult brains” (1990, p. 357), and that “The right hemisphere is more advanced than the left in surface features from about the 25th (gestational) week and this advance persists until the left hemisphere shows a post-natal growth spurt starting in the second year” (1996, p. 582). In contemporary writings, Meares offered interdisciplinary evidence to show that the protoconversation mechanism continues in later development and is an essential element in not only communication but also the human capacity for symbolization. He describes protoconversation as a “conversation between two right brains” (2016, p. 52).

Twenty-five years after Trevarthen’s pioneering work, advances in technology now present another image of the attachment communication system embedded in this pri-
mordial relationship. In an article in *Annals of Family Medicine*, Ungar offered a two-person psychological image of the neuroscientist Rebecca Saxe and her infant in an MRI scanner. Commenting on this emotionally evocative image, Ungar (2017) continued:

The image depicts the mother–infant bond at the level of its most basic neuroanatomy. Through a grainy spectrum of black and grey, the infant brain—seemingly exposed and vulnerable—is held by a larger and more robust adult brain. The two are in close communication through a kiss on the infant’s forehead, giving merit to the statement of Allan Schore, certainly to apply to our little patients in the office, that the developing brain forms in the setting of a relationship—a bonding relationship, with “another self—another brain” (p. 82).

Describing the prototypical dynamics of this mother–infant communication system, Walker-Andrews and Bahrick asserted, “From birth, an infant is plunged into a world of other human beings in which conversation, gestures, and faces are omnipresent during the infant’s waking hours. Moreover, these harbingers of social information are dynamic, multimodal, and reciprocal” (2001, p. 469). In these rapid attachment communications, the infant’s early maturing right hemisphere, which is dominant for the child’s processing of visual emotional information, the infant’s recognition of the mother’s face, and the perception of arousal-inducing maternal facial expressions, is psychobiologically attuned to the output of the mother’s right hemisphere, which is involved in the expression and processing of emotional information and in nonverbal communication. The right cortex is known to be specifically affected by early social experiences, to be activated in intense states of emotion, and to contribute to the development of reciprocal interactions within the mother–infant regulatory system. The child uses the output of the mother’s emotion–regulating right cortex as a template for imprinting—the hard wiring of circuits in his own right cortex that will come to mediate his expanding affective capacities.

Via this interpersonal neurobiological mechanism, the parenting environment influences the developing patterns of neuronal connectivity that underlie implicit nonverbal communication and spontaneous emotional behavior (Schore, 2003a). Thus, the early maturing, visuospatial, emotional, right cerebral cortex (as opposed to the later developing lexical–semantic left cortex), which stores and processes self–and–object images, has been suggested to be responsible for the manifestations of unconscious processes (Galin, 1974; Hoppe, 1977; Miller, 1991; Schore, 1991; Watt, 1990). This data fits nicely with Bowlby’s (1969) description of unconscious internal working models of the attachment relationship. These models, which operate outside of conscious awareness (Bretherton, 1985; Main, Kaplan, & Cassidy, 1985) are guides for future interactions, and the term “working” refers to the individual’s unconscious use of the model to interpret and act on new experiences. They contain affective as well as cognitive components and are unconsciously accessed and utilized in the generation of internal strategies of implicit affect.
regulation, especially during times of stress. Unconscious attachment working models are thus encoded not in the left-hemispheric strategies of conscious emotion regulation, but in right-hemispheric unconscious, implicit (Schore, 1994), “subliminal affect regulation” (Jostmann et al., 2005), which does not rely on the limited capacity of the conscious mind and resists conscious intervention.

Alluding to the differences between the hemispheres, Freud described the unconscious as “a special realm, with its own desires and modes of expression and peculiar mental mechanisms not elsewhere operative” (1920). In The Ego and the Id, Freud proposed that “thinking in pictures . . . approximates more closely to unconscious processes than does thinking in words, and it is unquestionably older than the latter both ontogenetically and phylogenetically” (1923/1961, p. 21). This speculation is now confirmed by a body of data suggesting that the right hemisphere, the biological substrate of the unconscious, matures before the left (Gupta et al., 2005; Mento et al., 2019; Sun et al., 2005), and that the right brain is dominant in human infancy (Chiron et al., 1997; Schore, 1994). These neurobiological data also support Freud’s suggestion that highly visual, nonverbal, primary process-cognition, dominant in infancy, ontogenetically precedes later forming, verbal, secondary process cognition. Indeed, because of its central role in unconscious functions and primary process activities, psychoanalysis has been intrigued with the unique operations of the right brain since the
last quarter of the 20th century (Hoppe, 1977; McLaughlin, 1978; Miller, 1986; Watt, 1986).

In my own developmental neuropsychoanalytic work, I have suggested that during rapid, dyadic attachment transactions, the sensitive primary caregiver’s right brain implicitly (unconsciously) attends to, perceives, recognizes, monitors, appraises, and regulates nonverbal expressions of the infant’s more-and-more intense states of positive and negative affective arousal. Neuroscientists are now asserting that at all stages of the life span, the right hemisphere specializes in implicit learning (Hugdahl, 1995). The temporal dynamics of these implicit, rapid, spontaneous, intersubjective, bodily-based, emotional, right brain nonverbal face-to-face communications have been described by Lyons-Ruth (1999), who observed that implicit, nonconscious process of nonverbal affective cues in infancy “is repetitive, automatic, provides quick categorization and decision–making, and operates outside the realm of focal attention and verbalized experience” (1999, p. 576, italics added).

In this mutually reciprocal face-to-face intersubjective context of right brain-to-right brain nonverbal visual–facial, tactile–gestural, and auditory–prosodic communications, the caregiver and infant learn the rhythmic structure of the other and modify their behavior to fit that structure, thereby co-creating a moment-to-moment specifically fitted interac-
All of this is occurring rapidly and spontaneously, as the intuitive mother is co-creating the emotional relationship unconsciously, beneath levels of conscious awareness. Freud proposed that “everyone possesses in his own unconscious an instrument with which he can interpret the utterances of the unconscious of other people” (1913/1958, p. 320). Thus, the attachment relationship reflects a coordination and alignment between the mother’s right brain unconscious and the infant’s developing right brain unconscious. In face-to-face (as well as body-to-body) transactions, the mother is implicitly shaping her infant’s unconscious mind, which Freud observed develops before the conscious mind.

Indeed, the mother’s emotionally expressive face is, by far, the most potent visual stimulus in the infant’s environment, and the child’s intense interest in her face, especially in her eyes, leads him to track it back in space and to engage in periods of intense-mutual gaze. The infant’s gaze, in turn, reliably evokes the mother’s gaze, and this dyadic system forms an efficient interpersonal channel for the transmission of reciprocal mutual influences. These mutual gaze interactions represent the most intense form of interpersonal communication, and in order to enter into this affective communication, the mother must be psychobiologically attuned not so much to the child’s overt behavior as to the reflections of his internal state. The more the mother tunes her activity level to the infant during periods of social engagement, and the more she allows him to recover quietly in periods of disengagement, the more synchronized their interaction. This psychobiological synchronization mechanism allows the attuned dyad to be “on the same wavelength.”

According to Manini and her colleagues.

Synchronization of the mother’s responses to infant signals in typical dyadic interaction can be considered a key aspect of sensitive parenting, as it implies the promptness of the mother’s response and the adaptation moment by moment to the child’s emotional state . . . which contributes to a unique bond between them. The autonomic nervous system seems to represent an elementary mechanism supporting emotional synchrony between mother and infant (p. 2).

Secure attachment thus depends on the mother’s psychobiological attunement not with the infant’s cognition of behavior, but rather with the infant’s dynamic alterations of autonomic arousal, the energetic dimension of the child’s affective state. To enter into this rapid communication, the mother must resonate with the dynamic crescendos and decrescendos of the infant’s bodily-based internal states of peripheral autonomic nervous system (ANS) arousal and central nervous system (CNS) arousal. This autonomic activity occurs at an unconscious level. In these mutually synchronized social interactions, the psychobiologically attuned mother of the securely attached child not only minimizes the infant’s negative states in comforting transactions but also maximizes his or her positive affective states in interactive play. Regulated synchronized affective interactions with a familiar, predictable primary caregiver create not only a sense of safety but also a positively charged curiosity,
wonder, and surprise that fuels the burgeoning self’s exploration of novel socioemotional and physical environments. This ability is a marker of infant mental health.

Sources


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