

*The Science of The Art of Psychotherapy*. By Allan N. Schore. New York, NY: W. W. Norton & Co., 2012, 458 pp., \$31.97 (hardcover).

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*The Science of The Art of Psychotherapy* is the latest chef-d'oeuvre from the extraordinary Allan Schore, an internationally renowned master clinician, scholar, researcher, writer, and educator whose three previous volumes have long since become bibles for the burgeoning field of affective neuroscience. Schore's most recent opus was published as part of The Norton Series on Interpersonal Neurobiology, for which he is the Series Editor and Daniel Siegel the Founding Editor. This well-known and highly respected Norton Series is specifically designed to provide, for the benefit of all, an integrative forum for the pioneering work of scientists from a broad range of interdependent academic disciplines – scientists who (1) cherish the dream of developing a broader and deeper understanding of the “brain/mind/body” connection and “the art” and “the science” of “human experience” and (2) share the goal of creating a common language and conceptual framework for the articulation of cutting-edge contributions to the continuously evolving field of interpersonal neuroscience.

Over the course of the years and by dint of his extremely hard work, his meticulous research efforts, and his brilliance as an integrative thinker, Schore has earned the well-deserved distinction of being at the forefront of the affective neuroscience movement. In this current volume, Schore assigns himself the somewhat daunting task of making explicit the interactive dynamics that transpire implicitly within a successful psychotherapy. By committing himself to exploring the (left brain) “science” behind the (right brain) “art” of the healing that takes place in an affectively attuned treatment, Schore is demonstrating his

willingness to put his money where his mouth is!

And Schore does not disappoint. From beginning to end of this veritable tour de force and in a profoundly satisfying and refreshingly accessible fashion, Schore manages to bring together the razor-sharp incisiveness and clarity of his analytical left brain with the creativity, wisdom, and synthetic ability of his intuitive right brain in the interest of capturing the beauty of something that few have dared to try and fewer still have been able to accomplish, namely, to offer a compelling explanation for how exactly a psychotherapy works and what exactly its scientific underpinnings are. With courage, passion, and conviction, Schore rises to the awe-inspiring challenge of capturing – by way of words – the essence of the mystical process that operates – without words – beneath the surface of a successful psychotherapy.

In truth, for many decades, Schore has been intent upon unraveling the mystery behind the magic that can happen when two individuals come together with shared mind and shared heart to create a healing space that will facilitate growth, promote resilience, and encourage the emergence of regulatory capacity. To that end, Schore has devoted years of intensive study to delving deeply into (1) how the brain is structured; (2) how the mind functions; and (3) how therapy works. He has a profound belief, shared by many of us interested students of neuroscience, that it is critically important to know how the brain is structured so that we can understand how the mind functions so that we can appreciate how therapy works!

Most of us have experienced the art of psychotherapy; we are now ready to know more about the science of it – why it works...

Schore readily acknowledges the debt of gratitude he owes to Freud and the latter's inspirational efforts to prove that there was indeed a scientific basis for the unconscious – a neurophysiological substrate for the unconscious processes that lurked beneath the surface.

In fact, intent upon proving that psychoanalysis was not a pseudoscience and determined to demonstrate that mental processes could occur independently of conscious thought, Freud, both a neurologist and a psychiatrist by training, devoted his early professional career to searching for a neurophysiological link between the structure of the brain and the functioning of the mind. Although never entirely successful in his efforts to forge that link (in large part because the neurology of his day was not adequate for the task of enabling the realization of his vision of a scientific psychology), in 1895 Freud published the results of his aborted “research” in his *Project for a Scientific Psychology* – an ambitious but obscure book that had the seeds of brilliance in it but that has been, sadly, largely ignored by the neuroscience community because it is more obfuscating than clarifying.

In truth, it could be argued that Freud, what with his passionate interest in the internal workings of the hidden mind, was the father of affective neuroscience – this, despite the fact that Freud, thwarted in his efforts to ground his clinical formulations in neurophysiology, was later to advocate the “talking cure” as foundational for the therapeutic action of psychoanalysis.

Fortunately for us, a century later, Schore came along and picked up where Freud had left off – applying himself, with head and heart, to the formidable challenge of attempting to find the link between the best of what modern science has to offer and the powerful healing that can take place within the relational matrix of an affectively attuned, mutually regulating patient-therapist dyad. By immersing himself, as he has for several decades now, in study of the neurophysiological correlates underlying various clinical phenomena (and with particular attention paid to managing the heightened affective moments of clinical enactments wherein patients compulsively and unwittingly replay on the stage of the treatment their early-on relational traumas), Schore has been able to make significant strides

in the advancement of Freud's cherished vision of a scientific psychology, ultimately producing this magnificent tome, appropriately entitled *The Science of The Art of Psychotherapy* – with its meaningfully capitalized two “The's” to signify the equal valence of both “The Science” and “The Art” of the healing power of the therapeutic matrix.

Although ostensibly a book on affective neuroscience, one could perhaps consider *The Science of The Art of Psychotherapy* to be a book on the cognitive neuroscience of affect. Indeed, whereas affective neuroscience and cognitive neuroscience were once thought to be strange bedfellows (inasmuch as, historically, the province of affective neuroscience was the study of emotion and the province of cognitive neuroscience the study of cognition – excluding emotion and focusing, instead, on non-emotional processes like memory, attention, perception, action, and problem-solving), with the passage of time, the two disciplines have become more collaborative and, one might even say, interactively regulating – to the benefit of both.

Speaking of interactive regulation that is mutually beneficial, Schore, in this as in his previous volumes, elaborates upon the fundamental differences between the right and the left sides of the brain and between how the two sides of the brain therefore differentially process information and energy. Schore focuses his attention on the right brain as affective/relational, the left brain as cognitive; the right brain as intuitive/synthetic/integrative, the left brain as analytical/logical; the right brain as subjective, the left brain as objective; the right brain as unconscious/deep, the left brain as conscious/not-so-deep; the right brain as nonverbal/imagistic, the left brain as verbal/linguistic; and the right brain as implicit, the left brain as explicit – in essence, the right brain as artistic, the left brain as scientific. Or, as some would say, whereas the left brain believes that happiness is in the future, the right brain knows that contentment is in the present and whereas the left brain prefers to follow the

beaten path, the right brain loves to create its own.

Even as Schore is highlighting the structural and functional differences between the two hemispheres of the brain, he is ever appreciative of their complex interdependence, complementarity, and synergy. He is speaking to their duality, the yin and the yang – not either/or but both/and. Furthermore, in the interest of making dizzyingly complicated concepts more assimilable and clinically useful, Schore is willing to risk being called to task for oversimplification. Indeed, the enormous popularity that Schore has enjoyed over the course of the years attests to how remarkably successful he has been in generating renewed interest in a scientific psychology and its applicability to a broad range of clinical situations. Part of Schore's genius lies in his ability to delve – with head and heart – into rigorous and disciplined exploration and explication of the neuroscientific underpinnings of various clinical phenomena, to extract, after rigorous and disciplined scientific research, the essence of those underpinnings, and then to make that essence readily available to the scientific and clinical communities – to the benefit of all.

As a long-time advocate for a paradigm shift from a one-person intrapsychic to a two-person relational psychology, Schore has been ever intent upon emphasizing the clinical importance of engaging the right brain – as both the seat of emotions and the means by which therapist and patient (as well as caregiver and infant) can make deep, meaningful, and potentially transformative connection. Be' it during development (a story about getting it done right the first time 'round) or during treatment (a story about correcting for it if not done right the first time 'round), the affective attunement – or unfortunate lack thereof – between the right brains of both members of an interactive dyad will shape (or reshape) the structuring and organization of who they will fundamentally become, that is, their implicit self.

Because of Schore's deep-seated conviction – and one that is amply supported by

his exhaustive research – that cognitive exchanges (a left brain function) between therapist and patient may well be necessary but rarely enough to effect enduring psychotherapeutic change, Schore goes to great lengths, throughout his book, to highlight the primacy of interactive regulation of affect (a right brain function) by both therapist and patient in the interest of creating transformative moments that will advance the therapeutic endeavor. Clearly Schore is not lobbying for a wordless treatment; but he is speaking to the critical importance of supplementing a cognitive left-brained approach with an affective/relational right-brained approach and of appreciating the power of the synergistic healing that can result from tapping into not only the rational and more conceptual left brain (Freud's psychoanalytic talking cure, Peter Fonagy's mentalization, Roy Schafer's narrative therapy, Marsha Linehan's dialectical behavior therapy, and the approach of a problem-focused, action-oriented treatment like cognitive behavior therapy) but also the emotional and more experiential right brain. And so it is that although Schore highlights lateralization of the brain and the pivotal role played by the right brain in development and treatment, he is clearly recognizing the complex interplay between the left and the right sides of the brain – again, to the benefit of both.

With respect to the neurological infrastructure of the right brain, it has been found that the right brain has a distributed network of nodes and links, which makes of it an ideal candidate for the near-instantaneous processing of environmental input – be that input in the form of interoceptive information from the outer world or interoceptive information from the inner world. Because of its ever-vigilant attunement to environmental stressors and its ability to process those stressors so rapidly, the right brain plays a major role in self-protection, maintenance of homeostatic balance, and survival itself. By contrast, the left brain has been found to be more centralized in its control, which makes of it an ideal candidate for the more

logical, linear, and deliberate, but therefore less spontaneous, processing of environmental perturbations. Whereas the right brain is more specialized for reacting defensively, the left brain would appear to have a greater capacity to respond adaptively.

In any event, I hypothesize – and I think this is in keeping with Schore’s basic tenets – that both strategies for the processing of information and energy are necessary and that both strategies contribute to the ability of individuals to process, integrate, and adapt to the myriad of environmental stressors (psychological, physiological, and energetic) to which they are being continuously exposed over the course of their lives – processing, integrating, and adapting that are a critically important component of what takes place in both the caregiver-infant and the therapist-patient dyads and are necessary for individuals not only to survive but also to thrive.

Based upon Schore’s formulations, I have found it clinically useful to conceptualize the therapeutic effectiveness of psychotherapy in the following manner: An affectively attuned psychotherapy (which, of necessity, will include heightened affective moments when the right brains of both therapist and patient are profoundly in sync) will afford the patient an opportunity, even though often long after the fact, to rework relational trauma that had once been overwhelming (and therefore defended against) but that can now, with enough support from the therapist, be processed, integrated, and adapted to. Psychotherapy is therefore a story about the belated processing of unmastered (and often dissociated) experience and – in the face of optimal challenge and by way of tapping into the patient’s intrinsic striving toward health and innate capacity for self-repair – adaptive reconstitution at ever-higher levels of awareness, acceptance, and accountability.

Whereas psychoanalysis had always emphasized the primacy of insight (sometimes accompanied by emotional understanding and cathartic release), Schore’s affective/relational

approach emphasizes the primacy of affect and its interactive regulation within the patient-therapist dyad (sometimes accompanied by analytical understanding). So if we consider psychotherapy to be an art form with scientific underpinnings, then it follows that – in order to optimize the change process in psychotherapy – the patient must have the benefit of both the right brain’s affective/relational capacity to “go deep” in the context of relationship and the left brain’s cognitive capacity to step back, put things in perspective, and make sense of it all. Ordinarily, neither the right brain nor the left brain alone will be adequate for the task; both will be needed to advance the therapeutic endeavor.

Schore’s focus on the primacy of the right brain in development and treatment reminds me of the work of Paul MacLean (an American physician and neuroscientist) who, in the 1960s, advanced the hypothesis, popular at the time, of a so-called triune brain, consisting of three evolutionarily distinct structures – the reptilian complex (the old brain), the mammalian brain (the limbic system), and the neocortex (the new brain). Each layer was thought to perform distinct functions; but all three layers were thought to be interdependent and to interact with one another. Although MacLean’s triune brain is no longer embraced as enthusiastically as it once was, the concept of bottom-up – from visceral/emotional to cognitive – processing of information (in contradistinction to top-down – from cognitive to emotional/visceral – processing of information) remains a clinically useful way to describe therapeutic approaches that emphasize the primacy of nonverbal/visceral interventions (instead of the more traditional emphasis on the primacy of cognitive interventions). From this vantage point, Schore would clearly be espousing a bottom-up approach to the processing and integration of unmastered early-on relational trauma – although simply characterizing his as a bottom-up approach would not begin to do justice by Schore’s eloquently articulated and painstakingly documented theory of the primacy of affect and its

interactive regulation by the right brains of the individuals in a relational dyad.

*The Science of The Art of Psychotherapy* offers so much. So what doesn't it offer? I am hard-pressed to find fault with anything in this latest work by Schore, but I recognize that no book review would be complete without at least an effort by the reviewer to tease out the book's potential shortcomings – and so I offer the following three points.

Although Schore has made a masterful attempt to capture with words the essence of phenomena that are without words, at the end of the day I feel that his efforts to bring the clinical moment alive only partially satisfy. Admittedly, it is well-nigh impossible to explain with logic what takes place on an intuitive level – just as it is very difficult to explain why one might prefer chocolate ice cream to vanilla or why one's favorite color might be teal. With that said, however, my sense is that this volume would have been enriched had Schore gone to greater pains to develop a little further what it actually looks like – and feels like – when caregiver-infant or therapist-patient are authentically engaged on the deepest of levels. If anyone is up to the challenge of doing that, it would be Schore – but in this volume I do not believe that he has entirely succeeded. It is therefore only partially with tongue in cheek that I find myself suggesting that perhaps a later work of Schore's could be entitled *The Art of The Science of Psychotherapy*.

Along these same lines, I think that this current volume would have benefited from the inclusion of more clinical examples, especially extended vignettes that would have spoken to the session-by-session evolution of a psychotherapeutic process, which would then have captured not just a moment in time but movement over time. Although Schore offers a smattering of brief clinical pieces, they are few and far between. Perhaps an even later work of his could be entitled *The Practice of The Science of The Art of Psychotherapy*.

Finally, as others have noted, Schore's material is a bit redundant – although I

personally found the repetitiveness to be reinforcing and, with each reiteration, I was able to advance my own understanding of his richly patterned material to ever-higher, and ever-more satisfying, levels of integration, orderedness, and complex understanding. Be that as it may, perhaps someday Schore will decide to write a book entitled *A Brief Review of The Science of The Art of Psychotherapy*.

In any event, whether Schore describes his as an affect theory, an attachment theory, a modern attachment theory, or a regulation theory (all four of which theories he has espoused over the years), from the beginning of his career, Schore – with scientific precision, uncanny clinical acumen, and extraordinary vision – has been able to zero in on what matters most – both in development and in treatment. Inasmuch as Schore’s interest has always been in the relational matrix out of which the individual emerges, his is, at heart, an attachment theory. But it is an attachment theory that stresses affective attunement within that matrix, which makes of it, at heart, an affect theory. But it is an affect theory that stresses the importance of affect regulation for shaping the organization of the self, which makes of it, at heart, a regulation theory. But it is a regulation theory that stresses the importance of affective communication between the right brains of both partners in the dyad (be it caregiver-infant or therapist-patient), which makes of it, at heart, a right brain-to-right brain interactive regulation theory.

Be that as it may, whether described as a theory of affect, a theory of attachment, or a theory of regulation, part of Schore’s genius is that he has been right on the money from the get-go.

In sum, Schore, using Freud as his springboard and inspired by the seminal writings of John Bowlby (on attachment theory), Daniel Stern (on the interpersonal world of the infant), and a multitude of other interdisciplinary thinkers and writers (on the experience of

being human), has, for many years now, been focusing his investigative attention on (1) the primacy of affect and its interactive regulation within the developmental matrix and, later, the therapeutic matrix; (2) involvement of the right brain (both higher cortical “preconscious” and lower subcortical “deeply unconscious” areas) in the experiencing of affect and the moments of meeting between the partners in a dyad; (3) emergence of the implicit self as a function of attachment experiences within the caregiver-infant matrix and later modification of that implicit self as a function of attachment experiences within the therapist-patient matrix; (4) the potential for affect regulation (when the level of autonomic nervous system arousal is within the window of affect tolerance); (5) the potential for affect dysregulation (when the level of autonomic nervous system arousal is either above the window of affect tolerance because of sympathetic overactivation or below that level because of parasympathetic overactivation); (6) disorders of the self (when there is affective misattunement between caregiver and infant, i.e., relational trauma); (7) the tendency to rely upon defensive dissociation in the face of overwhelming affect; (8) opportunities for repair of the self (when affect dysregulation is corrected by way of affective attunement within the therapist-patient dyad); and (9) heightened affective moments of clinical enactments (which, by destabilizing the dysfunctional status quo of the patient’s implicit self, facilitate the change process in psychotherapy by allowing for adaptive restabilization at a higher level of functionality and regulatory capacity).

To conclude, *The Science of The Art of Psychotherapy* is a must-read for health professionals and interested lay persons alike because, although ostensibly about affect, attachment, the right brain, mutuality, and interactive regulation, it is ultimately a book about what it means to be human and how it is that we can be deeply and meaningfully connected to others. Schore’s left-brained eloquence and giftedness with words, in combination with his

finely honed right-brained intuition and heartfelt appreciation for the magic that can happen between people, enable him to demystify things that are actually quite mystical – paradoxically using carefully selected words to capture the essence of processes that take place without words!

In this most recent addition to The Norton Series on Interpersonal Neurobiology, Schore weaves together, in a seemingly effortless fashion, left and right, science and art, head and heart, and theory and practice, managing somehow to make tremendously complex subject matter at once accessible, compelling, and clinically useful. Schore, an integrative thinker par excellence, is himself a veritable corpus callosum!

This magnificent volume says it all. So settle in, savor every morsel, enjoy every moment, engage both your left and your right brain – and you will be richly rewarded for your efforts. *The Science of The Art of Psychotherapy* will prove deeply satisfying for anyone who is human, knows humans, or is an elephant (but you will have to read the book to understand that reference!).

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