

Book Review, Louis Cozolino, *The Neuroscience of Relationships*

Louis Cozolino, **The Neuroscience of Human Relationships, Attachment and the Developing Social Brain**, New York, W. W. Norton & Co., 2006.

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Previous Brain Maps Were Extremely Limited

This is the book that psychotherapists from all school have been waiting for! In the last twenty years, laboratory research has revealed a series of subcortical dynamics that regulate our emotional life. The Cozolino book brings together all of these research contributions to make an integrated whole.

For example, many of us are already familiar with the following authors: Joseph LeDoux on the amygdala, Alan Schore on the orbito-frontal lobe and its connection to the ventral tegmentum, Antonio Damasio on the frontal lobes, Eric Kandel on the hippocampus, Gerald Edelman on the basal ganglia and its connection to the thalamus, Kenneth Ochsner on the cingulate gyrus, Giacomo Rizzolatti on the mirror neurons, Hans Selye on the hypothalamus-pituitary-adrenal axis, and Steven Porges on the visceral nuclei. Cozolino integrates all of these brain mechanisms and others into a unified whole.

More important, he is not making the connection to **emotions**, as the first correlation between brain physiology and psychological dynamics, but he is showing the relation of these brain mechanisms to **Self-Other Relationships**. In other words, emotions are an outcome of intact vs. disturbed Self-Other relationships, being contained when the relationships are stable and positive, or going haywire when relationships are absent, tumultuous or inconsistent. (Finally, all of these phenomena are “interactive,” without one function as always primary and leading to the other. Systems Theory means it’s always a two-way game.)

Many psychotherapists have appreciated Daniel Stern’s research on mother-child attunement, Edward Tronick’s work on empathic vs. non-empathic dyadic relationships and George Downing’s studies on non-verbal interplay. Nevertheless, none of these researchers have ventured into the hidden realms of **the subcortical dynamics that can underly our primary relationships**. Perhaps it was necessary that this logical step be taken by a psychotherapist, like Cozolino, since he proposes correlations among relationship experiences, emotional dysregulation and brain dynamics that may be too “hypothetical” for the laboratory scientist. In other words, the connections between clinical phenomena and brain maps, which is the interest of the psychotherapist, are based on “correlations” between the two domains, rather than on laboratory control of independent variables and strict measure of dependent (outcome) variables.

Neuronal Circuits and Neuromodulator Production

Here are several clinical phenomena that the book confronts, offering the explanatory brain maps that show how the disturbed Self-Other dynamics then lead to emotional chaos and other types of pathological dysregulation: The absence of a caretaker, the depressed mother, the unstable mother, substance abuse, the borderline and psychopathic personalities, social fear and social phobia, violent behavior, etc. An essential contribution of Cozolino that I have not yet found in other research studies: the integration of **neuromodulator production**, that comes from the lower brain and that is distributed in chemical waves throughout the brain, with the dynamics of the **neuronal circuits**. Therefore, as the clinician sits in front of the patient sharing deep seated anxiety, rage, depression or emptiness, his imagination does not stop with the ideas of cortical and subcortical neuronal circuits, but these circuits are in constant interplay with the “activating” neuromodulators:

dopamine, noradrenaline, acetylcholine and serotonin. Each neuromodulator, of course, catalyzes different psychological dynamics: action and reward (dopamine), targeted action and focused thinking (noradrenaline), vigilance and new learning (acetylcholine), and Self-Other bonding and security (serotonin).

The Priority of the Self-Other Relationship

Why can psychotherapists of all Schools be very happy with this book? Because a “clinical truth” that has become more and more accepted over the past thirty years, and which psychoanalysts have been the most vociferous in defending, is that **behind the more colorful and evident experiences of emotions – anxiety, rage, fear and sadness – we have the Self-Other relationship that either contains emotions or lets them run wild.** More specifically, the dysregulated parent-child relationship, which creates anxiety and emotional chaos in the child, creates a prototype for the future. Thus, adult problems are rooted in these early childhood experiences. And psychotherapy? The hope is that **the empathic therapist-patient relationship can offer an alternative relationship model.** Using Kleinian language, **the negative introject of the insufficient parent figure must become replaced, at least partially, by the positive, stable and empathic figure of the therapist,** thereby creating a new internalized relationship structure that can contain instincts and emotions. The book therefore roots this fundamental clinical principle in an extended cortical-subcortical brain model that is supported by laboratory research.

Louis Cozolino offers several abbreviated examples of psychotherapy, but does not treat in an exhaustive way the consequences of his extended brain model for the clinician. To my eyes, this has an advantage. Each school of psychotherapy can now profit from the Cozolino book in order to show the favorable impact of its own approach, using the brain models he presents as a jumping off point for extending its particular theoretical model. The common denominator is that **the therapeutic relationship becomes the prototype for a new Self-Other introjection,** that can guide and regulate emotions, actions and the development of trusting relationships.

And Body Psychotherapy?

How can body-oriented psychotherapists use this book as a stepping stone for justifying its specific approach? Before the publication of this book, there was the following hypothesis, which still remains valid: **Emotions are based on cortical-subcortical interactions,** with the focus on the amygdala as the emotional hub. Based on this model, body-oriented psychotherapy can intensify and reveal emotional sequences, and thereby create new cortical-subcortical sequences, or pathways, that permit us to “go through” emotions rather than remain blocked and stuck in an impasse.

But the Self-Other introject model of transformation raises a second question. Can body psychotherapy have a special effect that **intensifies** the introjection of the therapist-patient model, which is necessary to replace the disturbed parental model? Let us remember a particular difficulty: All psychotherapies have a specific challenge, namely, to change an internalized Self-Other model that is deeply rooted in the person, not only in the psychological unconscious, but in the non-conscious neurophysiological subcortex. How is it possible that a once-a-week (or twice-a-week) hour spent with a psychotherapist can change such experiences and brain dynamics engraved since infancy? It will be interesting to hear how each school claims to create a special impact. Let me propose the justification for body psychotherapy. Body dynamics intensify brain dynamics regarding emotions and relationships. This increases **neuromodulator production** of dopamine, noradrenaline, acetylcholine and serotonin. All of these neuromodulators are activators of neuronal circuits, not only increasing the momentary dynamics, but also **increasing long-term memory.** Thus the body psychotherapy encounter will leave deeper explicit (cortical) and implicit

(subcortical) memory traces than psychotherapies that are strictly verbal. Thus, we have a brain mechanism that can justify yet further our work.