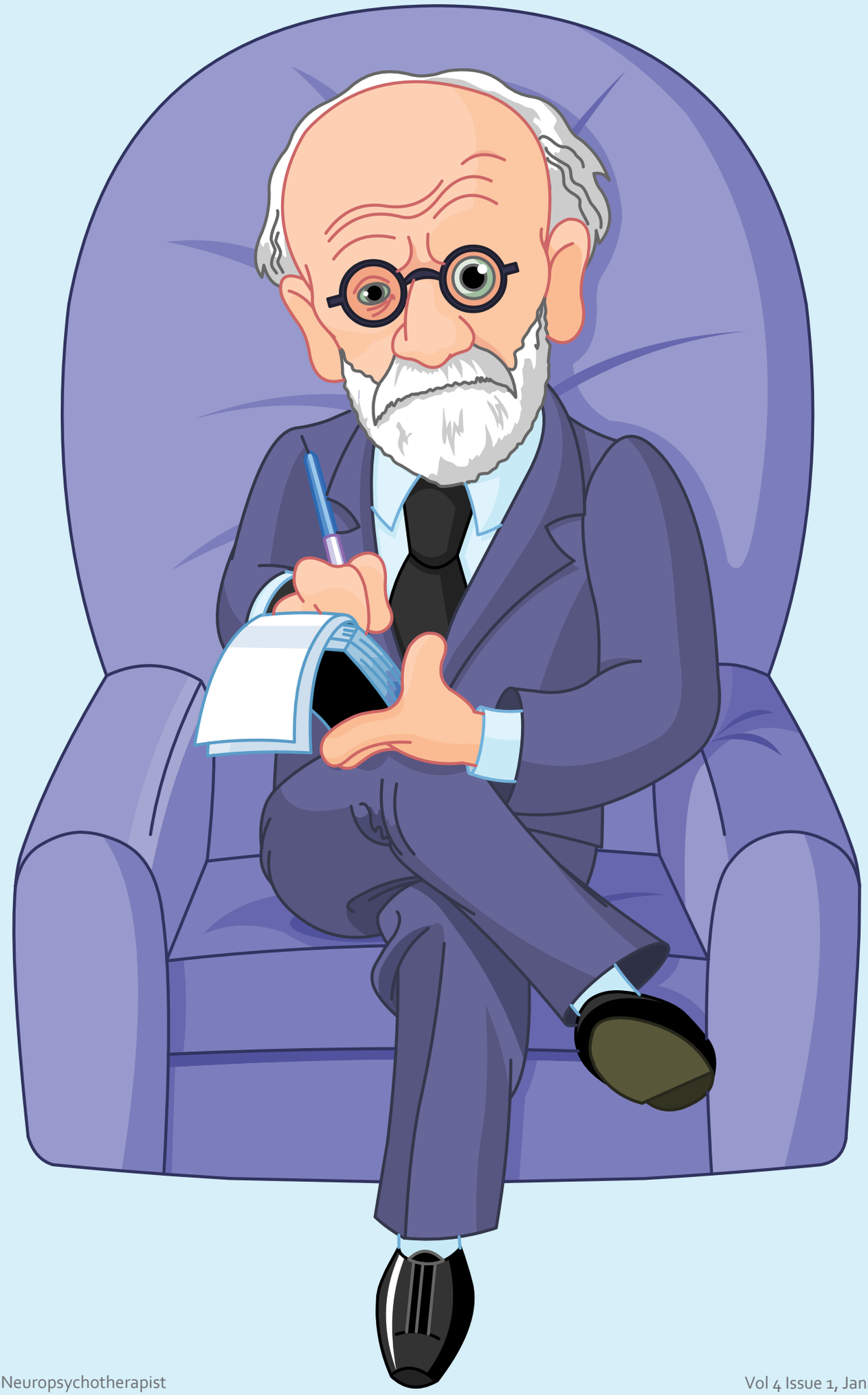

Why Therapy Works

Louis Cozolino

Evolution is a problem-creating as well as a problem-solving process.
Jonas Salk

If necessity is the mother of invention, then what necessities gave rise to the invention of psychotherapy? The answer to this question lies in our evolutionary history and how it is expressed in our biology, relationships, and day-to-day experiences. While evolution is a process of adaptation, each adaptation leads to new challenges for which new adaptations need to arise. As most of us have experienced, things that seemed like a good idea initially can have unforeseen consequences and prove to be problematic down the road.

The human mind is made up of a tapestry of genetics, biology, and relationships that allow us to be interwoven into the superorganisms we call families, tribes, and cultures. Our deep evolutionary history accounts for the profound connections among our bodies, minds, and the nature and quality of our relationships. It has also provided us with the ability to heal others in psychotherapy.

Anatomically, modern humans evolved from our primate ancestors around 100,000 years ago. It seems to have taken another 50,000 years for our brains and cultures to evolve sufficient complexity to make us capable of language, planning, and creativity. But alas, this very complexity led to new challenges. The more recently emergent powers of logic, imagination, and empathy are built upon primitive mammalian and reptilian networks that drive our fears, superstitions, and prejudices. Coordinating scores of neural systems from different stages of evolution creates such a high level of complexity that our brains are extremely vulnerable to dysregulation, dissociation, and errors in thinking and judgment.

The artifacts of human prehistory displayed in museums, such as skulls, jewellery, and stone tools, pale in comparison to those inside our heads. Through a million years of conservation, innovation, and mutation, our brains have become a patchwork of old and new systems, many with different languages, operating systems, and processing speeds. At each point in our evolution, survival-based selections were made, allowing our species to adapt to new challenges. These adaptations also set the stage for new problems to arise in the future. Alas, evolution is not a strategic plan for the future but an adaptation to present conditions.

Here are several evolutionary artifacts that account for much of the psychological distress that brings us and our clients to psychotherapy. Although they are divided here for the purposes of definition, you will soon realize that these aspects of brain functioning are interdependent and mutually reinforcing. These core principles serve as the conceptual foundation for the chapters ahead.

Evolutionary Strategies That Result in Psychological Stress

#1 The Vital Half Second

Man is an over-complicated organism who may die out for want of simplicity.
Ezra Pound

As Freud, Charcot, and many before them recognized, our brains have multiple parallel tracks for processing conscious and unconscious information. The first is a set of early evolving, fast systems for our senses, motor movements, and bodily processes that we share

with other animals. These primitive systems, which are nonverbal and inaccessible to conscious reflection, are referred to as implicit memory, the unconscious, or somatic memory. These are the memories that we do not consciously remember, but never forget. These fast systems are likely all that our ancestors had until the recent emergence of conscious awareness.

The later-evolving systems involved in conscious awareness, also called the slow systems, eventually gave rise to narratives, imagination, and abstract thought. This slow system, which developed as a result of complex social interactions and the larger brains they require, gave rise to self-awareness and self-reflection. The difference in processing speed between the fast and slow systems is approximately one half second. This vital half second is one of the primary reasons that we need psychotherapy. Let me explain.

A half second may not seem like much, but it is a long time for the brain. While it takes 500–600 milliseconds (half a second) for brain activity to register in conscious awareness, our brains process sensory, motor, and emotional information in 10–50 milliseconds. This is because conscious processing requires the participation of so many more neurons and neural systems. Evidence of the activity of the fast system is with us every day. If we touch a hot stove or are cut off while driving, our bodies react faster than conscious awareness. This is difficult to comprehend because our minds also construct the illusion that we are in conscious control of these reflexes.

Although a half second is a long time in terms of neural communication, it is barely perceptible to conscious awareness. During this vital half second, our brains work like search engines, unconsciously scanning our memories, bodies, and emotions for relevant information. In fact, 90% of the input to the cortex comes from internal neural processing, not the out- side world. This half second gives our brains the opportunity to construct our present experience based on a template from the past that our minds view as objective reality. The result is that we feel like we are living in the present moment when, in reality, we live half a second behind. The processing gap between the two systems also helps us to understand why so many of us continue in old, ineffective patterns of behavior despite repeated failures.

By the time we become consciously aware of an experience, it has already been processed many times, activated memories, and initiated complex patterns of behavior. Examples of this process are attachment schema and transference, where the brain uses past relationships to shape our perceptions of the thoughts, feelings, and intentions of others. Distortions embedded within this projective process can damage a lifetime of relationships without us ever being aware that it is taking place. The fact that so much of our conscious experience is based on unconscious brain processing makes us extremely vulnerable to misperceptions and misinformation that our minds assume to be true. The greater the distortions, the more difficult it is to successfully love and work. Making the unconscious conscious was Freud's primary goal, while correcting biases in implicit processing is at the heart of Cognitive-Behavioral Therapy. All therapies attempt to address the processing biases created by the vital half second in their own way.

#2 The Primacy of Early Learning

There is no present or future, only the past happening over and over again, now.

Eugene O'Neill

Not only did the fast systems evolve first, but they also develop first during childhood. These fast systems learn, remember, and influence how our brains and minds construct conscious experience for the rest of our lives. Because remembering what we learn is a function of the later-developing slow systems, we don't consciously remember what we learned as infants and young children. This is one of the reasons why early learning has such a powerful influence on us throughout our lives. Psychotherapy is an opportunity to do some mental time travel to find out what we learned as young children and to learn the enduring effects that these lessons have had on us.

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Even before birth, primitive regions of our brains are deeply affected by our biological, social, and emotional experiences. In fact, much of our most important learning occurs during our first few years of life when our primitive brains are in control. For example, the amygdala (our executive center for fear processing) is fully mature by eight months of gestation. The amygdala also happens to be a central component in the development of our attachment and social status schema, our ability to regulate our emotions, and our sense of self-

worth. On the other hand, the cortical networks that will come to regulate and inhibit the amygdala will take two decades or more to mature.

The fact that so much learning occurs at the beginning of life is one of nature's standard operating procedures. In the womb, the child's biology is shaped by the mother's day-to-day experiences. After birth, the brain is shaped by the baby's interactions with the mother, other caretakers, and the physical environment. This strategy allows each human brain to adapt to a very specific environment. Culture, language, climate, nutrition, and parents, factors that may differ radically from culture to culture, generation to generation, and even day to day, shape each of our brains in unique ways. This is highly adaptive because, unlike most animals, every human baby can learn to fit in to whatever physical and social environment he or she is born into.

Because the first few years of life are a period of exuberant brain development, early experience has a disproportionate impact on the development of the brain's information super-highways. Parents' nonverbal communications and patterns of responding to the infant's basic needs shape the baby's brain and how the baby perceives the world. In good times and with good enough parents, this early brain building will serve the child well throughout life. The bad news comes when factors are not so favorable, such as in the case of parental psychopathology, where the brain may be sculpted in ways that later become maladaptive.

Misattuned parents, brutal social systems, war, and prejudice can have a tremendous impact on early brain development. For most of us, these memories remain forever inaccessible to conscious consideration or modification. We mature into self-awareness years later, having been programmed by early experiences with feelings, perceptions, and beliefs that we automatically assume to be true. In the absence of an ability to consciously connect our feelings and thoughts to past experiences, our negative feelings and behaviors seem to arise without cause from within. We are left to make sense of our confusion, fear, and pain with negative attributions about ourselves and the world based on bi-

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ased and inadequate information.

As adolescents and adults, we seek therapy because we find ourselves unable to form meaningful relationships, manage our emotions, or feel worthy of love. The reasons for our struggles often remain buried in networks of implicit memory, inaccessible to conscious reflection. Psychotherapy guides us in a safe exploration of our early experiences and helps us create a narrative that associates these early experiences with the ways in which our brains and minds distort our current lives. In the process, our symptoms come to be understood as forms of implicit memory instead of insanity, character pathology, or plain stupidity. This process can open the door to greater compassion for oneself, openness to others, and the possibility for healing.

#3 Core Shame

Nothing you have done is wrong, and nothing you can do can make up for it.

Gershen Kaufman

The experience of shame is a central aspect of early social and emotional learning. Core shame needs to be differentiated from appropriate shame and guilt that emerge later in childhood. Appropriate shame is an adaption to social behavior required by the group. Core shame, on the other hand, is an instinctual judgment about the self, and it results in a sense of worthlessness, a fear of being found out, and a desperate striving for perfection. In essence, core shame is tied to our primitive instinct to be a worthy part of the tribe; it is a failure to internalize a deep sense of bonded belonging. As a result, people with core shame feel damaged, unlovable, and abandoned. Thus, core shame becomes a central factor in the perpetuation of insecure attachment and social status schema.

During the first year of life, parent-child interactions are mainly positive, affectionate, and playful. As infants grow into toddlers, their increasing motor abilities, impulsivity, and exploratory urges lead them to plunge headfirst into danger. The unconditional affection of the first year gives way to loud exclamations of "No," "Don't," "Stop" and a shift in the use of the child's name from a term of affection to a command or warning. This parent-to-child warning mechanism, seen in many animals, is designed to make children freeze in their tracks in order to protect them from predators and other dangers. This freeze response is reflected within the autonomic nervous system by a rapid transition from sympathetic curiosity to parasympathetic inhibition. Experientially, children are snapped from a mode of exploration to a startled freeze. As a result, the child stops, looks downward, hangs his head, and rounds his shoulders.

This state of submissive inhibition is the same as when a dog hunches over, pulls his tail between his legs, and slinks away after being scolded. Similar postures occur in reaction to social exclusion, helplessness, and submission in virtually all social animals. It is nature's way of expressing what an adult might articulate by saying, "Please don't hurt me" or "Okay, you're the boss." But for many children, this rapid shift from sympathetic exploration to parasympathetic withdrawal is internal-

Luna Vandoorne/Bigstock.com

ized as "I'm not lovable," and "my membership in the family is in question," both of which are life threatening to a child, whose survival depends upon unconditional acceptance. A parallel to these experiences may occur in early attachment relationships when a child's excited expectation of connection is met with indifference, disapproval, or anger from a parent or caretaker. This misatunement in the attachment relationship likely triggers the same rapid shift from sympathetic to parasympathetic dominance, and it is translated by the developing psyche as shame, rejection, and abandonment. Differences in temperament or personality between parent and child and the resulting misattunement can contribute to the development of core shame. In other families, parents who were abandoned, neglected, or abused as children may use shaming, criticism, and sarcasm as a predominant parenting style with their own children. This is quite common among rigid and authoritarian parents, religious cults, military families, or when there is mental illness or unresolved trauma in one or both parents.

What began as a survival strategy to protect our young has become part of the biological infrastructure of later-evolving psychological processes related to attachment, safety, and self- worth. This is why the fundamental question "Am I safe?" has become interwoven with the question "Am I lovable?" With core shame, the answer is a painful "No!" As a result, people with core shame often have difficulty taking risks, choose abusive or nonsupportive partners, and cannot tolerate being alone. Although core shame may not be cured, therapy gives clients the skills to reality test their maladaptive beliefs, behaviors, and emotions.

#4 The Anxiety Bias and the Suppression of Language Under Stress

Evolution favors an anxious gene.

Aaron Beck

The prime directive of survival for every living thing, from single-cell organisms to human beings, is to approach what sustains life while avoiding what puts us at risk. The better and faster a species is at discerning between the two, the more likely it is to survive. Reptiles evolved a structure called the amygdala that has been conserved in later-evolving mammals, primates, and humans. The primary job of the amygdala is to appraise the desirability or danger of things in our world and to motivate us to move toward or away depending on its decision.

When the amygdala becomes aware of danger, it sends signals to the autonomic nervous system to prepare to fight or flee. Half a second later, we consciously experience anything from anxiety to panic. Some things that trigger fear signals in the amygdala, such as snakes and heights, appear to be hard-wired, genetic memories that harken back to our tree-dwelling ancestors. Others are learned associations based on experience that are activated during the vital half second that can make us avoid dogs, public speaking, or intimacy.

It appears that evolution has shaped our brains to err on the side of caution whenever it might be remotely useful. Not such a bad idea for prey animals in the wild, but a really bad idea for humans. We have really big brains that create large societies filled with complexity and stress. The amygdala reacts to traffic jams, the thought of asteroids hitting the earth, or getting a B on an exam as threats to life and limb, a design flaw that provides psychotherapists with an abundance of job security.

Fear inhibits executive functioning, problem-solving abilities, and emotional regulation. In other words, fear makes us rigid, inflexible, and dumb.

Fear inhibits executive functioning, problem-solving abilities, and emotional regulation. In other words, fear makes us rigid, inflexible, and dumb. We become afraid of taking risks and learning new things, leading us to remain in dysfunctional patterns of behavior, to hold onto failed strategies, and to remain in destructive relationships. The amygdala seems to use survival as vindication of its strategy, leading the agoraphobic to assume, "I haven't set foot outside my house in 10 years, and I'm still alive, which must be because I haven't set foot outside my house in 10 years." The amygdala's job is to keep us alive, and it has the neural authority to veto happiness and well-being for the sake of survival. Psychotherapy has to break into this closed logical loop by interrupting the cycle of dysfunctional thinking and reinforcement.

When animals hear a loud or threatening sound, they startle, freeze in their tracks, scan the environment for danger, and become silent. The logic is quite clear—avoid detection, locate the source of danger, and respond. These ancient responses, along with the structures that support them, have been con- served in humans. During high states of arousal, the brain area responsible for expressive speech (Broca's area) becomes inhibited. This may explain a variety of human phenomena, from

becoming tongue-tied when talking to the boss to the speech- less terror associated with trauma.

While the momentary inhibition of sound production may have no negative consequences for other animals, it can be disastrous for humans. For us, shutting down sound means losing the language we need in order to connect with others and to organize our conscious experiences. Language serves the integration of neural networks of emotion and cognition that supports emotional regulation and attachment. Putting feelings into words and constructing narratives of our experiences make an invaluable contribution to a coherent sense of self.

Central tenets of psychotherapy include expressing the unexpressed, making the unconscious conscious, and integrating thoughts and feelings. Experiences that occur before we develop speech or in the context of trauma remain unintegrated and isolated in dissociated neural networks. By stimulating Broca's area, connecting words with feelings, and helping clients to construct a coherent narrative of their experiences, we help restore a sense of perspective and agency and an ability to edit dysfunctional life stories. Language has evolved to connect us to each other and to ourselves, a primary reason for the success of the talking cure.

#5 Illusion

We do not live to think. . . . We think in order that we may succeed in surviving.

José Ortega y Gasset

Our minds are masters of illusion. Highly dedicated psychoanalysts, neuroscientists, and Zen Buddhists have spent their lives trying to penetrate these illusions in order to discern the nature of reality. However, using an illusion generator to see beyond illusions has its limitations. While much still remains a mystery, one thing is clear—conscious experience is full of distortions. While many of these distortions are designed to enhance survival, they also make us vulnerable to many forms of suffering that bring people to psychotherapy.

Defense mechanisms and all of the attribution biases discovered by social psychology provide ample proof that our thinking is biased in self-favorable and anxiety-reducing ways. In fact, it has often been suggested that depression results from perceiving reality too accurately—a sort of denial deficit disorder. Groupthink, halo effects, and humor also grease the social wheels, allowing us to put a positive spin on the behavior of our family and friends.

While self-deception decreases anxiety, it also increases the likelihood that we will successfully deceive others. If we believe our self-deceptions, we are less likely to give away our real thoughts and intentions via nonverbal signs and behaviors. Reaction formation, or behaviors and feelings that are opposite to our true desires, are often quite effective in deceiving others. Thus, we are all naturally born con men, who first and foremost deceive ourselves.

In short, distortions of conscious awareness are not character flaws, but preprogrammed by-products of our evolutionary history based on their proven survival value. They help us to be strong, assertive, and confident in the face of threat. Our distortions allow us all to believe that we are above average and for two warring nations to both believe that god is on their side. The downside of these distortions comes when we have so much confidence in our point of view that we repeat the same dysfunctional behaviors in spite of all evidence to the contrary. The prevalence of illusions, distortions, and misperceptions is why reality testing is so important in almost all forms of therapy. The most naive observer, let alone a trained therapist, can see many things about us more clearly than we can see them ourselves. Questioning one's assumptions, internalizing interpretations, and learning about how the brain mismanages information are all potential roads to positive change.

As therapists, we attempt to provide our clients with alter- native perspectives and new information in order to disrupt a closed and self-reinforcing logical system. And when therapy is at its most useful, clients are able to internalize perceptions and insights from others that improve their ability to test the reality of their experience beyond their habitual distortions. Psychotherapy provides us with an opportunity to make our unconscious conscious, creating a platform for the exploration of our maladaptive illusions.

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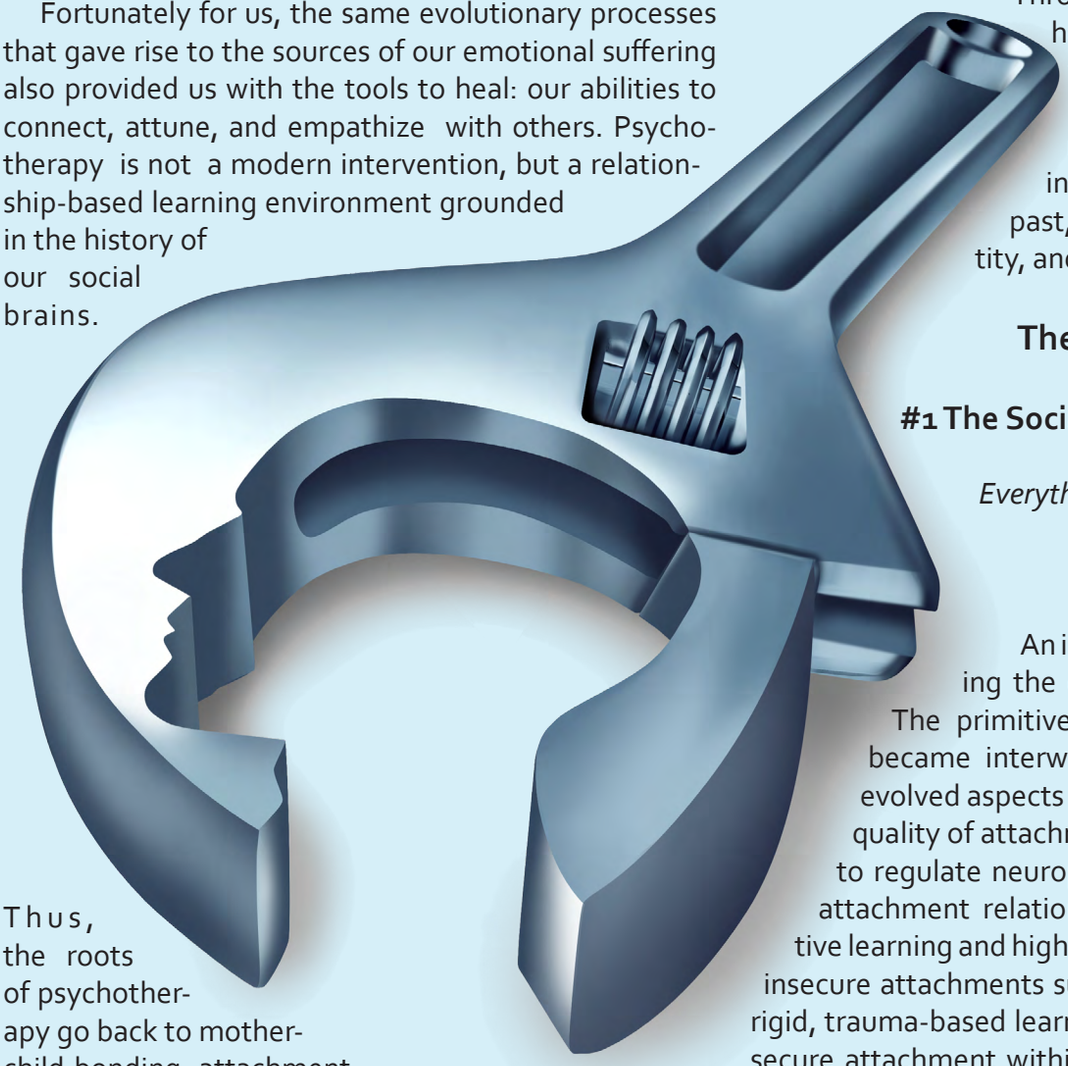
Why Therapy Works

The only person who is educated is the one who has learned how to learn to change.

Carl Rogers

Fortunately for us, the same evolutionary processes that gave rise to the sources of our emotional suffering also provided us with the tools to heal: our abilities to connect, attune, and empathize with others. Psychotherapy is not a modern intervention, but a relationship-based learning environment grounded in the history of our social brains.



Thus, the roots of psychotherapy go back to mother-child bonding, attachment to family and friends, and the guidance of wise elders.

The potential success of therapy relies on three fundamental mechanisms of brain, mind, and relationships.

1. The brain is a social organ of adaptation, shaped by evolution to connect with and change through interactions with others. Psychotherapy leverages the ability of brains to attune and learn from one another in the service of adaptive change. This intimate interaction between human connection and learning has been forged over the eons in the crucible of social evolution.
2. Change depends upon the activation of neurplastic processes. For any change to occur, our brains have to undergo structural changes that will be reflected in our thoughts, feelings, and behaviors. Thus, the success of psychotherapy depends upon the therapist's ability to stimulate neuroplasticity in the brains of clients—to make new connections, inhibit others, and link previously dissociated neural net- works.
3. 3. Together, we co-create narratives that support neural and psychic integration while creating a template to guide experience into the future.

Through the co-construction of coherent self-stories, we are able to enhance our self- reflective capacity, creativity, and maturation. It is especially valuable in coming to understand our past, for the consolidation of identity, and to heal from trauma.

The Tools for Healing

#1 The Social Brain

Everything can be found in isolation except sanity.

Friedrich Nietzsche

An interesting thing happened during the evolution of our social brains. The primitive processes of neuroplasticity became interwoven with the more recently evolved aspects of sociality. In other words, the quality of attachment relationships has evolved to regulate neuroplasticity and learning. Secure attachment relationships support flexible, adaptive learning and higher-order executive functioning; insecure attachments sup- port reactive behavior and rigid, trauma-based learning. This is why establishing a secure attachment within the therapeutic relationship serves as the matrix for positive change. So the essence of what we do as therapists is to connect with our clients in an exchange of emotions and information. Like neurons, we send and receive messages from one another across a synapse—the social synapse.

To establish a bridge of attunement, we rely on many neural systems that receive and send social and emotional information. We use all of this information to create theories about what is on the minds of others. We establish internal representations of what is happening within them by simulating their internal states within us. We rely on attachment circuitry to establish bonds and to know how to apply the optimal balance of challenge and support to help our clients grow. We utilize all of the networks of our social brains in an attempt to articulate experiences that clients are presently unable to articulate themselves.

As discussed earlier, an important remnant of our

evolutionary past, the amygdala, rests at the core of the brain. This ancient executive center has retained veto power over our modern cortical executive centers when it detects a threat. It is also like an elephant; it never forgets. The only chance we have at getting over a fear is to do what my grandfather suggested to me as a child: "Get back on the horse that threw you." This folk wisdom embodies the knowledge that fear becomes reinforced through avoidance and inhibited by confrontation. This is why a decrease in avoidance behavior is highly correlated with therapeutic success.

Approaching danger and surviving inhibits the amygdala's tendency to trigger the fight-flight response. Such situations can range from picking up a spider, to finishing the last class to get a degree, or going out on a first date. Risking new and seemingly dangerous experiments in the service of positive change requires a combination of courage, emotional support, and the ability to imagine success. Thus, successful therapists learn to be "amygdala whisperers" by leveraging the social brain in order to help clients face their fears in experiments that are developed collaboratively during sessions.

#2 Neuroplasticity

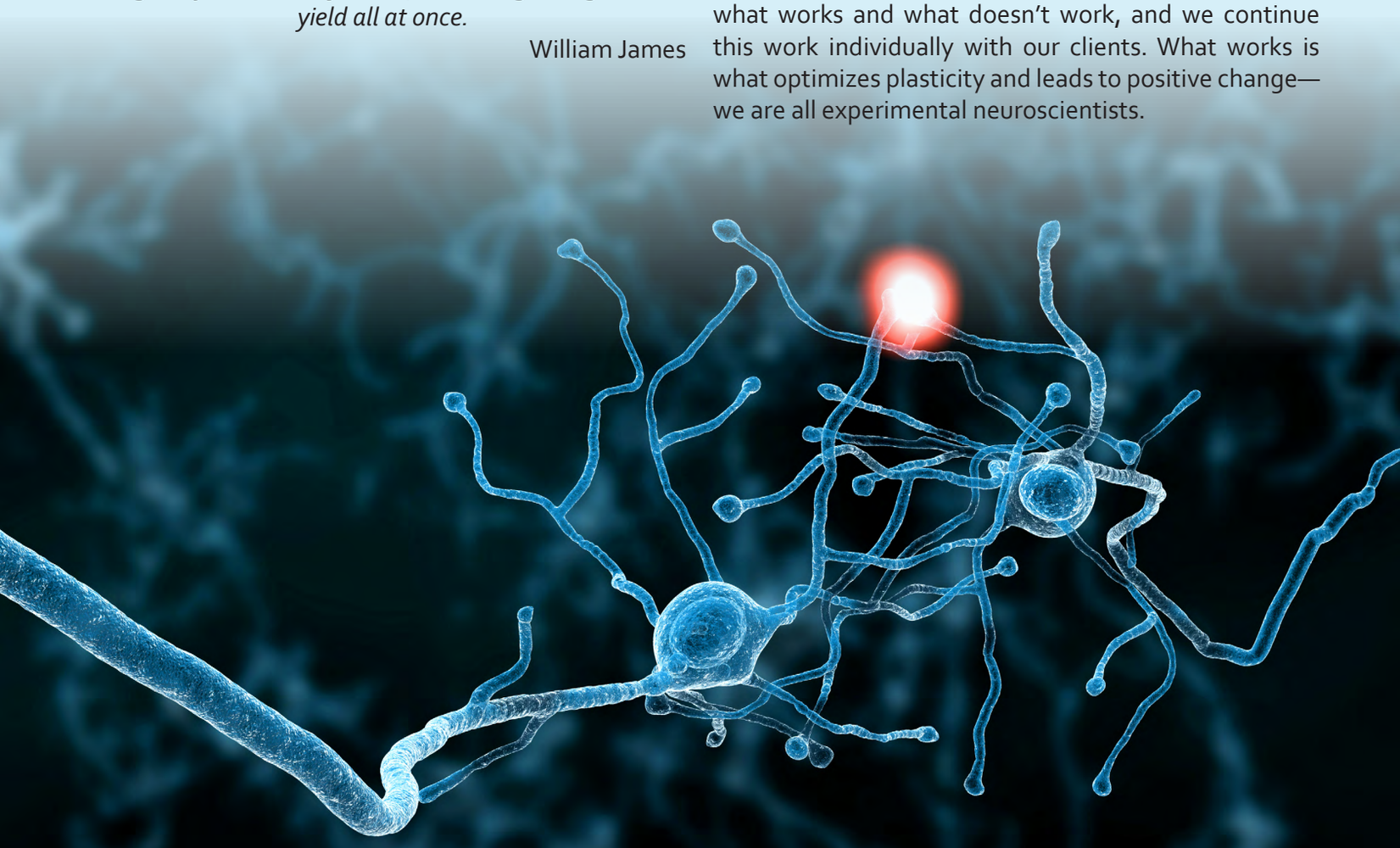
Plasticity . . . means the possession of a structure weak enough to yield to an influence, but strong enough not to yield all at once.

William James

Most generally, neuroplasticity refers to the birth, growth, development, and connectivity of neurons—the basic mechanisms of all learning. Existing neurons grow by connecting their projections (dendrites) during learning. Neurons inter- connect to form neural networks, and neural networks, in turn, integrate with one another to perform increasingly complex tasks.

Because a brain is such a complicated government of systems, the possibilities of disconnections, misconnections, and failures of adaptation are almost endless. And because our brains depend so much on experience to help them develop properly, a lot can go wrong. When one or more neural net- works necessary for optimal functioning remain undeveloped, unregulated, or unintegrated with others, we experience the complaints and symptoms for which we seek therapy.

We now assume that when psychotherapy results in symptom reduction or experiential change, the brain has, in some way, been altered: new connections have been made, dysfunctional systems altered or inhibited, or disconnected networks reintegrated. This suggests that all psychotherapists are neuroscientists who work to change the structure of the brain. Although the principles of plasticity have not been understood until recently, the practices and strategies of psychotherapy have been guided by their invisible hand since the beginning. Through trial and error, therapists have learned what works and what doesn't work, and we continue this work individually with our clients. What works is what optimizes plasticity and leads to positive change—we are all experimental neuroscientists.



Openness and trust are fragile creatures, even with the people we love most. The training of the therapist and the therapeutic context itself are designed to increase neuroplasticity in networks of the social brain to enhance support, trust, and availability. It turns out that a secure and positive therapeutic alliance generates a double neuroplastic punch. A positive emotional connection stimulates metabolic processes that activate plasticity while inhibiting stress.

Thus, safe and attuned connections create the possibility for both short-term and long-lasting modification of the brain. Through the security of a safe relationship, something new can be introduced into a previously closed and dysfunctional system. This is one of the ways in which relatives, friends, and tribe members enhance survival and lead to the emergence of culture. This is also why relationships are the most challenging aspect of life. Although there is endless debate about the relative merits of different forms of therapy, they all depend on the same underlying biopsychosocial-developmental mechanisms of change.

#3 Language, Storytelling, and Co-constructed Narratives

There is no greater agony than bearing an untold story inside you.

Maya Angelou

Human beings are natural storytellers, and the roots of the talking cure harken back to gatherings around ancient campfires. Through countless generations, we have shared stories of the hunt, the exploits of our ancestors, and morality tales of good and evil. The urge to tell stories and gossip is embedded in our psyches, wired into our brains, and woven into our DNA. This is why *People* magazine will always outsell *Scientific American*. For most of human history, oral communication and verbal memory were the repository of our collective knowledge. The drive of elders to repeatedly tell the same stories is matched only by the desire of young children to hear the same stories again and again. This lock-and-key information highway carries memories, ideas, and values across generations.

Stories also serve as powerful tools for neural network integration. The combination of a linear story line and visual imagery woven together with verbal and nonverbal expressions of emotion activates circuitry of both cerebral hemispheres, cortical and subcortical networks, the various regions of the frontal lobes, the hippocampus, and the amygdala. This integrative neural processing may also account, in part, for the positive correlations between coherent narratives and secure attachments. Further, shared stories contain images and ideas that stimulate imagination and link individuals to the group mind.

Narratives are also powerful because they allow us to have an objective distance on direct experience, creating the possibility of alternate viewpoints. Through stories, we can escape the emotions and influences of the moment and take time to reflect on our experience. We can also share versions of possible selves with others to receive input about our experiences and perspectives. Finally, we can experiment with new emotions, actions, and language as we edit the scripts of our lives.

Although it seems that children are little scientists discovering the world, we often miss that they are primarily engaged in discovering what the rest of us already know about them. As children we are told by others, and we gradually begin to tell others, who we are, what is important to us, and what we are capable of. This serves the continuity of culture from one generation to the next as parents reflexively strive to re-create themselves. This can be both good and bad depending on the parents and the goodness of fit with their children. Stories are powerful organizing forces that serve to perpetuate both healthy and unhealthy forms of self-identity. There is evidence that positive self-narratives aid in emotional security while minimizing the need for elaborate psychological defenses.

The role of language and narratives in neural integration, memory formation, and self-identity make them powerful tools in the creation and maintenance of the self. Putting feelings into words has long served a positive function for many individuals suffering from stress or trauma. Even writing about your experiences supports top-down modulation of emotion and bodily responses. In listening to our clients, we reflexively analyze their narratives for inaccurate, destructive, and missing elements. We then attempt to edit their narratives in a manner we feel would better support their adaptation and well-being.

#4 Self-Reflective Capacity

The key to growth is the introduction of higher dimensions of consciousness into our awareness.

Lao Tzu

Self-reflective capacity, the ability to think about our thoughts, feelings, and behaviors, has been found to correlate with both secure attachment and successful psychotherapy. This same ability has been called psychological mindedness by psycho-analysts and mindfulness in the self-help world. Self-awareness is derived from and reinforced by parents and therapists through

the creation of narratives that include subjective states as objects of communication. We also come to learn that we are capable of evaluating old habits and attaining a more objective view of the expectations of others and the mandates of our childhoods. Therapy attempts to leverage this metacognitive vantage point to make new and more adaptive decisions.

The purpose of sharing our stories with others is to gain active participation in the co-construction of new narratives. Our own stories tend to become closed systems in need of new input. Therapists hope to teach their clients that not only can they edit their present story, but they can also be authors of new stories. With the aid of self-reflection, we help clients to become aware of narrative arcs of their life story and then help them understand that alternative story lines are possible. As the writ- ing and editing processes proceed, new narrative arcs emerge along with the possibility of experimenting with more adaptive ways of thinking, feeling, and acting.

#5 Abstract Thought and Imagination

Imagination is more important than knowledge.
Albert Einstein

As the size of primate groups expanded, grooming, grunts, and hand gestures were gradually shaped into spoken language. Language made far more precise, complex, and subtle forms of communication possible. As social groups grew larger and language became more complex, more cortical space was required to process a greater amount of social information. This expanded topography was a contributing factor in the emergence of abstract thinking and imagination.

The human brain is characterized by the growth of an area called the inferior parietal cortex. This area, in collaboration with parts of the prefrontal cortex, appear to have allowed us to do three things that border on the miraculous. First, we are able to construct three-dimensional models of external objects in our imaginations. Second, we can manipulate and modify these models in our heads. Third, we can transform these objects of imagination into objects in the external world. We can apply our imagination, not only to external objects, but to ourselves.

Thus, humans are capable of imagining alternative selves, creating new narratives to become these selves, and then using narratives as blueprints for changing their lives. Countless blueprints are created and discarded during development as children and adolescents try on different identities. As we progress, we naturally outgrow old identities like a snake outgrows its skin. As we grow older, we often forget that we can change our stories, and we may become symptomatic when an old identity no longer fits who we've become.

Our imaginations allow us to escape the present moment, create alternative realities, and then begin our journey to find our new narratives. The hero's journey, found in the literature of every culture, is a reflection of an ancient drive to explore new worlds, which allowed early humans to survive and spread around the globe. As therapists, we can leverage this heroic instinct in the service of our clients to assist them in facing their fears and creating a new life story. This is the hero's journey of every culture—with shamans, medicine women, wise elders, and psychotherapists serving as guides.

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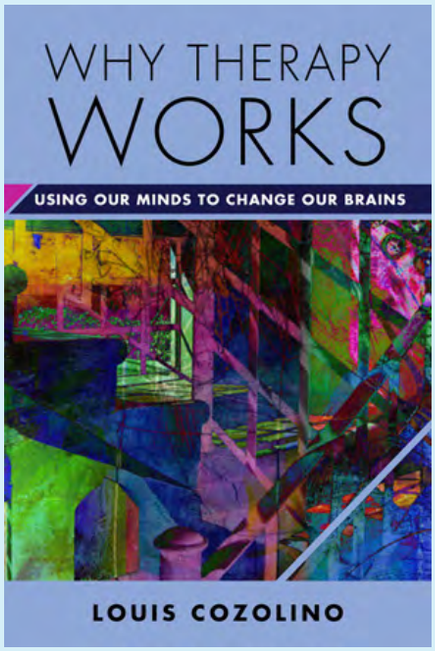
The preceding excerpt is from *Why Therapy Works: Using Our Minds to Change Our Brains*, by Louis Cozolino, reprinted with permission of the publisher W. W. Norton & Co.

Why Therapy Works

Using Our Minds to Change Our Brains

Louis Cozolino



The story of why psychotherapy actually works. That psychotherapy works is a basic assumption of anyone who sees a therapist. But why does it work? And why does it matter that we understand how it works?

In Why Therapy Works, Louis Cozolino explains the mechanisms of psychotherapeutic change from the bottom up, beginning with the brain, and how brains have evolved—especially how brains evolved to learn, unlearn, and relearn, which is at the basis of lasting psychological change.

Readers will learn why therapists have to look beyond just words, diagnoses, and presenting problems to the inner histories of their clients in order to discover paths to positive change. The book also shows how our brains have evolved into social organs and how our interpersonal lives are a source of both pain and power. Readers will explore with Cozolino how our brains are programmed to connect in intimate relationships and come to understand the debilitating effects of anxiety, stress, and trauma.

Finally, the book will lead to an understanding of the power of story and narratives for fostering self-regulation, neural integration, and positive change.

Always, the focus of the book is in understanding underlying therapeutic change, moving beyond the particular of specific forms of therapy to the commonalities of human evolution, biology, and experience.

This book is for anyone who has experienced the benefits of therapy and wondered how it worked. It is for anyone thinking about whether therapy is right for them, and it is for anyone who has looked within themselves and marveled at people's ability to experience profound transformation.

"Why Therapy Works is a tour de force. Too often today the public thinks that one can read a book or watch a documentary and be transformed psychologically. Unfortunately, that is not how the human mind works. Humans require other minds for change and change is hard. We are 'embodied and embedded' in an interpersonal matrix. To understand the human experience and create change, we must move from a single-skull understanding to an intersubjective context of two or more minds. Louis Cozolino explains this phenomenon in a manner easy to digest, taking the reader from the evolutionary heritage of human psychology to an understanding of the experience of psychotherapy applied in common clinical circumstances." — Drew Pinsky, MD, Internist/Addictionologist and Host of Dr. Drew on HLN

"There are so many important concepts and ideas, that I found myself underlining and highlighting sections. I was intrigued with Cozolino's concept that we can change our brain. And, his explanations about attachment and healing are excellent. . . . [H]e offers his own experiences to illuminate his ideas. This makes him human, believable, and likeable. . . . I look forward to rereading this book. It will be useful to review reference-specific issues. I recommend it to both colleagues and students." — The Milton H. Erickson Foundation Newsletter

"[A]n authoritative guide. . . . Anyone interested in therapy and the brain will find much compelling information here . . . . [A]n intriguing look at how anxiety, stress, and trauma affect the brain and . . . how psychologists can help their patients 'connect and heal.'" — Booklist

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