

The Social, Emotionally Intelligent Brain

The last decade and a half has produced more research on the brain and more new brain technologies than all the discoveries of the past.

This new information changes not only how we view the brain but how we view human development and change.



What does new brain research tell us about the social make up of the brain?

The last decade and a half has produced more research on the brain and more new brain technologies than all the discoveries of the past. This extraordinary influx of information gives us an irrefutable body of research that explains brain development and links it to relationship and interpersonal communication. This cross cultural researched study of the brain:

- illuminates our understanding of personal and interpersonal mental health problems
- highlights the critical importance of early nonverbal love relationships
- explains why many of us find it so hard to find and sustain productive exciting, meaningful home and work relationships
- informs us that change is always possible, and
- suggests a means to change.

What does new brain research tell us about relationships and our nervous system?

Through the new brain scanning technologies, science has also uncovered the fact that the brain is not only enormously plastic at birth but retains some plasticity throughout life. We used to believe that the brain was incapable of change once we were adults – now we don't! "At birth the brain is the most undifferentiated organ in the body with a plasticity that enables it to create new circuitry throughout life," according to UCLA child psychiatrist and developmental specialist, Daniel J. Siegel.

This capacity for structural and functional change is most apparent in infancy and early childhood but never really ceases. In fact, the ability for life-long learning has now been confirmed through modern ways of measuring the brain's electrical activities, and new types of brain scans. Using brain imagery technologies, studies of people over age ninety provide us with pictures of mature brains that continue to produce new neural pathways at a time when older pathways are dying. We now understand that throughout life, the brain remains a work in progress, capable of renewing itself:

- the brain is always capable of changing
- the brain is most amenable to change through relationship
- experience can override genetic predisposition
- new experience can create circuitry that overrides past experience

Simply put, this means that even after a lifetime of failed communication in home and work relationships, we can make changes that bring us the safety, mutual connection and excitement we need and deserve.

How does the infant-caretaker relationship influence future relationships?

Key among the research findings for helping us understand how relationship shapes the brain is the fact that, at birth, the human brain lacks definition. This *definition* takes shape in the first three to five years of life as the result of the quality of relationship between the infant and his or her primary caretaker. A wealth of international research substantiates the critical developmental role played by this first relationship, known as the *attachment* relationship. This relationship, determined by the quality of communication between infant and caretaker, predicts success or the problematic nature of future relationships.

The introduction of brain imaging resources—including electroencephalogram (EEG), quantitative EEG studies (QEEG), positron emission tomography (PET), single photon emission computed tomography (SPECT) and functional MRI (fMRI)—help us to see and understand how experience affects the flow and function of information within the brain. The experience that has the most influence on the developing brain is that acquired in intimate relationship. Fieldwork using still frames taken from videos set up in thousands of homes in many parts of the world captures continuous spontaneous interactions between infant and caretaker that validate the influence of the attachment bond on the nervous system and uncover the secrets of the attachment bond. These advances, accepted universally by the scientific community, lead to the conclusion that

the attachment relationship plays a dominant role in the development of the brain, the individual, and his or her connection to others and the world. The security (or insecurity) of a child's early attachment relationship establishes the basis for:

- lifelong relationships with others
- a sense of security about exploring the world
- resilience to stress
- the ability to balance one's emotions and make sense of one's inner and outer world

How does relationship help change the way our brains function?

Human relationships – interactions with other people – shape neural pathways, including those that are genetically programmed. Numerous recent cross-disciplinary studies on the brain and development prove this point. These studies show us that the brain responds to:

- only one primary person at birth
- nonverbal messages throughout life
- emotional cues throughout life

In *The Developing Mind*, Daniel J. Siegel uses the phrase “the feeling of being felt” to describe relationships that shape the circuits responsible for memory, emotion and self-awareness. Brain-altering communication is triggered by deeply felt emotions that register in facial expressions, timing, movements and tone of voice. The brain's remarkable plasticity at birth, in conjunction with its singular emotional focus on one person—its primary caretaker—sets a lifelong template for thoughts, feelings and behavior. Moreover, because the brain *remains flexible throughout life*, it retains the capacity to create continuous changes through nonverbal communication with people with whom we are emotionally attached. Researcher Allen N. Schore also draws this conclusion—from numerous cross-disciplinary examples—when he describes “self-organization” as a “dyadic process” based on play and emotional understanding. Today, dozens of researchers all over the world attribute this “dyadic process” to a wordless form of communication that links infant and caretaker in “a dance of mutual joy and discovery.” As we grow older, we continue this dependence on one another for changing the way our brains function.

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