

Unlocking *the* Emotional Brain

by
BRUCE
ECKER

AS THERAPISTS, WE'RE ALL TOO FAMILIAR with the strength and tenacity of ingrained emotional schemas—unconscious templates of feeling and behavior, usually established during childhood, that can seem immune to our best clinical efforts. For example, a woman goes into anxious, compulsive attempts to please her husband whenever he seems even slightly upset or impatient with her; a man flies into uncontrollable rage when any small mistake or misstep is called to his attention; a bright and promising graduate student repeatedly drops out of school programs just before successfully completing them; a woman plunges into deep, crippling shame when treated disrespectfully by others. All sorts of family-of-origin rules, roles, and attachment patterns operate through such embedded schemas, as do behaviors or moods unconsciously triggered by ordinary daily events or relatively insignificant mishaps. At times, our clients appear to have put an “issue” to rest, only to have a new situation trigger a relapse.

The tenacity of such symptoms reflects the durability of the underlying emotional schemas, which persist through the decades. These schemas are made up of our own living knowledge, acquired

in emotionally intense episodes of life, yet they're largely or completely unconscious and nonverbal. Even more curiously, one's own schemas respond to situations autonomously, without our conscious awareness of either the knowledge they retain or the experiences that originally formed them.

For many years now, we've known that these schemas are laid down in the limbic system, underneath the cerebral cortex, in what neuroscientists call implicit memory—a specialized type of memory that stores and applies unconscious knowledge. But what do we know about how these potent schemas and their neural circuits get dismantled and dissolved, eliminating symptoms at their roots?

The Old Biology

Until a few years ago, the answer to that question, based on a century of research on learning and memory, was that truly dissolving these schemas simply wasn't possible. It seemed well established that when some new emotional learning first

FINDING THE NEURAL KEY TO TRANSFORMATION

becomes installed in stable, long-term memory—a process called “consolidation”—its neural circuits in the limbic system are there for the individual lifetime. The synapses forming the circuits have been considered to be permanently locked in place. Hundreds of studies indicated that even after complete extinction of a learned emotional response, the circuits of that response are only suppressed, not erased, remaining intact and fairly easily retriggered.

For psychotherapists, this meant that the best we could do to reduce unwanted behaviors, moods, or thoughts that arise from emotional learnings was to suppress them by counteracting them—building up new, separate learnings and responses. Counteracting, a characteristic of most techniques used in cognitive-behavioral therapy, includes any direct attempt to make a symptom happen less and some preferred pattern happen more. It pits the conscious self and its resources against an underlying self and its implicit, symptom-inducing knowledge. This increases internal conflict and the sense of having a “divided self,” still leaving the person vulnerable to having old responses reevoked. Nevertheless, for many years, therapists and researchers alike have assumed that counteracting and suppressing behaviors and old learnings is the best, in fact the *only*, effective remedy for unwanted automatic emotional responses.

Profound Change Events in Therapy

Yet most clinicians find that every so often, a client undergoes a profound change in therapy. We’ve all had such cases, in which a supposedly permanent schema mysteriously seems to dissolve. A potent emotional issue loses its compelling hold, as though a spell has been broken, and symptoms cease. Upon contacting the client long after therapy, we learn that the change held. Unfortunately, these profound change events haven’t been a major focus of research and are hidden in the statistics of randomized controlled trials.

Against that background, for many years, my colleague Laurel Hulley and I closely examined our clients’ major shifts to see whether we could discover what lay behind these striking departures from the averages. What moments or interactions during therapy resulted in sudden breakthrough and transformational change? When an unmistakable change occurred for a client during a session (whether the fourth or fifty-sixth), we minutely examined both the session’s external ingredients—the exchanges in the client-therapist interaction—and its internal ingredients—the client’s thoughts and feelings. Our aim was to determine what critical elements of

process were present again and again, whatever the unique content of each person’s material.

After years of teasing apart the complexities of our clients’ major shifts, we were able to identify a well-defined sequence of experiences needed in therapy for profound change to take place. We were struck that counteracting was completely absent from the process. As we reshaped our therapeutic methods to focus on fostering these key steps, lasting change events became frequent in our practices. Liberating results normally expected to take years of in-depth work often happened in a few sessions, and we came to refer to this methodology as Coherence Therapy (after first writing about it as Depth Oriented Brief Therapy in 1996).

Even though we found we could predictably help clients achieve these deep shifts in a few sessions, we had no idea what was happening in the neural circuits of the brain that allowed such changes. Then, in November 2005,

while searching through neuroscience research journals to better grasp the neural mechanisms that might underlie the transformational changes we were seeing in our clients, I came across a recent group of studies that dramatically challenged the standard theory that emotional schemas are indelible and permanent at the neural level.

This turnaround began from 1997 to 2000, when several studies showed that when an implicit schema gets triggered—reactivated by something in the present environment—the synapses supposedly locking it in place can unlock for a short period of time. Then they relock, making a *reconsolidation* of the memory circuits. While these

Most clinicians find that every so change in therapy. We’ve all had such cases, in a spell has been broken, and

synapses are unlocked, they can be disrupted, so that relocking is prevented, thus erasing both the implicit memory and the behavioral responses it produced. Afterward, those old responses can’t be reevoked.

By 2004, neuroscientists had identified the key sequence of experiences that gets the brain to unlock a long-held emotional learning. Especially illuminating were findings from experiments done first at the Neuroscience of Memory Laboratory of the University of Buenos Aires by Maria Eugenia Pereira, Hector Maldonado, and Luis Maria Perez-Cuesta, and then replicated by a team led by Akinobu Suzuki of the Applied Bioscience Faculty of the Tokyo University of Agriculture. In these experiments, the neuroscientists presented a trigger to an animal, such as a red light that previously always glowed just before a foul odor was administered. Just seeing the red light activated the implicit schema—red light equals bad smell—which caused the animal to expect and try to avoid the odor.

After a time delay, they turned off the red light—the trigger—without ever introducing the odor. Turning off the light didn't merely end the animal's expectation of odor; it created a sharp mismatch between what it expected according to the reactivated schema (the odor) and what it actually experienced (no odor). In that experiential moment of mismatch, the synapses of the schema's neural circuit molecularly unlocked, like an unlatching of train cars still sitting in place. The synapses had become "labile," meaning the neural circuit was now changeable, but not yet changed. During the brief window of lability, the schema can be modified or erased permanently.

All of these erasure findings were on animals, but neuroscientists have little doubt about the carryover to the human brain. From fruit flies to *Homo sapiens*, the amazing sameness of neural mechanisms is well established, and, recently, the unlocking and relocking of memory circuits has been detected in humans. In fact, a study of infants at Rutgers University by Lissa Galluccio, published in 2005, found that erasure of an implicit memory could be achieved experientially, not chemically—a promising outcome.

From Neuroscience to Therapy

In these reports of reconsolidation, I

anthropologists and archaeologists—a pattern that had kept him from “ever getting really good at anything” and had capped his income for his entire adult life. He'd always made sense of this by blaming himself for a lack of discipline, which created feelings of shame and failure.

The first step in Coherence Therapy, once the problem or symptom is reasonably well defined, is to guide the client to get directly in touch with “the emotional truth of the symptom”: the underlying, unconscious emotional schema that compellingly *requires* the client's symptom or problem, despite the suffering entailed in having it. This step is identical to the first step of the

often, a client undergoes a profound
*which a potent emotional issue loses its **compelling** hold, as though*
symptoms *cease.*

In these and other studies, to get erasure, neuroscientists administered a chemical agent known to prevent synapses from forming functional circuits. When the circuit's reconsolidation was chemically blocked in that way, the circuit was erased. Whether chemical erasure can ever be made safe for human use is a complex matter, both technically and ethically. But what the experiment showed was that once the schema was erased, subsequent exposure to the red light got no response, permanently.

Subsequent studies confirmed these surprising results. In an April 2007 review in *Nature Neuroscience*, erasure was successful in 24 of 43 studies—slightly over half. The authors, Yale neuroscientists Natalie Tronson and Jane Taylor, suggest that all of the studies might have yielded successful erasure if the other 19 studies had set up the correct conditions for reconsolidation, and that exploring this possibility might better define what the conditions for reconsolidation are.

found a striking, point-for-point correspondence between the steps that produce erasure in the neural studies and the steps we'd culled from studying our clients' sudden, profound change events. The quality of their responses, the life transformations that followed, and the apparent permanence of the changes suggested erasure, not just suppression, of their old emotional schemas and symptoms. When we were able to create the needed clinical experiences, vivid, long-ruling emotional realities quickly withered into insignificance and couldn't be reevoked, after which symptoms ceased and didn't return.

To see how the steps of Coherence Therapy line up with those of neural reconsolidation, let's consider some sessions I did with Jason, an affable, 52-year-old, jack-of-all-trades with thick, wavy gray hair and a rumpled safari jacket. His problem was that he repeatedly changed his line of work—from carpenter to retail salesman of camping supplies, to field assistant to

reconsolidation process: the reactivation of the schema responsible for the behavior.

Using imagery and other focused, evocative methods that we've developed, Jason soon zeroed in on the key material. In boyhood, the perception of his father's grinding unhappiness in their small, industrial town, forever trapped in the same factory job with no vision of a different future, had been frightening for him. Young Jason formed a life-shaping schema, unconscious but still fully in play, that he now retrieved, felt emotionally, and for the first time expressed in words: “I've *got* to switch jobs because staying in one career brings the deadness and unhappiness that killed my father's spirit. I've *got* to keep that from happening to me.” His poignant, experiential retrieval of this material occupied our first two sessions.

By our third session, that retrieved schema was well established, so it was time to begin the process of depotentiating it. This process consists of guiding

the client into an unusual kind of experience in which he or she is vividly in touch with two different things simultaneously. The first is the schema's feelings, knowledge, and meanings, richly evoked just as they are. The second is some other living knowledge that also feels perfectly true, yet utterly contradicts the first material. This side-by-side juxtaposition experience of those two incompatible yet compelling ways of knowing is what induces transformation. The client feels that both cannot possibly be true, yet both feel true and both are present together. This odd, edgy experience is a specialized, experiential form of cognitive dissonance. Likewise, Galluccio's study of infants found that a

"It's how involved they are in what they do," Jason began. "Or maybe it's the way they're involved in it. They're turned-on—that's clear. You can tell they want to be there, doing what they do and doing it well, and knowing it helps these children. That's great to be around."

The needed contradictory ingredients seemed to be at hand, so the stage was now set for creating a juxtaposition experience. Taking the simplest approach, I said, "So, let's go over a couple of things that seem true for you. It would be good if you could picture and *feel* these things as much as possible as we review them. On one side are the special-needs teachers. You're so in

in one career would be disconfirmed and rendered null and void as an emotional reality in implicit memory. Juxtaposition seems to correspond not only to step two, the all-important mismatch identified by neuroscientists, but also to step three, the unwiring of the schema (without use of chemicals), because with no further steps taken, schemas wither in response. A potent emotional reality that's been shaping life for decades loses force and falls away.

A frown appeared on Jason's face and he said, "Well, if it is possible to pursue one career and feel really good about it, then these negative expectations that shaped my whole life are

*This side-by-side **juxtaposition** experience of two what induces **transformation**. The client feels that both cannot possibly This odd, edgy experience is a specialized, experiential*

both-at-once experience of old and differing new knowledge is required for erasure of an existing schema and the behavior it produces.

I had to guide Jason to find and feel some vivid personal truth that strongly contradicted his deep, lifelong knowledge that staying in one career would be lethal to his spirit. I began scanning my notes and memory of our sessions, looking for signs of a contradictory knowledge useful for juxtaposition. What jumped out at me was his passing comment of strong admiration for the teachers in the special-needs school where he volunteered once each week. Perhaps here was a vivid experience that had personal significance enough to disconfirm his expectation that a one-career life inevitably puts a person in purgatory.

I said, "I wonder if we could revisit something you mentioned about the special-needs school. I got the impression that you see something in some teachers that you like. Could you tell me a little more about what that is?"

touch with the aliveness that they feel in their work. They're solidly planted in this one career, and you see how alive and continually engaging and satisfying it is for them. That's unmistakable to you.

"Now keep them in the picture as we add this: on the other side are your father and the other men in your home town. Their jobs are a dead end for them. They feel trapped in those jobs to support their families, and you see and feel their heavy unhappiness. And to you this means that staying in one career is always deadening like that, so you mustn't stay in one. And both images feel really true—that having just one career is deadening, like for your dad, and on the other side, having one career can be really dynamic and alive, as it is for those teachers. And you're aware of both, side by side." I paused for a few seconds and finished with, "How is that for you?"

Waiting for Jason's response was suspenseful for me. If it worked, the ingrained, dreaded meaning of staying

phony. That would be pretty upsetting." We stayed with that for the rest of the session. By the end of the session, it was clear that his distress was tolerable for him, so we collaboratively wrote the words of his new recognition on an index card for daily reading: "What?! It is possible to pursue one career and remain vibrant and deeply satisfied? Assumptions that shaped my whole life are phony?" This phrasing would respect his distress and sustain the juxtaposition experience, the awareness of two knowings in sharp contradiction.

In the fourth session, I wanted to see whether the old expectation that pursuing one career was a dead-end route still had any juice. As we revisited it, another old schema came to light. In his boyhood, one of the unquestioned rules of life in his family was, "You don't get to change your mind about the decisions you make. That's not a possibility. Once you step into a box, that's it. That box becomes your life. Boxes have an 'in' door, but no 'out' door."

Jason gazed at me for a moment, and then added, "That makes me nervous. It's true, and it makes me nervous. I can't go back and redecide." In registering the anxiety he felt about living within this rule, he was getting in touch with this construct emotionally and verbalizing the emotional meanings. That dual focus on both emotions and meanings is considered essential in Coherence Therapy for accessing material in the limbic system.

I kept working to get Jason more fully in touch emotionally with the newly retrieved rule by expressing it. Finally he was saying, "You don't get to go back. Every decision has to be the *right* one, because you never can go back

juxtaposition occurred spontaneously. If the no-exit rule got dissolved, it could become safe for him to choose a long-term line of work, a "career."

His new index card for daily reading captured his experience of this juxtaposition: "All decisions in life are final and redeciding isn't allowed! But wait a minute, that's nonsense! I *can* decide to get out of a box I've gotten into and choose anew."

In writing that card, I was careful not to favor either of the juxtaposing personal realities. The art of creating juxtapositions is in remaining completely noncounteractive. First you have to get the client fully in touch with the symptom-causing emotional knowledge, just

the schema and determining whether its meanings and knowings still arise with any subjective realness. So I said, "Last time, when you were voicing the rule against changing a decision, you felt uneasy and nervous in your body. Let's try that again. Go ahead and imagine being very clear that a personal path that you previously decided on and chose actually isn't right for you after all, and you're going to end it. See whether this feels very, very wrong to do because all decisions are final." I waited some seconds and asked, "Do you feel that same uneasy nervousness?"

"No. No, I don't," said Jason.

I commented, "I'm getting the impression that 'Thou shalt not reverse a choice' isn't feeling true and compelling to you right now. Is that right?"

"Yeah," said Jason matter-of-factly, "it is."

After a successful juxtaposition experience, something that's had a nameless, paralyzing power, a chokehold on a person's life, suddenly no longer has that

power. What previously felt horribly real now seems like no big deal. When we ask clients to try out responding in the old way, they often say it seems silly or really funny to imagine.

Jason then surprised me by revealing that he'd decided to become a special-needs elementary schoolteacher and had submitted an application to a teaching-credential program. Was this just his next short-term adventure or a real shift? To find out, I crafted a sentence for him to try saying out loud: "Being a special-needs teacher is what I have decided upon as my choice of career, long term." He said it once, then again at my request, and then I asked, "How does it feel in your body as you say that?" I needed to know whether any fear could still be evoked by this.

Jason answered, "Kind of like a sense of relief."

I asked, "Is there any uncomfortable sense, anywhere in your body that actually choosing this career as your long-

Continued on page 60

incompatible yet compelling ways of knowing is

be true, yet both feel true and both are present together.

*form of **cognitive** dissonance.*

and . . ." His last several words got softer, trailed off, and halted mid-sentence. Then with a sudden burst of energy and surprise in his voice he said, "Hey, that's nonsense!" Another juxtaposition experience had taken place, spontaneously this time. He sat thinking intently for a few seconds and then burst into a delighted, fresh, prolonged laugh. It's a laugh we've come to recognize as a marker of the sudden dissolution of a longstanding, troubling emotional reality. Done laughing, he let out a big breath and repeated softly, "That's nonsense."

Evidently Jason already possessed the contrary living knowledge that one *can* redecide. This he held in readily conscious memory. In contrast, his boyhood emotional knowledge that one can't redecide had been fully implicit until now, held in his limbic system, unavailable for side-by-side disconfirmation by the contrary cortical knowledge. But as he was articulating the retrieved limbic material—running it through his cortical awareness—the

as it is. Then you have to keep the client in touch with that material while giving empathic, validating understanding to it and to a contradictory knowledge. If you try to counteract or invalidate one side with the other, indicating which knowledge is or isn't correct or preferable, the effect is merely suppressive and neither genuine juxtaposition nor a transformational change will occur. When we counteract, we're trying to use our own power to force a change, but in prompting juxtaposition, we're setting up the condition that our client's brain and mind require to use their built-in power to revise personal reality. It's a matter of cooperating with and trusting the power that resides in the client.

In the fifth session, I looked for whether "all decisions are final" still had compelling emotional force. Testing for the actual depotentiation of the symptom's underlying schema is the important final step in this way of working. This is done by again using cues that previously triggered

term pursuit means you're walking into the same death trap as your father?"

Jason reflected for a few seconds, said "No, actually," and then explained that "playing by the rules of the career game" no longer seemed like a prescription for meaninglessness, as it previously had.

When I asked, "Shall we do any more sessions?" without hesitation he said, "No. I'm good."

I'VE SEEN JUXTAPOSITION DISPEL anxiety, panic, depression, attachment problems, compulsive behaviors, low self-esteem, and many other symptoms and problems. But lest I seem a juxtaposition fanatic, I should say I'm aware that all sorts of therapeutic methods that look nothing like the juxtaposition process sometime produce this same kind of profound change during which a potent emotional theme truly disappears. I suspect that's because all sorts of processes can bring about a juxtaposition experience serendipitously, often

without client or therapist even recognizing it as such.

However, after 15 years of teaching the retrieval and transformation methods of Coherence Therapy, I feel confident in saying that understanding juxtaposition makes a therapist far more consistent in fostering profound change. Most therapists produce life-changing, transformational shifts from time to time. I believe it's possible for that kind of effectiveness to become a regular occurrence in every therapist's day-to-day practice through cooperating closely with the built-in juxtaposition process of deep change that's part of our brains' standard operating procedures. ■

.....
Bruce Ecker, M.A., L.M.F.T., is codirector of the Coherence Psychology Institute and coauthor of Depth Oriented Brief Therapy: How To Be Brief When You Were Trained To Be Deep, and Vice Versa. Contact: bruce.ecker@coherenceinstitute.org. Letters to the Editor about this article may be sent to letters@psychnetworker.org.

The following *Networker U* Courses on this subject are available at www.psychotherapynetworker.org:

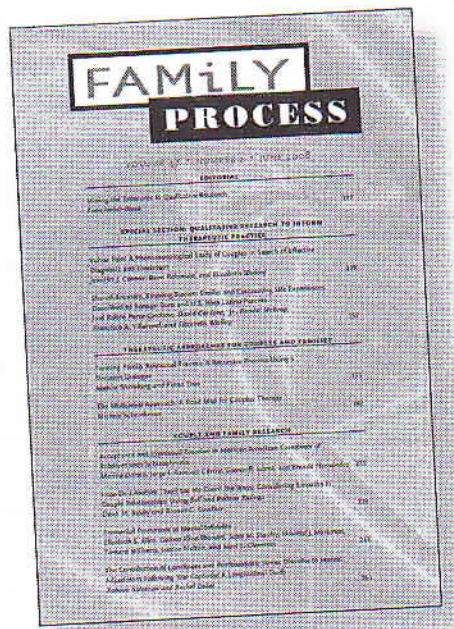
AUDIO HOME STUDY

- **A-222 The Therapeutic Relationship and the Brain** CE Credits: 6
Instructor: Daniel Siegel

ONLINE COURSES

- **OL-102 Getting Comfortable with the Brain** CE Credits: 4
Authors: Daniel Siegel, Mary Wylie, Brent Atkinson, Babette Rothschild
- **OL-116 Treating Depression: It Takes More than a Pill** CE Credits: 2
Authors: Michael Yapko, Margaret Wehrenberg, Peggy Papp, Bruce Ecker
- **OL-117 Treating The Anxious Client** CE Credits: 2
Authors: Reid Wilson, Margaret Wehrenberg, Miriam Greenspan, Bruce Ecker

Cutting edge clinical practice, original theories, and relevant research for mental health and social service professionals.



Family Process

Published on behalf of the Family Process Institute

Editor: **EVAN IMBER-BLACK**

Family Process is an international, multidisciplinary, peer-reviewed journal publishing original articles, including theory and practice, philosophical underpinnings, qualitative and quantitative clinical research, and training in couple and family therapy, family interaction, and family relationships with networks and larger systems.



For a **FREE** sample issue, subscription information, and author guidelines visit:
www.blackwellpublishing.com/FAMP

