



## Is This You Or Me That I Am Feeling?

### Emotional Contagion In Close Relationships

DANIEL SONKIN, PHD, MFT  
CAMFT ANNUAL CONFERENCE PRESENTER

How do you know when your client is cut off from their emotions in therapy? How about when you come home from work and your partner is irritated with you? How do you know when someone whom you are meeting for the first time is nervous about talking to you? How do you know when someone is only receptive to a handshake and not a hug? Some people might say, “I just know,” others would say “I read their non-verbal messages.” Both are correct, especially for therapists who are specifically trained to pay attention to body language.

But people who “just know” are not just the intuitive types in our subculture. They are experiencing what’s called a “bottom up” process of knowing others, rather than a “top down” process of knowing, which is more common in the deliberate reading of non-verbal signals. The new neuroscience study of mirror neurons (Iacoboni, 2008) has helped us to understand this “bottom up” process—a way of knowing others in a more implicit, unarticulated way that bypasses the often-awkward verbal

communication process. This article will explore the relevance of the study of mirror neurons to the experience of close relationships, particularly the close relationship that exists between the therapist and patient. However, these concepts may be further applied to all close relationships, especially between partners.

#### Mirror Neurons in a Nutshell

Giacomo Rizzolatti, and his colleagues, at the Parma Italy Neuroscience Research Lab, first described the mirror neuron system in the 1980’s. They found a group of cells in the ventral premotor cortex and inferior parietal cortex of the rhesus monkey brain that would fire when monkeys performed goal-oriented hand and mouth actions. What was most significant was that the same cells also fired when non-acting monkeys observed those actions in the monkeys who were performing those movements. They hypothesized that these mirror-neurons (because they mirrored the actions of others) were key not only to understanding the intentions of others, but also to the mental states underlying those intentions.

Marco Iacoboni and colleagues (2005), developed an interesting experiment to test the mirror neuron phenomenon, called the Teacup Experiment. The test subjects are shown three video clips involving the same simple action: a hand grasping a teacup. In the first video, there was no context for the action, just the hand and the cup. In the second video, the subjects see a messy table, complete with cookie crumbs and dirty napkins--the aftermath of a tea party, clearly. In the third video, the subjects are shown a neatly organized tabletop, in apparent preparation for the tea party. In all three video clips, a hand reaches in to pick up the teacup. Nothing else happens; the only difference is the context.

When the subjects observe the grasping scene with no context at all, mirror neurons are the least active. When viewing either one of the contextual scenes, they are more active; however, they are most active when watching the neat scene. Why is that? Iacoboni hypothesizes that drinking is a much more fundamental intention for us as humans than is cleaning up; therefore,

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evolution has built into our system a stronger response. These experiments, as well others, give us solid empirical evidence that suggests that our brains are capable of mirroring the deepest aspects of the minds of others-intention (at the fine-grained level of a single brain cell). This process is effortless, or what's called "bottom-up" (just knowing), rather than "top down" (having to consciously figure it out). In a "bottom up" process there is no need to draw complex inferences or even think about it. Instead, we use mirror neurons to know.

Further studies of mirror neurons have indicated that when a mirror neuron is activated, it also will activate motor neurons that in turn activate muscular activity in the viewer. In other words, when our mirror neuron system perceives a physical (e.g., grasping) or emotional (e.g., happiness) intention of another, it will activate the same muscles in the observer that are being activated in the subject sending the message. This is important to know, because the latest findings in the neurosciences suggest that the way we know we are having an emotion is by first identifying a change in our body. The prefrontal cortex specifically identifies bodily changes and labels them as happy, sad, angry, etc., a "bottom-up" process. When our mirror neurons activate motor neurons, which in turn activate muscular activity, our prefrontal cortex may notice that change, and label it in a particular way. This, of course, happens at lightning-fast speeds. But, if you slow down the process, it may look something like this: 1) the observer perceives the emotional state of the other (sensory input); 2) the observer's mirror neuron system simulates (activates similar motor and emotion neural processes) that mental state in the observer; 3) the observer's body changes in response to muscular activity; 4) the observer may notice a change in their physical state; 5) if they are familiar with their body manifestations of emotions, the observer may label that change as such—anger, sadness, fear, etc., and 6) may ask

themselves, why am I feeling this way? The answer to that question may depend on the particular circumstances. They could be having an emotional reaction to a particular stimulus (just found out bad or good news), or it could be their mirror neuron system picking up an emotional intention from another, or it could be both.

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#### Old Information

Some colleagues have responded to this by saying, "This is nothing new. It's what object relationship refers to as projective identification." True, but I would add, "It's the neuroscience of projective identification." Long before Melanie Klein coined this term, the German philosopher, Theodor Lipps, identified this process in humans. Lipps was actually a great admirer of Freud, and was particularly interested in

the unconscious process that Freud wrote about. Lipps suggested that the perception of an emotional gesture in another directly activates the same emotion in the perceiver, without any intervening labeling, associative, or cognitive perspective-taking processes. This is exactly how the mirror neuron system is hypothesized to function! A hundred years later, the exact biological basis of this phenomenon is being articulated.

#### Mirror Neurons and Empathy

The word empathy comes from the German word, *Einfühlung*, which means literally, "feeling into." It's a wonderful way of describing the empathic experience; the idea that we are feeling into another.

Empathy may be broken down into several forms, based on a variety of variables (Preston & De Waal, 2002). Emotional empathy is the type we most often think of as empathy. It is characterized by state matching (both perceiver and subject feel the same); it increases with familiarity, similarity, and salience; and there exists a self-other distinction. Emotional empathy is a "bottom-up" process. It's not something you have to remind yourself to feel, or put effort into experiencing; you just feel it. Cognitive empathy is more of a "top down" process. There is no state matching, but you are consciously aware that the other is experiencing something. Like emotional empathy, there is a self-other distinction. But, most importantly, cognitive empathy involves perspective-taking, stepping back and recognizing that others are experiencing an emotion.

Contagion is another form of empathy. It is often associated with mob-mentality. Like emotional empathy, there is state matching (both are feeling the same); however, self-other distinction is less likely. There lacks awareness that each person may be feeding the other's emotional reactions. This can also be called vicarious emotional transfer, where emotion is transferred between two

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individuals or within a group, without the perspective of what might be occurring.

The last form of empathy is sympathy. Sympathy involves feeling sorry for the other's situation. There is not necessarily emotional state matching, but certainly an awareness of another person's difficulty. Like emotional and cognitive empathy, there is a self-other distinction. Early studies suggest that the mirror neuron system is more involved in the process of emotional empathy (feeling other's emotions) and contagion, rather than cognitive empathy (imagining another's perspective) and sympathy. This would make sense, since there is state matching in the former, but not the later. Research also suggests that the more empathic a person is (as measured behaviorally), the stronger the mirror neuron response to others. In other words, there seems to be a direct relationship between empathy and the mirror neuron system.

**Is this you or me that I am feeling?  
Mirror neurons in clinical practice**

So, how does this all play out in relationships, particularly between the therapist and the patient? According to this theory, the therapist's mirror neurons will be continuing reading non-verbal physical and emotional intentions of the patient. Whether the patient is moving away or toward the therapist, those intentions will be picked up by the therapist's mirror neuron system. Some intentions will be obvious behaviorally (such as chronic lateness or missed appointments), but others will be expressed in much more subtle ways. Here is where the mirror neuron system can greatly facilitate the therapist in recognizing those processes.

I recall a time, not too long ago, when I was sitting with a patient who was talking about her day at work (it was an evening time slot, which I have since stopped working — I have learned that I am too vulnerable to mis-attunements with patients after 6 p.m.). I was finding my

thoughts drifting to my grocery store list and the shopping I was to do on my way home from work. After deciding that I wasn't ready to buy an iPad, I realized how much my mind was drifting away from the patient. In my early years of practice, I might have just refocused my attention, and maybe mildly criticized myself for not paying attention. Instead, I asked myself a question, why am I drifting away? The answer to that question was sitting right in front of me. My patient was drifting from the issues she needed to talk about (her extreme loneliness and difficulty meeting others). My mirror neuron system simulating her state of disconnect in me. I was feeling what she was feeling, or not feeling as it were.

At that very moment of awareness, my patient gave out a loud yawn. It was so contagious, I couldn't hold back (another mirror neuron phenomenon). She smiled and I felt a bit embarrassed by my obvious reaction. She apologized for boring me. I responded that she wasn't boring me, but that I thought she had been experiencing something, and I was feeling it too. This led us to talk about how she was feeling guarded coming into the session, which led her to talk about things that weren't really important to her. From that minute on, there was nothing boring about the session. We were back in sync, but this time, in a constructive way.

From a conceptual point of view, let's look at what happened in that brief interaction. My patient walked guarded (unconscious at the time) into the session. Subsequently, she focused on minutia from the day that wasn't really important to her. That disconnect in herself activated my mirror neuron system, which simulated that state in me. Unconscious of that process, my mind started to drift into unimportant thoughts. When I noticed myself drifting, I tuned into my body to find out what I was experiencing emotionally (via body mapping neurons in prefrontal cortex). I

noticed a deadening, or emptiness in my body. My prefrontal cortex labeled the sensation with a feeling, “disconnected.”

Once I identified the change in my body (emotion) and represented it with language (disconnected) (Damasio, 2005), I asked

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myself, “Why am I a feeling this way?” In other words, what is causing this reaction in me? I wondered if I was having an emotion contagion experience via mirror neurons, i.e., if I was picking up my patient’s desire to disconnect, and I was doing the same. Hypothesizing that the more I do it, the more she’ll do it. What’s implicit in this hypothesis is that a mirror neuron phenomenon was occurring, and I now had some information about my client’s mind, which I could bring to the process of formulating an intervention in order to bring a new awareness into therapy.


As luck would have it, my patient yawned, which was the frosting on the cake. Yawns are notorious for activating mirror neurons. We could have moved on, but instead, we seized the moment to shift away from drifting, and move toward a more meaningful exploration of her emotions and current life situation. Had there not been the yawn, I might have had to intervene if there wasn’t another opportunity presented by the client (such as her noticing and mentioning that I looked distracted or bored). With some patients, it might be helpful to model self-

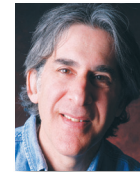
awareness by saying something like, “I am noticing that I am feeling disconnected from myself right now, and wondering why that is.” I might also ask the patient directly to tune into their body and describe what they are experiencing at the moment. I might also listen to the content and seize

the opportunity to move the narrative into a more related, self-aware direction. Obviously, the possibilities are endless, depending on the circumstances, diagnosis, and the right fit in terms of reactions by the therapist.

Daniel Stern (2004) refers to these moments as “now moments,” interactions between the therapist and patient that are full of potential for intimacy and transformation. When the therapist responds in a genuine way, that fits for the patient, and carries the therapist’s personal signature (metaphorically speaking), it can become a “moment of meeting.” Patients often remember these moments, not the intellectual explanations of them, as turning points, or transformative in their change process.

If what the neuroscience tells us is true, then we can’t have an emotion without cognition, and vice versa. Therefore, for the entire therapeutic hour, emotion is ebbing and flowing, constantly changing, and consequently activating both persons’ mirror neuron systems. The difference between the therapeutic relationship and

other personal relationships is the implicit and explicit agreement that the therapist is there to help the patient grow and change. Hence, it is necessary for the therapist to use consciousness to heighten the patient’s awareness to patterns that undermine their sense of well-being in the world. Mirror neurons are one way in which we can facilitate that process. 



*Daniel Jay Sonkin, Ph.D. is a Licensed Marriage and Family Therapist in an independent practice in Sausalito, California.*

*For the past 30 years he has worked with individuals and couples facing a variety of problems, including anxiety and depression, the effects of trauma, relationship conflicts, and family abuse.*

*Dr. Sonkin will be speaking at the CAMFT Annual Conference: (S1) **Emotion Contagion and Empathy in Close Relationships: Mirror Neurons in Action,** and (S7) **Anger, Conflict & Intimacy: Attachment and Neurobiological Perspectives,** both on Saturday, May 14, 2011.*

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