



Neuroscience and the Link Between Inspirational Leadership and Resonant Relationships

by: [Richard Boyatzis](#) Issues: [January / February 2012](#). Categories: [Featured](#) and [Leadership](#).



“Relationships,” says a dejected Alvy Singer, Woody Allen’s character in the movie, *Annie Hall*. “Who needs them.” The fact is that every leader needs to have smooth, productive relationships with those around him or her. But what makes for a rewarding relationship – and its opposite – has long been unclear or unknown. This author, who has conducted and written extensively about the impact of brain activity on such relationships, describes some important, new observations that hold the promise of helping leaders to form more effective relationships.

Every leader knows how important relationships are to effective leadership. After all, you cannot have a leader without followers. Most will even admit that being inspiring, compassionate, mindful (acting with integrity) and even playful helps create and sustain more effective leadership relationships. But amid the hectic demands of day-to-day work, a crisis here and there, and the never-unyielding pressure to perform and innovate, leaders will often act in ways that even they know are uninspiring or not compassionate. The rationale or excuse given at the time is, “They know I care,” or “I don’t have time,” or “They are executives I don’t need to coddle them.” BAM! The effective relationship of the leader and those around him or her, or the equity already invested in sustaining an effective relationship, has just been subverted, converted into a set of interactions and pattern of behavior that result in diminishing returns and eventually, dissonant relationships.

Today, research is helping us understand how and why so many smart, savvy and sensitive leaders act in ways that diminish their effectiveness. As this article will describe, discoveries in neuroscience are producing some confirming insights and surprising observations.

Resonant leaders attract, dissonant ones repel

In a recent study soon to be published in *Leadership Quarterly*, colleagues at the Cleveland Clinic — Drs. Michael Phillips, Mark Lowe, Katherine Koenig, Blessy Matthews, Jamie Stoller, and Angela Passarelli — and myself assessed the impact that emotionally salient situations with both resonant and dissonant leaders in the past had on executives working under them (Boyatzis, Passarelli, Koenig, Lowe, Mathew, Stoller & Phillips, in press). The executives were on average, 49 years old and critical incident interviews with them identified such key moments in their past. A few weeks later, the executives underwent an fMRI (functional Magnetic Resonance Imaging). While in the scanner, they pushed buttons taped to their legs (without moving their hands) in response to statements indicating how they felt about these important episodes at work.

Although it was just one study —and one that needs to be replicated to be valid or widely applicable — we found that executives' recall of moments with resonant leaders activated neural circuits in their brain. These circuits have been shown to be involved in the mirror-neuron network that is activated when a person mimics another's actions and senses how another person feels. This means that when an executive feels and appears uneasy about something that happened with their husband or wife, others at work will experience that unease, even if they did not witness the situation or hear about it directly. This brain-to-brain transmission occurs primarily below consciousness.

We also witnessed the activation of parts of the Default Mode Network. It has been called the social network in recent research, because it is active when someone is engaged with others and focusing on them. (Jack, Dawson, Ciccia, Cesaro, Barry, Snyder & Begany, 2009). Recalling previous emotionally important situations with resonant leaders activated attention in ways that allow a person to be open to new ideas and new emotions, and to be able to scan the business and social environment, something which every successful executive must be able to do.

Reactions when recalling such situations with dissonant leaders were almost completely different. In this case, the social network was significantly deactivated or suppressed. At the same time, areas of the brain noted for focused attention were activated. While this reaction allows us to solve problems and persist in a task, it also closes our minds to ideas or emotions that have not been a part of a defined situation or task, effectively preventing an executive from being open to new ideas and scanning the business and social environment.

It was as if recalling key moments with resonant leaders put a person back into a positive state, one in which they could build relationships, think creatively, remain open, and approach people. Meanwhile, moments with dissonant leaders, though they aroused a few of the same areas, had mostly the opposite effect and drove people to avoid such leaders.

This observation is important because it would be difficult for a leader to inspire and motivate those around him or her without engaging them. When leaders slip into behaviour that repeatedly threatens people or demeans others, or focuses on weaknesses and what needs to be fixed, the brains of people around them are activated in a way that makes people want to move away from the leader and the situation.

In contrast, moments with resonant leaders stimulate a degree of cognitive and emotional openness, and pull people to them. While we need all of the networks described, repeated arousal of the dissonant, more negative networks will result in avoidance, not engagement (the anterior Cingulate Cortex is one part of the brain associated with negative emotions). That avoidance might take the form of “effort minimizing” (i.e., people doing as little as needed to get by) or “putting up” with the leader. Building on quite a lot of research from Deci and Ryan, Bass and Avolio, Yukl and Riggio, Conger and Kotter, and many others studying effective leadership, we found that the inspiration and motivation aroused by resonant leaders are more likely to help people want to use their talent, seek innovative solutions, and adapt to new technologies and the changing environment. Again, this was only one study, but it helped to explain the neurological processes that are likely to underlay much of the behavior and results observed in many other research studies over the last 30 years.

Colleagues using EEG technology to examine neural activation have found that charismatic leaders use visioning in their interactions with others (Waldman, Balthazard, Peterson, Galvin, & Thatcher, in press; colleagues are

David Waldman, Pierre Balthazard and Suzanne Peterson at Arizona State University, as well as Benjamin Galvin at the University of Washington and Robert Thatcher at the Applied Neuroscience Research Institute). By “visioning” we mean creating an exciting view of the future for a business, product, service, or program. Charismatic leaders also have neural circuits that are more coherent — (i.e., different parts of their brain are connected to each other) than other types of leaders. In the research, Waldman and others show that this “coherence” occurs when the right and left parts of the brain are in greater coordination (i.e., activated at the same time) than is the case with the same regions of the brain for other executives. They contend that increased “coherence” results in a more holistic and authentic charismatic leader— someone who walks the talk.

Engaging and motivating others

Another study, of two different approaches to executive coaching, yields more insight into how leaders might affect others. A group of researchers at Case Western Reserve University sought to examine the effects of, a) a thirty-minute coaching session focusing on what is called the Positive Emotional Attractor (PEA), and b) a thirty-minute session focusing on the Negative Emotional Attractor (NEA) (Boyatzis, Jack, Cesaro, Passarelli & Khawaja, 2010). We were able to show that asking sophomores to talk about their dreamed-about future ten years hence (i.e., the PEA coaching) activated parts of the visual cortex that is involved in imagining things, and components of the DMN and social networks mentioned earlier. Meanwhile, the NEA session, which asked students about how they were doing on their homework, readings and assignments, revealed little that was noteworthy, except that such a line of questioning activated areas known to indicate self-consciousness and guilt. Again, the more positive approach to coaching stimulated those parts of the brain involved in being open to new ideas and other people.

This raises serious questions about whether many performance-management practices and performance reviews are as developmental or productive as people think. Our results suggest that engaging in a performance review, which is an important part of the managerial and leadership responsibility, is quite different than engaging someone in a developmental discussion. The more evaluating – or developmental — discussion actually leads a person to be more neurologically closed to new ideas or to work on learning or changing.

Another implication is that when engaged in a developmental discussion, a focus on what needs to be fixed, and overcoming weaknesses and “gaps” has the exact opposite effect on the subject of the interview. The discussion only cements the subject’s defensiveness and potential to discount any benefit of the recommendations or advice. While it may invoke compliance-oriented behavior, any positive effect of such activities or desire for improvement will probably be short lived.

Although he did not conduct a neurological study, Masud Khawaja, now at the University of Manitoba, found that a patient’s experience of more PEA than NEA in their relationship with their physician had the significant impact of determining treatment adherence for Type II Diabetics. Treatment adherence is typically about 50 percent for Type II Diabetics, and only half of the diagnosed patients take their medicine and follow the dietary restrictions explained by their physicians. But those who experienced more PEA than NEA in their relationship with their physician followed the desired treatment plan better than others.

When your doctor tells you to exercise more and eat less, do you do so? Many of us do not, which is why obesity-related complications are one of the largest published health hazards in North America today — and put the most financial strain on the health care system. When our resolve to maintain a healthy life appears to be weakening, the PEA approach to coaching and strengthening the motivation to change is much stronger than the more typical NEA approach of telling people what they “should” do. On the basis of 29 longitudinal studies at Case Western Reserve University, we now know that the emotional, social and cognitive intelligence competencies of managers and executives in development improve dramatically when these programs use the PEA approach. This is important because, as other studies have shown, such competencies predict leadership, management and professional effectiveness. (Boyatzis, Stubbs & Taylor, 2002 and later studies). So, if the PEA approach to coaching works better in management and leadership development, health care, and higher education, the fMRI study mentioned earlier suggests why it works better than the alternative. It gets our attention.

Two kinds of empathy

Additional insight into the types of processes described above comes from another set of neuroscience studies conducted mostly by Professor Jean Decety and his colleagues at the University of Chicago, and Professor Don Batson at the University of Kansas. They have shown that we can empathize in two ways (Decety & Batson, 2007; Decety & Michalska, 2010). One is more self-reflective, in that we empathize with another person in terms of how we might feel in their situation or how it makes us feel. The other form of empathy is being open to how the other person feels, with substantially less self-referral in the process. The latter is a truer form of being open to another person and caring about them. It is also a purer form of empathy, one that has many similarities to circuits that are like the DMN and social network mentioned earlier.

To build more effective leadership relationships and to help others feel motivated and inspired to change, learn and develop, leaders need to have empathy. Beyond feeling that they are understood, other people need to feel that the leader “cares” about them. A basic component of this process is likely to be a leader’s ability to suspend his or her own issues and agenda and understand the other person’s issues, thoughts and feelings. That is, engage in a truer form of empathy.

Common sense, but not common practice

Even though most executives and leaders know that more effective leadership relies on better relationships and know how to approach a person in order to motivate and inspire him or her, we do not take the time to walk the talk, at least not consistently. Other issues and challenges distract our attention, or in neurological terms, refocus our attention not on the other people around us but on the “problem.” As we slip into a more defensive or focused mode of thought, we close ourselves off to others. In doing so, we limit our ability to leverage the human capital in our organizations to innovate, create, engage and adapt to the world around us.

The discoveries discussed above are exciting, but they are only a beginning. The scientific glow of looking deep into our brains and seeing neural scans can feel like the awe and magic of a Hogwarts indoctrination ceremony. It is, after all, still science. We need to be excited but cautious, engaged but skeptical of neuroscience’s applications and be wary of claims of new elixirs. In the stream of research described in this article, I have tried to show how findings from many fields — neuroscience, medicine, management, psychology and education — are converging to support some existing theories, and to shine a light on the path ahead to developing more effective leaders and to more research and experimental applications.

References

- Boyatzis, R. E., Jack, A., Cesaro, R., Passarelli, A. and Khawaja, M. (2010), *Coaching with Compassion: An fMRI Study of Coaching to the Positive or Negative Emotional Attractor*, Presented at the Annual Meeting of the Academy of Management, Montreal.
- Boyatzis, R.E., Passarelli, A.M., Koenig, K., Lowe, M., Mathew, B., Stoller, J.K. and Phillips, M. (in press), “Examination of the neural substrates activated in memories of experiences with resonant and dissonant leaders,” *The Leadership Quarterly*.
- Boyatzis, R. E., Stubbs, E. C., & Taylor, S. N. (2002). Learning cognitive and emotional intelligence competencies through graduate management education. *Academy of Management Journal on Learning and Education*, 1(2), 150-162.
- Decety, J., & Batson, C. D. (2007). Social neuroscience approaches to interpersonal sensitivity. *Social Neuroscience*, 2, 151-157.
- Decety, J. & Michalska, K.J. (2010). Neurodevelopmental changes in the circuits underlying empathy and sympathy from childhood to adulthood. *Developmental Science*, 13(6), 886-899.
- Jack, A., Dawson, A., Ciccio, A. Cesaro, R., Barry, K., Snyder, A., & Begany, K. (2009). *Social and mechanical reasoning define two opposing domains of human higher cognition*. Presented at the Society for Neuroscience Annual Conference in Chicago, 2009. The manuscript is currently under in-depth review in *Science*.

- Khawaja, M. (2010). The mediating role of positive and negative emotional attractors between psychosocial correlates of doctor-patient relationship and treatment of Type II diabetes.
- Doctoral Dissertation, Case Western Reserve University; Cleveland, Ohio.
- Waldman, D. A., Balthazard, P. A., Peterson, S. J., Galvin, B.M. & Thatcher, R.W. (in press). Linking neuroscience, socialized vision, and charismatic leadership. *Strategic Management Journal*.

About the Author [Richard Boyatzis](#)

Richard Boyatzis is Professor in the Departments of Organizational Behavior, Psychology, and Cognitive Science at Case Western Reserve University. He is the author of 6 books, including *Primal...* [Read Richard Boyatzis's full bio](#)



The chemistry behind your conversational intelligence

January 4, 2017

Understanding the chemical reactions to your conversations leads to conversational intelligence and more effective communications.

For many decades, I've been intrigued by the chemical impacts — both positive and negative — that conversations have on us. I married a biochemist and for decades we've shared lots of conversations about our work. When we first wrote about the "Neurochemistry of Positive Conversations" for *Harvard Business Review* and *Psychology Today*, we received confirmation that we were on to something important.

Positive comments and positive conversations provide a chemical "high," and yet negative ones stick with us much longer. A critique from a boss, a disagreement with a colleague, or a fight with a friend can make you forget praise. If you are called *lazy*, *careless* or *unprofessional*, you are likely to remember it and internalize it, making it not very easy to forget, and discounting all the times people say you're talented.

The Role of Chemistry in Communications

Chemistry plays a big role in this reaction. When we face criticism, rejection or fear, when we feel marginalized or minimized, our bodies produce higher levels of cortisol, a hormone that shuts down the thinking center of our brains and activates conflict aversion and protection behaviors. We become more reactive and sensitive. We often perceive greater negativity than exists. These effects can last for days, imprinting the interaction on our memories and magnifying its impact on our future behavior. Cortisol functions like a sustained release tablet—the more we ruminate about fear, the longer the impact.

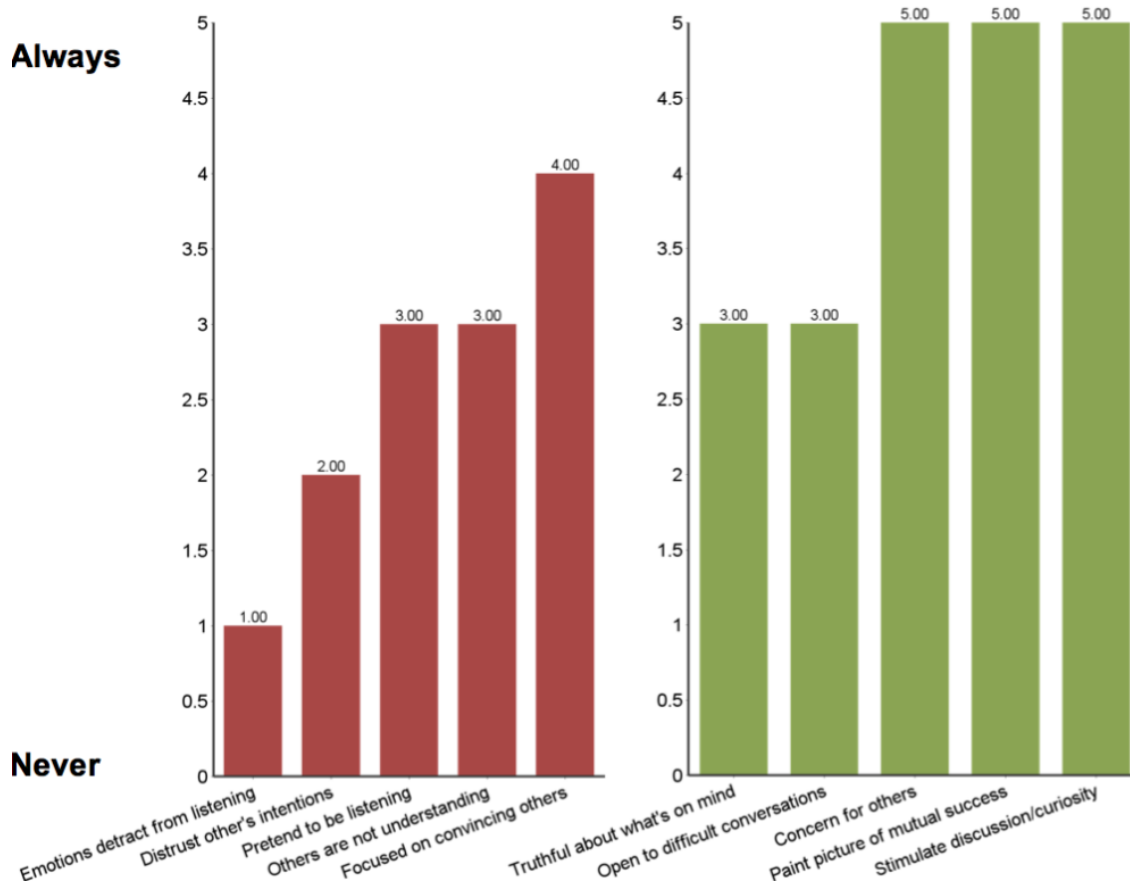
Positive comments and positive conversations also produce a chemical reaction. They spur the production of oxytocin—a feel-good hormone that elevates our ability to collaborate, communicate, and trust others by activating networks in our prefrontal cortex. But, since oxytocin metabolizes faster than cortisol, its effects are less dramatic and sustainable.

Conversational Intelligence Quotient

This 'chemistry of conversations' is why we need to be more mindful of our interactions. Behaviors that increase cortisol levels reduce our conversational intelligence or C-IQ—our ability to connect and think innovatively, empathetically, creatively and strategically with others. Remember: behaviors that spark oxytocin boost C-IQ.

When we partnered with [Qualtrics](#), the online survey software company, to analyze the frequency of negative (cortisol-producing) versus positive (oxytocin-producing) interactions, we found that managers appear to be using positive, oxytocin and C-IQ elevating behaviors more often than negative behaviors. Survey respondents said that they exhibited all five positive behaviors, such as ‘showing concern for others’ more frequently than all five negative ones, such as ‘pretending to be listening.’ However, about 85 percent of respondents also admitted to sometimes acting in ways that could derail not only specific interactions but also future relationships. And, when leaders exhibit both behaviors, they create dissonance or uncertainty in followers’ brains, spurring cortisol production and reducing C-IQ. If you tend to *tell and sell* your ideas and challenge people to produce results, your negative (cortisol-producing) reactions could easily outweigh positive (oxytocin-producing) reactions. Instead of asking questions to stimulate discussion, showing concern for others and painting a compelling picture of shared success, you tend to enter discussions with a fixed opinion, determined to convince others you are right. You are not open to others’ influence—and you fail to listen to connect.

The Chemistry Behind the Behaviors



This graph is from our Creating WE Institute Research into the Chemistry of Conversations. Red bars = cortisol producing, Green bars = oxytocin producing. The highest red bar is “focusing on convincing others.” Not only is it done more often, its impact is 26 times that of the oxytocin producing behaviors—suggesting that this one act alone can cause a relationship or sales engagement to go south.

Chemistry Lessons

When managers and leaders learn about the chemical impacts of their behavior, they tend to make changes—for example, they learn to deliver difficult feedback in a way that is perceived as inclusive and supportive, thereby limiting cortisol production and stimulating oxytocin instead.

As we become mindful of the behaviors that open us up and those that close us down, and their influence in our relationships, we can better harness the chemistry of conversations, leading to conversational intelligence. Mindfulness about our conversational impact enables us to get on the same page with others, strengthens our relationships – and expands our potential for higher levels of engagement and innovation. Without healthy conversations, we shrivel up and die. Conversations are the source of energy that moves us out of our doldrums when we are sad, the power that launches transformational products, and the golden threads that enable us to trust others. But these threads can be fragile and also unravel, causing us to run from others in fear of loss and pain. Conversations are the way we connect, engage, navigate, and transform the world with others.

“The quality of our culture depends on the quality of our relationships, which depends on the quality of our conversations. Everything happens through conversations.”

The most powerful ‘leadershift’ we can make is to realize that each person has the power to create the conversational space that creates *deeper understanding* and *engagement*, not *fear* and *avoidance*.

Three Chemistry Takeaways

1. Be mindful of your conversations and the emotional content you bring—either pain, which closes the brain, or pleasure, which opens the brain. Are you sending friend or foe messages? Are you sending the message “*You can trust me to have your best interest at heart*” or “*I want to persuade you to think about things my way?*” When you’re aware of these meta-messages, you create a safe culture that allows all parties to interact collaboratively, sharing perspectives, feelings, and aspirations and elevating *insights* and *wisdom*.

2. Conversations trigger emotional reactions. Conversations carry meaning—and meaning is embedded in the listener even more than in the speaker. Words cause us either to bond and trust more fully, thinking of others as friends and colleagues, or to break rapport and think of others as enemies. Your mind will open as you see the connection between language and health, and you’ll learn how to create healthy organizations through your conversational rituals.

3. Note that the words we use in our conversations are rarely neutral. Words have *histories* informed by years of use. Each time a new experience overlays another meaning on a word, the information all gets collected in our brains to be activated *during conversations*. Knowing how you project meaning into your conversations will enable you to connect with others and, in so doing, let go of much of the self-talk that diverts you from working together effectively.



About the author: Judith E. Glaser

Judith E. Glaser is a change agent and executive coach, and refers to herself as an organizational anthropologist. She is CEO of Benchmark Communications, Inc. and Chairman of The Creating WE Institute, an Organizational Anthropologist, and consults to Fortune 500 Companies. Judith is the author of 4 best selling business books, including her newest Conversational Intelligence: How Great Leaders Build Trust and Get Extraordinary Results (Bibliomotion, 2013)
www.conversationalingelligence.com; www.creatingwe.com