

The Neurobiology of Emotional Intelligence

Using Our Brain to Stay Cool under Pressure

Holly Elissa Bruno

“You know those tedious classroom portfolios the director wants us to do? I’m not doing mine. Let’s all just fake it,” urges toddler teacher, Roxie, just as director Victoria steps into the staff meeting. Roxie, sensing her director’s outrage, plasters on a grin and asks, “Hey, Victoria, how was your weekend?” All eyes nervously flick to the beet-faced director. What will Victoria say or do in the face of Roxie’s public disrespect?

We have many terms for expressing anger: *Having our buttons pushed. Blowing up. Going ballistic. Losing it.* Regardless of how we describe it, few of us want to be possessed by that pushy force from within.

Losing self-control is costly. In the aftermath, we wilt with shame or embarrassment. Colleagues, no longer sure they can trust us, turn away. Children, for whom our every mood and move-

ment models grown-up behavior, pay rapt attention. We betray our personal and professional core values, especially, “Respect[ing] the dignity, worth, and uniqueness of each individual (child, family member, and colleague)” (NAEYC 2005). Losing it may lead to disciplinary action or even termination.

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What happens on a cellular level to spark that internal firestorm? Are we at the mercy of rapid-fire biological forces, or can we consciously call on and/or unconsciously rely on components of our neurophysiology to restore our perspective and set things right? What practical tips from experts and colleagues can help us maintain our professionalism?

The neuroscience of decision making under pressure

In truth, we may all be unwittingly susceptible to rash behavior, not because we are inherently ill-tempered people, but because we are biologically wired to respond unthinkingly to perceived threats (Cozolino 2006). Thanks to the evolving field of social neuroscience—the study of how relationships affect every cell in our body and how our brain/nervous system affects our relationships—we now know more about what causes blowups and what we can do to prevent and ease out of them.

Neuroscientific terms describing our brain might seem dry and irrelevant to early childhood educators. However, staying informed about our internal processes enables us to make wise choices and frees us from falling into repetitive unproductive patterns.

Biological mechanisms activated by threat

We all know certain people who get under our skin. Director Victoria expects to walk into just another weekly staff meeting until she overhears Roxie denigrate the NAEYC Accreditation process to which Victoria is passionately committed. Before Victoria can stop to think about what to do, her face turns red and her jaw clenches. Let’s look at the physiological effect Roxie’s “threat” has on Victoria.

Amygdala: The reptile within

Imagine peering inside your own brain. In the center you would see four almond-shaped glands called the amygdala (or amygdalae). The amygdala keeps us safe from harm and is the switch that triggers heart-pounding enzymes. The ensuing adrenalin or cortisol rush, like a tidal wave, wipes out our thinking. This is our fight-or-flight response.

The amygdala is the hot button when your buttons get pushed. It energizes us to protect and defend others and ourselves. If we see a 2-year-old about to chomp down on another

child's arm, we rush to separate the children. Researchers from the University of Southern California labeled this the tend-and-befriend response, in which individuals quickly circle together to help one another in a crisis (Taylor et al. 2000).

Whatever you call the amygdala's effect, the result is the same: instant, passionate action. As Louis Cozolino (2006) notes, "The amygdala works so fast that it can pair stimuli and a fear response far ahead of conscious awareness."

Mirror neurons: How we catch each other's feelings

We have nerve cells called mirror neurons that allow us, without thinking, to mimic the feelings and movements of people around us. To envision how mirror neurons work, picture a glittering school of fish darting and rising as one in perfectly synchronized motion. A biological force compels that perfection. Similarly, if you have felt the rippling exhilaration of a crowd at a sports event, you have experienced mirror neurons in action.

For better or worse, mirror neurons imitate the feelings and/or bodily movements of those around us. If you are upbeat at a staff meeting when everyone else is dour and negative, your optimism will likely be pulled down as your neurons mirror the soggy mood. Similarly, if everyone is looking up at the sky, you will find yourself looking up.

Mirror neurons have positive and negative affects in group situations. They can contribute to a feeling of team spirit and joie de vivre and allow us to

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deeply empathize with others. But mirror neurons can also allow corrosive negativity by a few to shred team morale.

Amygdala hijack is Daniel Goleman's term for times when our buttons get pushed and we rush to action (1995). If Victoria's amygdala is being hijacked, her employees' mirror neurons are likely to pick up the intense, often frightening, feeling.

What does this have to do with leadership? "In the interpersonal flow of emotion, power matters," Goleman explains (2006, 24).

Employees are wired to pay more attention

to a leader's messages than to a peer's, unless that peer is the de facto leader.

Just as leaders can positively influence staff's attitudes and actions, bullies can have a negative impact. A rampant gossip, for example, will have considerable power to nonverbally broadcast her threat to others. People begin to think, "If she gossips to me, she will gossip about me." The most powerful person in a group, with or without the leadership title, will have a greater impact on team members' mirror neurons.

Mirror neurons are heavily responsible for a leader's communication to his or her staff. Cozolino reminds us that "we greatly underestimate the degree of information we are communicating to those around us . . . and how much our unconscious processes, while invisible to us, are often apparent to others" (2006, 112).

The effects of mirror neurons and the amygdala can be a blessing or bane to leaders. Staff members feel deeply the encouraging and visionary messages of their leader. This gives leaders power to promote positive change and soothe raw feelings. However, if a leader loses it (experiences an amygdala hijack), her unleashed feelings may swiftly knock down staff morale.

How can we avoid losing control of our emotions?



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Brain components that help restore sanity

When my son, Nick, at 2 years old, couldn't persuade another child to let him play with a coveted toy, he sometimes resorted to biting. Nick's teachers and I would intervene, saying, "Use your words, Nick." As Nick's brain matured, problem-solving capacities replaced impulsive reactions. Like Nick, we can count on diverse parts of our brain to restore us to sanity, even under threat.

Orbitofrontal cortex: The brain's executive function

A useful development occurred in the evolution of the human brain. Slowly, our prefrontal cortex grew, and with it, our capacity to back off and regain perspective in the midst of threats. Although the amygdala can still override our executive function (based in the orbitofrontal cortex [OFC]), we can take conscious steps to reactivate the calmer part of our brain.

Emotional intelligence is the ability to read people as well as we read books. Psychologists Salovey and Mayer, in defining the term *emotional intelligence*, explain, "Emotional intelligence involves the ability to perceive accurately, appraise and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (2004, 35). In short, emotional intelligence means "managing feelings so that they are expressed appropriately and effectively, enabling people to work together smoothly toward their common goals" (Goleman 1998, 7).

Emotional intelligence helps us acknowledge and learn from our feelings. We need emotional intelligence to understand others and ourselves accurately. Rather than being ruled by unconscious biological forces, such as amygdala hijacks or the mimicry of mirror neurons, we can hone our emotional intelligence to

1. Acknowledge and listen to our feelings by asking, "What's going on in my body right now?" "What feelings am I picking up from others?"
2. Accept that feelings offer useful information: "What are these sensations and feelings telling me?"
3. Step back to regain perspective and identify options: "If my heart weren't pounding, what might I do?" (Bruno 2008).

A person's IQ—the ability to rationally combine and separate concepts, judge and reason, and engage in abstract thought—is often associated with the brain's executive function. For years, IQ was considered intellect untainted by emotion. Purely logical analysis was thought to be superior to the muddled thinking caused by feelings.

Emotional intelligence is the ability to read people as well as we read books.



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Logical thinking is still critical; however, the executive function by itself is rarely enough. We need emotional intelligence to help us call on that executive function. The data from our emotions can significantly serve our rational analysis. Daniel Goleman (1995) suggests that 80 percent of major life decisions require emotional intelligence, not IQ.

Emotional intelligence: Feelings are a free and endless source of data

Thanks to mirror neurons, we cannot hide our emotions from others, who can sense when we are discouraged, nervous, or happy. Our heartbeat communicates messages to people within five feet via electromagnetic pulses (McCraty, Atkinson, & Bradley 2004). A quickened heartbeat may communicate, "Welcome!" or "Back off!" Although we cannot stop our emotions from communicating, we can pay attention to these indicators of emotions:

Fear: Shallow breathing, throat tightness, racing heart, pressure to run away or fight

Anger: Heat in the face, adrenalin surge, clenched fists, shoulders braced for a fight

Guilt: Looking down or away, feeling smaller inside, crumpled body

Shame: Intense pressure to wilt into nothing or "beat ourselves up," shrinking heart

Joy: Light-hearted, head up, walking tall, bubbling energy, open to embrace

Sadness: Lump in throat, misting eyes, tightness in chest, aching heart

In the introductory vignette, Victoria's red face communicates her anger to the staff. Her sweating palms tell her she senses fear in the environment. In that moment, armed with this valuable emotional information, Victoria can take a deep breath, pull her shoulders back, and call on her executive function for help.

To envision executive function at work, picture a practitioner of *tai chi*, a martial art of self-defense. When an attacker strikes out at the tai chi expert, that expert steps to the side. This causes the attacker to plunge off-balance, deflecting the violent energy. Our emotional intelligence, like tai chi practice, allows us to step aside emotionally to stay out of harm's way.

Executive function allows us to stay cool. If you can recall a time when something that should have pushed your buttons didn't, your orbitofrontal cortex was probably activated.

Insula, anterior cingulate cortex, superior temporal sulcus: Trusting our gut

Sometimes, when our amygdala punches our OFC out of commission, we need to rely on other parts of our brain. Fortunately, there are other brain capacities that allow us to act appropriately, especially in the face of danger. Malcolm Gladwell calls one of these intuitive processes "thin-slicing" (2005, 23). Thin-slicing occurs when we judge

situations or individuals based on the thinnest slice of experience. Gladwell explains, "We thin-slice whenever we meet a new person or have to make sense of something quickly or encounter a novel situation. We thin-slice because we have the ability to, and [have] come to rely upon that ability" (2005, 44). Thin-slicing is not a rare ability. It is "a central part of what it means to be human" (Gladwell 2005, 43).

Three parts of our brain help us make instantaneous, intuitive decisions:

insula (is instrumental in emotional processing);

anterior cingulate cortex (allows us to make decisions based on our experience with and assessment of prior outcomes); and,

superior temporal sulcus (helps us anticipate other people's thoughts and emotions by reading their, and our own, sensory stimuli).

We have all heard of acts of heroism, like the man who leapt like a gazelle to save an ailing person who had fallen onto New York City subway tracks. Or US Airways pilot Sully, who relied on thin-slicing to guide his aircraft to a safe landing on the Hudson River. Most of these heroes say simply, "I was just doing what anyone would have done."

Trusting our intuition, our gut decisions in dangerous situations, is reassuring. Gut decisions are far more than

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irrational acts: they use all our learning from prior difficult experiences. Each time we redirect a toddler from biting to another activity, we rely on our instinct to protect children from harm.

Functional MRI (fMRI) studies do not show the OFC “lighting up” when we make gut decisions. Instead, parts of the brain linked to emotion and intuition (the insula, sulcus, and cingulate) are activated. In layperson’s terms, in making a gut decision, we heed the wise voice within. Our executive function by itself cannot produce our best problem solving (Gilkey, Caceda, & Kilts 2010). Paying attention to our gut responses and intuition leads to holistic, effective decision making.

Gladwell describes this as the work of our “adaptive unconscious . . . the giant computer that quickly and quietly processes a lot of the data we need in order to keep functioning as human beings” (2005, 11). Rudyard Kipling called it keeping “your head when all about you are losing theirs and blaming it on you.”

How can I make wise decisions under pressure?

Thanks to recent research in neuroscience, we now know we can call on both rational processes and gut instincts when under pressure. Recall when you stepped up to do the right thing regardless of fearsome pressures from within and without.

What can we learn from colleagues and other experts about acting wisely under pressure? I have had the honor of interviewing early childhood leaders and others on the question, “How can we keep our heads when all about us are losing theirs and blaming it on us?”

Here are some of their insights on engaging healing parts of the brain when under pressure:

I check in with myself: Am I angry? Upset? Worried? I acknowledge those feelings as parts of myself. Then, I dialogue with those feelings: “I know you’re upset: How can I help?”

— Bryan Robinson,

“Overworked Educators: Dedicated, Fearful or Addicted to Work?”

As we tell children, “You can be angry, but your actions don’t have to be done in anger.”

— Debra Sullivan,

“Dealing with the Death of a School or School Program”

Turn quacking ducks into eagles that soar above. Find out what’s going on: a lot of people have “stuff” in their lives. Tell them, “Talk to me. Why are you so against this?” Develop an action plan together that gets them involved.

— Neila Connors,

“Teacher Negativity: Turning Nay-Sayers into Hooray-Sayers”

Listen one time really well to capture their main point. Drill down on the main point. Redirect the person’s attention to problem solving. Ask, “What do you think we should do? What do you think I should do? I want to help you, but I need your help too.”

— Rick Kirschner,

“Dealing with People You Can’t Stand”

To listen to complete interviews on the online radio program, *Heart to Heart Conversations on Leadership: Your Guide to Making a Difference*, go to www.BAMradionetwork.com (click on “For Leaders”), or go to www.hollyelissabruno.com.

Humor: Emotional intelligence’s powerful partner

Humor can lighten up the heaviest situation. When I laugh at myself, I stand a better chance of “getting over myself” in the moment. Brown advises, “When people are able to find that sense of play in their work, they become truly powerful figures” (2009, 154). Laughter and playfulness allow use of our reptilian amygdala, our purely logical OFC, and our thin-slicing ability in collaboration. Consider how Victoria can employ humor as she calls on all of her brain’s resources to professionally deal with Roxie’s affront:

Roxie’s undermining comment speeds at Victoria like a poisoned dart, but Victoria dodges it. She pauses, breathes deeply, and firmly meeting Roxie’s gaze, says, “It sounds like we need to have a frank discussion about classroom portfolios. You all know I will never win the prize for Most Organized Director; however, if I can pull off the organizational portfolio with your help, I believe we can work together so each of you can complete your classroom portfolio. Trust me, faking it is not an option. Roxie, level with us: what’s your real issue with portfolios, and what do you need to get the job done?”

When my daughter, Lily, was in preschool, she and I went to a birthday party for one of her friends. Lily looked adorable in her favorite polka-dotted bathing suit.

One of the fathers got right in my face. "What did you do to your daughter?" he exclaimed so loudly everyone turned to watch. I was so offended. I wanted to get right back in his face. Somehow, I paid attention to that quiet, sane voice within and said, "Thank you for your concern for my daughter. Lily is Korean. Some Korean children have Mongolian spots that look like bruises. Lily is not bruised. Her skin's pigment on her back is black and blue for now. That will pass."

And then I said something to lighten up the situation. People laughed and children went back to playing. My heart still pounded in my ears; however, I didn't lose it.

To this day, I recall the incident like a Technicolor video. Although I felt like yelling back, a gentler internal voice spoke. I listened. And that made all the difference.

The next time your buttons get pushed, know your brain has powerful capacities to help you act wisely.

Louis Cozolino says, "As we mature, our amygdala matures with us. It seems to be much more gentle with us and is much less activated by fear and anxiety" (2010). Perhaps leaders have always sensed this.

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