The Chinese philosopher Mengzi (or Mencius) wrote in the third century B.C.:

“All men have a mind which cannot bear to see the suffering of others.”¹

Today, neuroscience tells us why Mengzi was right.

Why is it when humans see someone in distress, we feel compassion? If parents hear their baby cry, why does the parent feel emotional pain? Why is it when we sit in a darkened movie theater watching an exciting adventure movie that our hearts race like as if we are in the middle of the action along with the actors? Why are sports so exciting to humans to the point that some people literally go “crazy” with excitement? (I mean, you never see a gorilla paying $500 to see a football game.)

The answer lies in our amygdalae and our “mirror neurons”

In 1992, a team of neuroscientists led by Giacomo Rizzolatti, an Italian neuroscientist, accidentally stumbled onto a whole new set of neurons that explain why we have empathy for others. These scientists were studying the sensorimotor area of these monkeys’ brains by inserting electrodes directly into their brain cells. Through these electrodes, the scientists could identify which cells were activated when the monkey made certain movements. ²
One hot afternoon, a research assistant was eating an ice cream cone in front of one of the monkeys. The scientists noticed that the monkey’s sensorimotor cells activated as the monkey watched the assistant eat the ice cream. The scientists were astonished to see that a distinct set of neurons were activated when the monkey merely watched the research assistant eat the ice cream. 

What these scientists discovered are what we now call “mirror neurons.” “Mirror neurons” allow us to sense the movements and the feelings of other people, which then allows us to prepare our response. Our mirror neurons fire whenever we watch someone else cry, laugh, yawn and so on because our brain is actually firing in a way that mimics the other person’s brain. In other words, we are actually participating in the other person’s actions and emotions just like as if we were experiencing the same thing.

In order to prove how our mirror neurons actually work, researchers had volunteers lie in an fMRI (Functional Magnetic Resonance Imaging) machine so they could observe the reactions in the volunteer’s brains as they were shown other people either smiling or scowling. What the researchers discovered was that the same areas of the brain were activated in the people who were actually exhibiting these expressions as the people who were merely observing these facial expressions, although the reactions of the people who were merely observing were not as strong.

The human brain has many different mirror neuron systems. Since different parts of the brain perform different functions, the placement of our mirror neurons in these various areas allows us to reflect these many different functions as they happen in other people. Mirror neurons therefore allow us to mimic the actions of others, to read the intentions of others, to determine the social implications from our actions and the actions of others and to reflect the emotions of others.

In another study of the human auditory mirror neurons, researchers compared the brain activity of expert pianists who were playing the piano to those pianists who were simply listening to the music. Researchers then scanned the brains of both groups of participants using an fMRI machine. The results from these scans showed that the brains of the pianists who were simply listening to the music fired in the same areas as those pianists who were actually playing the piano. In other words, the brains of the participants who were merely listening to the music fired in almost the same manner as those who were actually engaged in the activity.
Consequently, we have discovered that mirror neurons allow humans to “parallel” their brain circuitry with one another. This paralleling of brain circuitry is what allows humans to “connect” with one another and actually have a shared sense of an event. Neuroscientists refer to this state as “Empathic Resonance,” which occurs when two or more people link their brain circuitry in concert with one another via the brain’s “low road.”

Daniel Stern, an American psychiatrist working at the University of Geneva, has concluded that our brains “are constructed to be captured by the nervous systems of others so that we can experience others as if from within their skin.”

Our ability to develop our own social skills lies in developing our mirror neurons. When we see someone acting in a particular way, it is our mirror neurons that allow us to reflect what the other person is feeling and doing, which allows us to prepare an appropriate response. Mirror neurons also help us to anticipate what another person’s intentions might be so we can determine how we should best respond. Sensing what other people intend to do, and possibly why they intend to do it, provides us with invaluable social information. Mirror neurons and our amygdalae therefore play key roles in developing our “social intelligence.”

Because of mirror neurons, the moment someone sees an emotion expressed on our face, they will immediately experience that same feeling within themselves. When this happens, our emotions resonate with another person … and theirs with us.
In other words, the more you use your mirror neurons and have empathy for another person, the better you will be at experiencing empathy. This is a skill you will develop.

However, if you do not practice having empathy for others, then you will not develop your mirror neurons, so they will grow weaker and weaker until one day empathy will simply be a skill you will not possess.

The neurons in your brain are a lot like muscles. If you use them, you will develop them. If not, you will lose them, which will be bad for you.
Scott Warrick, JD, MLHR, CEQC, SPHR
Scott Warrick’s Consulting & Employment Law Services
(614) 367-0842 Office ♠ (614) 738-8317 Cell ♠ (614) 367-1044 FAX

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- Master of Labor & Human Resources and B.A. in Organizational Communication: The Ohio State University
- The Human Resource Association of Central Ohio’s Linda Kerns Award for Outstanding Creativity in the Field of Human Resource Management and the Ohio State Human Resource Council’s David Prize for Creativity in Human Resource Management

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5 Social Intelligence: The Revolutionary New Science of Human Relationships” by Daniel Goleman, page 42, footnote 10: To date, mirror neurons have been found in several areas of the human brain in addition to the premotor cortex, including the posterior parietal lobe, the superior temporal sulcus, and the insula.

6 http://scienceblogs.com/mixingmemory/2006/10/auditory_mirror_neurons.php


