

# Emotional

## The Brain Science

By Laurie Hillis, M.A.

In the December 2002 Leadership Compass magazine I wrote of the impact of emotional intelligence on leadership behaviours. This article delves into some of the physiological underpinnings of this fascinating topic.

### A Sad Story

There is an old, yet meaningful, story told in leadership development about a young man named Phineas P. Gage. The year is 1848. Phineas was a 25 year old construction foreman revered for his ability to lead his work gang as they laid track for the Rutland and Burlington Railroad in Vermont. Phineas was athletic, graceful, and precise. His employers saw him as the most efficient and capable man in their employ. This moniker was both his pride and his downfall. Phineas was in charge of the most challenging and dangerous part of the blasting operation. A series of precise steps were required to successfully and safely explode the rock to clear

the way for new track. He was a master at his craft...until that fateful day in September 1848 when a slight distraction caused him to miss a step in the blasting sequence.

The 13.25 lb. iron tampering rod, measuring 3' 7" entered Gage's left cheek, piercing his skull and his brain, before exiting at high speed through the top of his head. Phineas was thrown to the ground. The blood and brain covered iron rod landed more than 100 feet from his body.

Miraculously, Phineas lived through this terrible accident, initially with little impact to his abilities. He responded to the doctors, he talked, walked, and he remained coherent. In less than two months, aided by his youth and strong constitution, Gage is pronounced cured ... well, physically cured at least.

### Gage Was Not Himself

Gage had physically recovered amazingly well. His basic intellect and language was intact. What he lost was his "equilibrium of balance between his intellectual faculty and animal instincts"<sup>1</sup>. He lost his respect for social conventions. He became fitful,

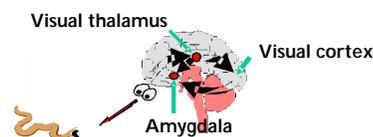
irreverent, impatient, and obstinate. He used profanity and he was unable to operationalize any plans he made for the future. His new personality and characteristics made him a stranger to friends, family, and potential employers. His work record declined steadily until he was forced to become a circus attraction to eke out a minimal living. Alas, on May 21, 1861, at the premature age of 38, Phineas Gage died after a number of seizures rendered him unconscious.

### Why Tell The Story?

What does this old, sad story have to do with our current understanding of emotional intelligence? Gage's story helps us understand there are elegant systems in the human brain dedicated to reasoning in the uniquely human areas of anticipating and planning the future, managing a sense of responsibility toward self and others, and the ability to orchestrate personal survival in a complex world. In its infancy in 1848, brain research led to many alternative and opposing positions on what really happened to Phineas Gage.

Antonio Damasio, a neurologist, has studied the Gage incident in recent years. In his book *Descartes' Error*, Damasio uses computer simulation to reconstruct the fateful accident. He stresses the "rationality of emotion" and the importance of trusting gut feelings in making decisions. Emotions, unlike the cognitive processes of our brain, do not function independently of the body. Damasio asserts that most emotions involve a bodily response, which results in internal sensations – happy, sad, glad, mad, frustrated, joyful, etc. It is through the study of how the brain processes emotional information that we better understand how we create our own emotional experiences. How we handle these emotional experiences is our use of emotional intelligence – wisely or not.

### Fight or Flight?



From Joseph Le Douarin  
*The Emotional Brain*, 1996

A practical example of the emotional-body-sensing connection is helpful. Envision you are walking through the woods. Something catches your immediate attention off to the side.

# Intelligence

## Behind EQ

You jump off the path, believing you have just avoided a snake laying on the path. Alas, it was a curved stick, not a snake! Various parts of your brain process this emotional experience in different ways and at different speeds:

- First, the visual thalamus crudely and quickly processes the visual of the "fake snake", sending a 911-alert along a direct pathway in your brain to the...
- Amygdala [Latin for almond, which is the shape of the amygdala], the seat of your emotional behaviour which says – RUN RUN RUN!
- Concurrently, the visual thalamus also sends information to your visual cortex where a more accurate, slower, and detailed processing of the same events occurs.
- It takes about 6 seconds longer for the visual cortex to process the stimulation than it does for the amygdala to process<sup>2</sup>.

Of course, this immediate flight / flight / freeze response from the more primitive limbic system in our brain is a necessary and important part of our survival. The six seconds could, indeed, be the difference between life and death, competitive advantage – or snake bite or not. In the world of work, where there may not be this immediate sense of danger, we suggest hitting the "6-second-pause-button"<sup>3</sup> so the higher functioning part of the brain can analyze the situation and help to keep out-of-control emotions in check [unless, of course, you encounter a lot of snakes in your workplace]. Can you think of any examples when you wish you had activated the 6-second-pause-button in your life?

Ongoing brain research suggests that increased connectivity between the amygdala and the cortex could result in more harmonious balance between reason and emotion—as it is the intersection of these two processes that makes us uniquely human.

### Back to Poor Phineas

Was Phineas an early version of out-of-control emotions taking over? Was part of his emotional brain damaged severely, resulting in his inability to live a successful life? What lessons can we draw for our own evolution of successfully integrating reason and emotion?



### References:

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2. LeDoux, J. (1996). *The emotional brain: The mysterious underpinnings of emotional life*. New York, NY: Touchstone.
3. Orioli, E. & Cooper, R. <http://www.qmetricseq.com>

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