6/28/10

The emotional decision maker

Before you can even form a thought, emotions are influencing your judgments.

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On January 16, 2003, the Space Shuttle *Columbia* lifted off from Cape Kennedy on a 16-day research mission with seven astronauts on board. Eighty -one seconds into flight, a piece of foam insulation fell away from the external tank that fueled the main engine. Cameras recorded the foam striking *Columbia* on its left wing.

Pieces of foam had fallen off and struck the spacecraft on prior flights but had never caused much damage, leaving NASA managers and engineers reluctant to take action this time. Moreover, checking for damage would have required NASA to either solicit satellite imagery from other agencies or have *Columbia* astronauts improvise a space walk and inspection. Either approach would disrupt the mission plan's tightly scripted activities. More troubling, officials seemed unwilling or unable to face the possibility of serious damage. If there were damage, "I don't think there is much we can do about it," said one senior manager.

The damage wasn't detected until *Columbia* reentered the Earth's atmosphere on February 1st. As sensors sent erratic, confusing data, the *Columbia* lost control, broke apart, and plunged to Earth, tragically ending the lives of its crew.

In the investigations that followed *Columbia's* loss, many factors were cited, from technical problems to more subtle flaws in NASA's organization and culture. Investigators identified numerous opportunities where management decisions could have led to the discovery of the damage. Decisions—both to act and not to act—sealed *Columbia's* fate.

Most of us were taught that we base our decisions on evidence and rational analysis of alternatives, including their attendant risks and uncertainties. Through most of the 20th century, economic models have assumed that decision makers follow this approach, more or less. But scientific discoveries about the brain now fly in the face of that assumption. Over the past 20 years, a revolution in understanding cognitive neuroscience has yielded unparalleled insights about how the brain makes critical judgments—and challenged the theories that long held sway.

We now know that the model of rational, self-aware decision making fails to accurately describe thought processes in the real world. To begin with, most human cognition is unconscious – that is, we lack awareness of our mental processes. We absorb millions of bits of data per second through our senses; we compress, screen, and process this data automatically through various

shortcuts in the brain. What emerges in our conscious awareness are the snap judgments, instant recognition, the sense of certainty and the intuitions that we can't fully explain. Though wondrously efficient, these processes generate cognitive biases and errors.

Even more recently, these breakthroughs in cognitive neuroscience have given way to new discoveries in the realm of emotion. One of the most stunning findings: that emotion pathways in the brain engage more rapidly than cognitive pathways. As a consequence, the emotional centers of the brain influence what you see, hear, and feel in response to an event or task well before you experience a conscious thought. This growing knowledge of the strong impact of emotions on judgment and decision-making further calls the rational model of decision making into question.

How emotions influence decisions

In particular, two types of emotion influence our decision making. First, *integral emotions* arise from the judgment or choice at hand. From a rational perspective, integral emotions are perfectly legitimate decision inputs. If you're contemplating whether to take a risk, for instance, your resulting sense of fear should factor into your choice. The alarm, apprehension, and fear that some NASA engineers experienced on seeing the foam strike were integral emotions; relevant to their judgment about what should be done. The feelings that emerged from their unconscious processing contained important signals pointing to action, i.e., get information on possible damage to Columbia.(PZ)

Second, *incidental emotions* arise from past events and carry over to influence subsequent judgments or choices. From a rational perspective, incidental emotions are not legitimate decision inputs. In the Columbia case, top managers harked back to past incidents of foam strikes on past flights, where little damage had happened. This gave false comfort and diverted their attention from the immediate question of damage to Columbia and risk to the crew.

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Reducing emotional carryover

Here are three ways managers can reduce the carryover of incidental emotion:

1. **Diagnose your emotions.** A common mistake among experienced executives is to assume that the types of decision-making errors seen in the *Columbia* case don't affect them. Yet countless studies conducted in the Harvard Decision Science Laboratory reveal that incidental emotions affect us *all*, whether or not we're aware of them. Any situation in which you find yourself will trigger cognitive and emotional biases that skew your experience. To improve your rationality, try to diagnose whether your feelings are integral or incidental to the situation and whether they are appropriate.

2. **Absorb other perspectives**. Consultants, advisers, and confidantes can help you identify how your personal history and the situations you encounter are likely to bias your thinking. Education and training also can help. When asked what prepared him for leadership in Iraq, Army General David Petraeus, head of U.S. Central Command, cited the diverse perspectives he encountered in civilian graduate school. Looking at problems through the eyes of others can improve your judgment.

3. **Treat each situation as different.** Our minds are hardwired to assume that the past reliably predicts the future; the neural pathways associated with prediction mirror those associated with memory. This helps to explain why NASA managers took comfort in the fact that past shuttle foam loss hadn't caused serious damage. If they instead had categorized past shuttle missions with foam loss as unusual "near misses" worthy of investigation rather than as successes, catastrophe might have been averted.

Finally, remember that although emotions can lead us astray, they are time-tested evolutionary adaptations to universal life challenges. Rather than writing off your fears, investigate them fully and carefully weigh their role in your decisions.