

THE THINKERS

Emotion's effect on decisions is her field

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By Mark Roth, Pittsburgh Post-Gazette

You wouldn't know it to watch her in action, but Jennifer Lerner specializes in anger.

In person, the 36-year-old Carnegie Mellon University professor is poised, good-natured and frequently lets loose with a deep-throated laugh.

But her research has made anger her signature work -- in particular, understanding how it shapes people's views of life and influences the decisions they make.

Lerner is one of a growing cadre of academics in the field of "decision science," an intriguing mix of psychology, economics and neuroscience. They try to unravel how emotions and cognition interact, and how this stew of feeling and thinking governs people's real-world choices.

Their findings don't always mesh with common wisdom.

For instance, many psychologists have traditionally viewed anger, sadness and fear as closely related emotions that have similar negative effects.

But studies by Lerner's laboratory suggest that anger is much different than sadness and fear, and in many ways resembles happiness. Anger, for instance, makes people look at the world more optimistically and take risks they otherwise wouldn't.

A pair of studies by Lerner and her colleagues show different aspects of this contrarian view of anger.

One was a nationwide survey of Americans taken just weeks after the Sept. 11, 2001, attacks.

After measuring people's basic tendency to feel anger or fear, researchers showed some participants an anger-inducing photo and text of some Arabs celebrating the attacks, and others a fear-inducing photo and text of postal workers wearing masks to protect against bioterrorism.



Tony Tye, Post-Gazette
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Name: Jennifer S. Lerner

Age: 36

Position: Estella Loomis McCandless associate professor, Department of Social and Decision Sciences, Carnegie Mellon University.

Education: Bachelor's, highest honors, University of Michigan Honors College, 1990; Master's, psychology, University of California at Berkeley, 1994; Ph.D., psychology, University of California at Berkeley, 1998.

Previous work: Assistant professor, Carnegie Mellon University, 1999-2004. National Institute of Mental Health postdoctoral fellowship, University of California at Los Angeles, 1998-1999.

Professional honors: Presidential Early Career Award for Scientists and Engineers, National Science Foundation, 2004; National Science Foundation Career Award, 2003-2008.

Publications: Has more than 25 peer-reviewed papers published or in press, including "Effects of Fear and Anger on Perceived Risks of Terrorism," *Psychological Science*, 2003; and "Heart Strings and Purse Strings: Carryover effects of emotions on economic transactions," *Psychological Science*, 2004.

The groups were then asked to rate the likelihood of future terror attacks, as well as the odds that they or others would experience more general kinds of adversity, such as getting the flu or being the victim of a violent crime.

The results were clear: Those who saw the anger-inducing photo believed the risks of either a future terror incident or a personal misfortune were lower than those who saw the fear-invoking photo. When they were asked about certain policy choices, the angry group was much more inclined to deport foreigners who lacked valid visas and much less likely to want the United States to strengthen ties with Muslim nations.

So even though the angry folks wanted to be more punitive, they had a more optimistic view of how precarious the world was.

Another recent study showed a different dichotomy between angry and fearful people.

In this exercise, participants were asked to count backward in increments of 13 by a person wearing a lab coat, who soon started telling them they were doing poorly and weren't going nearly fast enough.

The participants were videotaped so researchers could code their facial expressions for different emotions. They also wore heart rate and blood pressure monitors, and periodically had to put cotton swabs in their mouths so their saliva could be analyzed.

In this experiment, both the fearful and angry people performed pretty poorly and got similar numbers of answers wrong.

But those whose faces showed fear were the only ones who exhibited clear signs of physical stress -- higher blood pressure, more rapid heart rates and secretion of stress hormones.

"When you looked at people with fearful faces," Lerner said recently to one of her Carnegie Mellon classes, "you could almost imagine this internal dialogue of 'Oh, I'm really doing awful at this and I'm failing,' and you could imagine the dialogue behind the angry faces being, 'I mean -- this experimenter is *so* annoying ...'"

So even though the people who showed anger didn't do well on the assigned task, they felt better about themselves and experienced lower stress measurements than people who showed signs of fear.

These findings are controversial, Lerner told her class, because several earlier studies show a correlation between people with hostile personalities and such stress-induced maladies as heart disease.

But there may be a distinct difference between people who show momentary anger in an aggravating situation, she said, and people who are chronically hostile.

To Lerner, it seems that anger "has some rewarding properties when you make a decision -- you feel good at the time, but it harms you in the long run."

One of the few women in this fast-growing field, Lerner has garnered a lot of attention in the last year. She earned both Carnegie Mellon's Estella Loomis McCandless professorship for outstanding junior faculty and a Presidential Early Career Award for Scientists and Engineers from the National Science Foundation.

She also has received a steady stream of speaking invitations from groups that want to know more about the impact of emotions on everyday choices. One of the latest is from the National Cancer Institute, which has asked Lerner to talk about how her research might help its cancer prevention efforts.

Lerner never thought she would end up doing this kind of work, even though, growing up in Newton, Mass., she always had been fascinated by how the mind functions.

She went to her mother's alma mater, the University of Michigan, thinking she would become a psychotherapist, only to realize that's not what she wanted to do.

The revelation left her feeling slightly stunned and rootless. So after graduating with highest honors, she camped out in Ann Arbor, did a lot of reading and sold beads at a store there.

And then serendipity walked in. She took a staff job with a cognitive psychologist who was running a project to increase the participation of women and minorities in the sciences.

While there, she learned about pioneering work that had been done by Stanford University psychologist Claude Steele on the way prejudice can cause stigmas that directly affect performance. For instance, one Steele experiment showed that when women were given a standard graduate exam in math, if they were first told that women tended to perform more poorly than men on the test, their scores would be significantly worse than those of women who didn't get that message.

These kinds of studies made Lerner realize that social psychology could be a powerful tool for dealing with important political and cultural questions.

And she already knew that she loved statistical research.

She got that insight doing her undergraduate honors thesis on a subject near to her heart -- how children deal with chronic illness.

Lerner herself has lupus, one of the most serious autoimmune diseases, and she has had to cope with everything from spinal fractures to lung surgery to a high-risk pregnancy with her daughter, Siena, as she battles the disease.

As it turned out, she noted ruefully, the lupus didn't cause a lot of problems during her pregnancy, but five straight months of daily nausea did. In fact, she said she had to finish one important grant application while "lying on the floor next to the trash can, dictating text while my husband typed and prepared the grant forms."

Shelley Taylor, a distinguished professor of psychology at UCLA who has worked with Lerner, said she is amazed at how well Lerner has handled the stress of being a high-visibility researcher when she has both medical challenges and family duties to deal with.

"She has literally leaped to stardom in a very, very short period of time, but has handled this experience really well and has won enormous respect from very seasoned scientists," Taylor said.

Another admirer is Carnegie Mellon colleague George Loewenstein, a noted behavioral economist and her official mentor.

When she received her junior faculty award, Loewenstein wrote a brief appreciation of Lerner that said, in part:

"I'd love to find a flaw in her to make myself feel less inadequate, and I'm sure one must exist, but a lack of humanity isn't it -- she's a devoted mother, an extremely involved member of the Unitarian church, and an amazingly giving person" who helped care for a former student who was dying of cancer, and who organizes baby showers and retirement parties while teaching and doing research.

UCLA's Taylor said the work Lerner and others are doing eventually may change the way people look at how they make choices.

Because of the sway that rationalists held for decades in economics, political science and other fields, she said, "a lot of people think that when they make decisions they ought to put their emotions aside and list all the pros and cons and then make a rational choice."

But Lerner's research "shows that emotions can provide enormously valuable information to help people with these choices."

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