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Legal Affairs

Lies as Plain as the Nose on Your Face?

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This is the final report in a three-part series.

In This Series

- Oct. 29, 2007
[Foolproof Test for Catching Liars Still Elusive](#)
- Oct. 30, 2007
[Neuroscientist Uses Brain Scan to See Lies Form](#)

Morning Edition, October 31, 2007 · Mark Frank got his start getting a read on people when he was a bouncer at a bar.

Frank — who is now a University of Buffalo social psychologist — found himself naturally spotting behavior that was important to his work. He could tell when patrons were underage, or packing a gun, or spoiling for a fight.

He went on to codify what he had observed by studying hours of videotape of crooks and murderers. His research is now helping investigative bodies around the world — including the FBI — interpret criminal and terrorist emotion and motivation.

"We call them little or subtle or micro expressions, because they are very compressed in time and they are fragmentary," Frank says. "But they leak, even though the person is struggling to conceal them ... and we have data that we can actually train people to see these — to improve their abilities by as much as 50 percent in as little as 30 minutes."

Homing in on Hot Spots

Frank's work grew out of a long tradition of facial expression study. The guru of this research is San Francisco psychologist Paul Ekman. After decades of watching faces, Ekman identified and catalogued thousands of combinations of emotions and expressions. He determined that about 3,000 of them actually revealed a specific emotion. He catalogued those tics, twitches and frowns, which became the Facial Action Coding System, or FACS.

Ekman mentored Frank, who has gone on to build off Ekman's early research. Frank's focus has been to develop a system that uses those facial emotional cues to home in on lies. He zeroes in on tics, furrows, smirks, frowns and displacement actions.

Frank teaches judges, FBI agents and interrogators, among others, to recognize and accurately read the tiny cues from facial muscles that can happen in the blink of an eye. Frank calls them "hot spots" — emotional cues that might be linked to deceit, or might be clues for further interrogation.

Frank is good at seeing those cues normal people might miss. Eyebrow movement, for example, can be a dead giveaway. Frank says his research has shown that when eyebrows are pulled up and together, they express fear. A muscle in the lower part of the face — something you feel when you stretch your mouth back — is also a hot spot.

"You see that in photos, like when a pickup truck is starting to overturn," Frank said. "You see fear expression in the driver's face."

Paul Moskal, a supervisory special agent with the FBI's office in Buffalo, went through Frank's microexpression training. He said it has made him a better investigator and a better listener.

"We all have a gut feeling that we know when people are lying, but it is very hard for us to articulate why," Moskal said. "I think it is putting science to what we think is intuitive, and for me the interest is where they cross. It makes you aware of things you weren't aware of before. "

A Law Enforcement Tool

To a certain extent, Frank is codifying human intuition while he's also debunking myths about how to read people.

"The literature shows that liars don't make less eye contact than truth tellers. But you ask anyone on the planet what liars do, the first thing they agree on is liars don't look you in the eye," Frank said. "Even just getting over that mythology is a step in the right direction."

Of course, there is a huge danger in parsing complex distinctions and emotions into simple facial expressions. Eyebrows might rise and knit together when a subject talks about a particular convenience store, for example, but it may not be because the subject robbed the store. Perhaps the store was the site of another event — a first kiss, or a fight, for example — that triggered an emotional reaction. And that reaction — not lying — could light up a hot spot.

John Yarbrough is a former member of the Los Angeles County Sheriff's Department. He has worked with Frank and Ekman to provide real-world applications for their microexpression research. He also teaches the techniques. Yarbrough says Frank and Ekman's low-tech approach to reading people is one of the most valuable tools available in law enforcement today. It's a tool officers can carry with them during encounters, whether it's a formal interrogation or face-to-face contact on the street, Yarbrough says.

Researchers are now looking at whether computers can do the emotional interpreting that humans do. The Department of Homeland Security gave Rutgers University \$3.5 million to develop a computer-based facial reader. Ideally, the computer would be able to analyze nonverbal cues on video and make a judgment about a subject's truthfulness. Researchers say one of the challenges that remains is accurately correlating facial expressions to deception — the same problem Frank grapples with using his low-tech system.

Reading Terrorists

While Frank's system is still unproven at detecting deception, law enforcement could use hot spots in an effort to uncover a suspect's motivation — particularly when it comes to terrorism. That's because microexpressions are cross-cultural, Frank and Ekman say.

"The actual mechanics of the emotion, the wiring in the body, the signal in the face, is the same for every culture," Frank said. "What that means is that it doesn't matter what culture you are from — anger, contempt, disgust, fear, happy, sad and surprise are shown by all people in every culture on the planet, and they show them the same way."

Consider Osama bin Laden. Frank has analyzed videos released by bin Laden since the late '80s; he says bin Laden's facial expressions show increasing disgust toward America.

"Disgust is actually the precursor emotion to genocide," he said. "Anger isn't. Anger is about what you did; disgust is about who you are. When you see that with people like bin Laden ... you start to understand how people can do those things."

For now, a window on emotions and an understanding of motivations may have to suffice while scientists and law enforcement continue their search for the perfect lie detector.