

Cause and affect: Emotions can be unconsciously and subliminally evoked, study shows

April 28 2008

Most people agree that emotions can be caused by a specific event and that the person experiencing it is aware of the cause, such as a child's excitement at the sound of an ice cream truck. But recent research suggests emotions also can be unconsciously evoked and manipulated.

Psychologists Kirsten Ruys and Diedrick Stapel of the Tilburg Institute for Behavioral Economics Research at Tilburg University in The Netherlands have uncovered the first empirical evidence to suggest humans do not need to be aware of the event that caused their mood or feelings in order to be affected by it. The scientists hypothesized that, since humans have evolved to respond quickly and unconsciously to stimuli, they should be able to react to an emotional event without full awareness: "You are likely to live longer if you immediately stop moving at the sight of a growling grizzly bear and do not need full awareness for such a response to be instigated," explained Ruys and Stapel.

The researchers measured people's thoughts, feelings and behavior to determine whether specific emotions were induced without awareness of their cause—a study based on the theory implying that, due to natural selection, humans should be able to detect specific emotion-evoking information automatically. Participants were separated into three groups and were told that very short flashes would appear on a computer screen. They were then instructed to press the 'R' key if it appeared on the right side of the screen or the 'L' key if it appeared on the left.

In actuality, the ‘flashes’ were subliminal images selected to elicit fear, disgust or no emotion at all. The images flashed at varying speeds making it impossible for the participants to be fully conscious of their presence. In other words, the participants were unaware that they were viewing images of growling dogs and dirty toilets or even neutral images, such as horses or chairs.

The participants then underwent three tests to measure the effect of the images on their cognition, feelings and behavior. For the cognitive measure, they completed word fragments with a variety of words including those that expressed disgust, fear, anger, generally negative, generally positive and neutral feelings. Next, participants rated the overall positivity or negativity of their mood and the extent to which they felt fearful, disgusted, satisfied, relieved, proud, angry, shameful and joyful on 7-point scales.

During the behavioral measure, participants were asked to take part in either a ‘strange food test’ or a ‘scary movie test,’ assuming that, for example, those who were exposed to the disgusting images would want to avoid the possibility of eating something unpleasant. At the end of the study, the researchers asked gradually more specific questions about the subliminal images to gauge the participants’ awareness of the study’s purpose and intent.

The intriguing results, which appear in the April issue of *Psychological Science*, a journal of the Association for Psychological Science, strongly support the psychologists’ theory. Those participants who viewed only the disgust-inducing subliminal images were more likely to use disgust words in the word-completion task, to describe their feelings with the disgust words and to choose to take the ‘scary movie test.’ The same held true for those who viewed only the fear-inducing images—they also were more likely to use words related to fear and to take the ‘strange food test.’

The psychologists also found that after quick (120ms) speed exposures to emotional stimuli, a general, negative mood developed accompanied by a specific emotion, such as fear after seeing fearful pictures. After the super-quick (40ms) speed exposure, only a general negative mood was induced without a specific emotion involved. These empirical findings are the first to demonstrate that specific emotions can be evoked without awareness of the cause and that a person's global mood can develop into a specific emotion.

And while the study did not investigate how an individual eventually becomes conscious of their emotions, the scientists did pose an additional hypothesis: "When emotions are full-blown, people become aware of their emotions by perceiving their own actions and bodily reactions; likewise, when emotions are weak, people fail to notice their weakly-related actions and bodily reactions."

Source: Association for Psychological Science

Citation: Cause and affect: Emotions can be unconsciously and subliminally evoked, study shows (2008, April 28) retrieved 23 April 2024 from <https://medicalxpress.com/news/2008-04-affect-emotions-unconsciously-subliminally-evoked.html>

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