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Looking Happy: That's an Attention-Getter, Study Shows

Happy faces tend to attract more visual attention than angry or upset expressions – even among adults, according to researchers writing in an edition of *The Psychological Record*, published this month (September).

“Human facial expressions provide critical social cues and shape behaviors that allow individuals to adapt to social communities,” says lead investigator Soichiro Matsuda, Doctor of Psychology and assistant professor in the Faculty of Human Sciences, University of Tsukuba, Japan. “Learning via facial expressions from an early age is critical for developing social communication.”

But, “social behaviors induced by facial expressions cannot be established without visual attention toward the face as a prerequisite to discriminate facial expressions,” Dr. Matsuda says.

In their report, *Comparing Reinforcement Values of Facial Expressions: An Eye-Tracking Study*, the researchers indicated that some adult participants tended to fix their gaze at a point on a monitor screen where a happy face had just appeared, but, unlike infants' normal reactions, not all the 20 volunteers did so, prompting researchers to theorize that happy expressions have reinforcement value – but not strong reinforcement value -- among adults.

Reinforcement value refers to the power of an object or experience to generate a person's desire to seek it or repeat it.

Infants direct their visual attention to happy faces “due to biological preparedness,” the behavioral scientists state, “whereas subsequent learning [as we age] might change the function of happy faces” in adults' gaze behaviors. In fact, previous research has shown that adults can sometimes give “preferential attention” to fearful facial expressions rather than happy or neutral ones.

Using an infrared eye tracker, the investigators measured volunteers' eye fixation as happy and angry male and female faces appeared on the screen. Similar facial

expressions were always displayed on the same side of the monitor. Frequency of a volunteer's first visual fixation on the side of the monitor screen where a happy face had just appeared was converted to a mathematical proportion. A positive proportion indicated the happy face had reinforcement value, while a negative number denoted greater reinforcement by an angry face.

"Our results demonstrate that visual attention is "reinforced by happy faces rather than angry ones," Dr. Matsuda says.

A unique aspect of the study is its examination of the function of facial expressions as "consequences" – if a volunteer looks at a side of the screen where a happy face first appears, he or she is rewarded by another happy face – rather than as simply "antecedents" – prior experiences or events, authors write.

The researchers emphasize that their study adds important information to understanding how facial expressions serve as social reinforcers, which Dr. Matsuda likens to seeing a friend across a crowded room, making eye contact and exchanging smiles.

"People usually feel pleasant when they see smiling faces. The expression, 'feeling pleasant,' can be considered a highly reinforcing condition and also one's verbal response to reinforcing stimuli," Dr. Matsuda says.

The investigators suggest their work demonstrates how social visual engagement, which has been previously studied in the context of autism research, can be evaluated in the context of behavior analysis and say it could offer insights for future behavioral studies, particularly those that explore human empathy by evaluating a person's visual fixation on facial expression.

The Psychological Record is a publication of the Association for Behavior Analysis International (ABAI). Established in 1974 and based in Portage, Mich., ABAI now represents a global network of more than 7,000 member professionals, educational specialists, scientists, and students. The organization's focus is on contributing to societal well-being by supporting the theory, study, and practice of behavior analysis through basic, translational, and applied research.