Different people interpret facial impressions very differently, study reveals

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Researchers used an algorithm to allow people to refine what they thought the facial expression of a particular emotion should look like. The results show profound individual differences, suggesting the same facial expression can mean different things to different people.

Previously, research into the interpretation of emotional expressions has

been limited because experimental tools representing [facial expressions](link) have been too simplistic. In a paper published in the journal *Proceedings of the National Academy of Sciences*, the researchers improved the available tools by using 3D avatars. They applied [genetic algorithms](link) to the avatars, so that users could progressively refine the avatars' facial expressions until they thought the expression reflected what they thought a particular emotion should look like.

A total of 336 people then used the avatars to generate facial expressions to represent happiness, fear, sadness and anger. The researchers found that the expressions people generated varied substantially, suggesting that people associate different facial expressions with the same [emotional state](link).

The researchers then also used a standard emotion recognition test on the people who had generated the expressions on the avatars. The researchers found that differences in people's performance was explained by how closely the standard test expressions matched the expression they'd created with the [avatar](link).

Study co-author Isabelle Mareschal, Professor in Visual Cognition at Queen Mary University of London, said, "Our study proves that we can't assume that there is a common understanding of what emotions different facial expressions reflect. It appears that people's individual responses to different facial expressions have more to do with their unique understanding of the facial expression, rather than how they process and respond to emotions internally. This could have important consequences for clinical understanding of certain conditions, where people appear to have 'atypical' responses to a facial expression."

The researchers recommend that future research on emotion processing should move away from using methods and stimuli that correspond to stereotypes, and favor approaches that account for more diversity and

richness of expression.

More information: Nicola Binetti, Genetic algorithms reveal profound individual differences in emotion recognition, *Proceedings of the National Academy of Sciences* (2022). DOI: 10.1073/pnas.2201380119. doi.org/10.1073/pnas.2201380119

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