

Q&A: Could deciphering how kids read faces help curb anger, depression?

August 15 2023, by Matthew Hastings



Credit: Pixabay/CC0 Public Domain

"Oh my God, he's bored," said Simone Haller, Ph.D., who jokingly recalled seeing a colleague's neutral facial expression during a recent presentation. The situation was a unique moment for Haller, who studies

bias and emotional reactions alongside Joel Stoddard, MD, associate professor in the Department of Psychiatry at the University of Colorado School of Medicine.

"A lot of social interactions are ambiguous," said Haller, director of research and analytics in the Neuroscience and Novel Therapeutics Unit at the National Institute of Mental Health. "There's a lot of room for interpreting what's going on, what somebody's thinking."

Those calculations can create a [negative feedback loop](#), especially in kids with emotional challenges such as irritability, anxiety or [depression](#). The pair recently published a study examining how youth can differentiate between subtle emotions and how to improve those reactions—marking a step forward for a quickly growing area of research.

"It's an exciting time," said Stoddard. "We've gotten into understanding social interpretations more broadly. The interest has only increased across the field. This might be an inroad to understanding how kids are doing in social perception and social intelligence."

In the following Q&A, Haller and Stoddard detail the specifics of their work, what surprised them most about their findings and what comes next in the field.

What is interpretation bias training?

Haller: Interpretation bias training is intended to change the way you perceive ambiguous facial expressions. There's a long line of work showing that some kids have a bias toward more negatively perceiving faces or social interactions.

The idea is maybe if we change the way they perceive these reactions,

their response in social interactions will be more benign or favorable and therefore will also generate more positive responses from the environment, hopefully then decreasing symptoms of irritability, [anger](#), aggression or anxiety.

Stoddard: Through repetitive training, we could potentially change these biases, which is important to understand. These biases are more automatic, subliminal. People aren't aware of their biases to ambiguous stimuli when making rapid judgments, and so it's hard to know how to really address them.

Just like if you wanted to practice piano, you would just keep hitting the same sequence over and over again and getting corrective feedback whenever you hit the wrong note. And at some point, without even being aware of it, you'll be able to play the piano. So sometimes we call this the Suzuki method of therapy where you're just sitting practicing a more positive response.

Can you talk about the genesis of the research behind this and how this study built on the previous work that you both have done together?

Stoddard: This field has started to expand to help people with subtle moment-to-moment interpretations to prevent things such as microaggressions, as well as to address mood. So if you're depressive, and you have a tendency toward seeing negativity and sadness in response to other people's ambiguous facial expressions, that's going to promote your depression.

From there we started thinking about the learning dynamics. If you have a student who is struggling to learn math, maybe that would affect their ability to do mathematics later. We're taking that same concept from an

emotional learning angle. That's actually missing from a lot of therapy studies—just a simple assessment of emotional learning. Very few people are actually trying to assess how well kids learn, or adults learn, frankly.

Haller: To add to what Joel said, trying to understand some of the previous mixed results with this treatment is another piece: trying to understand what is really happening as kids perform the task. And then establishing a moment-to-moment metric, which is exactly the time scale in which learning happens.

The process of learning happens from one trial to the other. Say you get negative feedback. How do you incorporate that feedback and then change your response the next time you see that picture? And how does that affect other pictures that look very similar?

Can you walk us through the overall testing model used in this study, the methods involved and the mechanics of this research paper itself?

Haller: First, it's a very careful clinical assessment to see that participants meet the inclusion/exclusion criteria for the study and that both the family and the child are on board with participating. Then participants complete the task, which means making judgments of a series of faces we present to them. We have 15 faces which are composite images made up of 20 [different individuals](#) to create a generic male face with varying degrees of visible emotion—a large portion of which are emotionally ambiguous. The face images pop up for 150 milliseconds, then are immediately hidden. Participants have to respond by pressing a button that says, "This was a happy face. That was an angry face."

It's just an assessment of how they see those [faces](#) without any sort of

intervention. When only seeing the face for 150 milliseconds, which is significantly above conscious perception, but still very fast, you're trying to get at this implicit judgment. The computer program recording responses calculates where individuals switch their judgments from predominantly happy to predominantly angry along a continuum.

The first portion of the task is simply trying to get a sense of what we call "balance point" or where the "point of switching judgments" is. Early research has shown that kids that are often angry or aggressive tend to judge an ambiguous face as more angry.

Stoddard: Yes, exactly. But what's really interesting about your brain is it knows, even though you don't consciously know. And that's another reason why this is somewhat subliminal training to see how people's judgments change across a morph (individual photo). People reliably switch judgments between morphs that only have very subtle differences. Your brain does that with all sorts of stimuli, including face judgments. It's really good at it, even though you're not even aware of it necessarily. This is pretty true amongst a lot of discrimination tasks.

Has there been anything in both this study and in the work that you've both done together that you've been particularly surprised by as the research continues to move forward and evolve?

Haller: The extent to which there is stability in the training effect was a big surprise. When you work with a patient to change their judgments towards more positive judgments than what they initially saw, we see that the change in judgments are very stable—even over repeated assessments days later.

Stoddard: It's bizarre that it is so stable, like Simone is saying. That part

kind of trips me out a little bit.

It's really important to understand some tasks like this because they give us so much insight into how the brain works. We just don't understand at this point what the implications of that is except to know that people are fairly malleable in social perception training. Again, reinforcing the need to understand learning dynamics.

The goal is hopefully to gain insights into deciding who might benefit from therapy. And at the same time, also to improve the therapy itself.

Haller: I think, as is the case with a lot of science work, it is one of the most rewarding, best things when you see that your results replicate so you know that what you found is not just by chance or a one-off, but it is truly actually a phenomenon that's out there. It's fascinating to see the replication of the initial bias that people have and that you can measure it in a six-minute time span with an assessment reliably—and that we see this across multiple diagnostic categories such as anxiety and irritability in kids. That was probably my single favorite portion. This seems to be a really robust, measurable phenomenon that's relevant to psychopathology. Research in developmental psychology is really tricky. Replication is just a huge deal in our field.

How do you see this interfacing with an individual patient's therapy experience?

Stoddard: So we're at the science phase, the discovery phase right now, not at the translation phase. But the translation is fairly obvious. Potentially, I think this is going to help us understand individual differences in learning, making the training adapt to the individual's abilities, understanding their abilities and helping them undergo training.

Provided by CU Anschutz Medical Campus

Citation: Q&A: Could deciphering how kids read faces help curb anger, depression? (2023, August 15) retrieved 29 April 2024 from <https://medicalxpress.com/news/2023-08-qa-deciphering-kids-curb-anger.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.