

Seeing the trees and missing the forest

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The phenomenon known as holistic processing is best known in faces. Most people see faces as a whole, not as two eyes a nose, and a mouth. But holistic processing happens in other cases, too, and can even be taught. One possible explanation is that holistic processing emerges from expertise, but the truth is much more nuanced, according to the authors of a new review published in *Current Directions in Psychological Science*, a journal of the Association for Psychological Science.

"Holistic processing has been measured for years and years in different ways," says Isabel Gauthier of Vanderbilt University, who co wrote the paper with Jennifer J. Richler, also of Vanderbilt, and Yetta K. Wong of The Chinese University of Hong Kong.

The new article was inspired by two recent studies on holistic processing that found opposite results. One study, by Alan Wong, Tom Palmeri and Gauthier, found that it was possible to train people so they were experts in recognizing made-up objects called Greebles. As you'd expect, once they were experts in looking at these strange objects, they processed them holistically, like a face. But a study by found the opposite: novices process Chinese characters holistically, while experts don't. "That's a paradox," Gauthier says.

To explain this paradox, Gauthier and her colleagues tested people in another area of expertise: music. Specifically, they tested how people look at written music. Through several studies, they found that both experts and novices seemed to use holistic processing, but they did it for different reasons. For people who didn't know how to read music, it was

strategic. "It seemed to be a way for people to try to do the best they could-they were trying to look at the whole thing," she says. Experts, on the other hand, seemed to grasp a whole section of music at once.

The results of all of these studies suggest that the common explanation of holistic processing-it comes with expertise-isn't the whole story, Gauthier says. "You can get holistic processing in novices or experts, but it doesn't have to be the same thing." She says the assumption that holistic processing comes from expertise has sent researchers in the wrong direction.

This has applications outside the research world, too. People with autism have trouble recognizing [faces](#), so one way to help them function better in society might be to teach them holistic processing. Gauthier says psychologists should be cautious about this and keep in mind that we don't know everything about the phenomenon. "The message is really: it's not that simple. We need to make sure that when we assess outcomes, the [holistic processing](#) that a treatment teaches is the kind that experts use, not the kind that novices are limited by".

Provided by Association for Psychological Science

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