OPINION

Social spontaneity

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Some people with autism do perfectly well on laboratory tests of social cognition, easily mimicking facial expressions or predicting the actions of characters in a story.

But those same individuals struggle with social interactions in everyday life. They can interpret social information if asked to do so, but they don't do it on their own. In scientific terms, they have a deficit in 'spontaneous social cognition.'

That's the conclusion of a **review of more than three-dozen studies**, published 7 September in *Brain and Development*.

The author, **Atsushi Senju**, a research fellow at the University of London Centre for Brain and Cognitive Development, first proposed this idea in 2009. In that study, Senju and his colleagues looked at **theory of mind**, the ability to **interpret others' mental states**, in people with **Asperger syndrome**.

Most people with autism **fail the false-belief test**, commonly used to assess theory of mind. The test involves listening to a story or viewing a skit and then predicting what one of the characters, Sally, will do next.

A few high-functioning individuals with autism pass the test, but even they respond to the test in an unusual way. The 2009 study focused on 19 people with Asperger syndrome who all passed the test.

Eye-tracking studies show that typically developing children as young as 2 years look more often at where they expect Sally to go next. But Senju and his colleagues found that the adults with Asperger syndrome look equally often at multiple places, suggesting that they don't automatically

think about or predict Sally's actions — even though they can say what she will do next if they are asked.

These and similar results suggest that functioning in the real world depends not just on the ability to process social information when asked to, but on a drive to pay attention to it in the first place.

For example, a lack of eye contact is one of the most common symptoms of autism, but when asked to pay attention to the eyes, people with autism do so. And when they do, activity in the fusiform gyrus, a brain region involved in face processing, looks more like that of controls.

Similarly, people with autism don't spontaneously mimic others' actions and facial expressions. But, again, when an experimenter instructs them to mimic someone, they can.

There's even evidence that simply guiding the attention of a person with autism to others' actions can cause them to mimic spontaneously. Several studies have found, for example, that people with autism **don't yawn spontaneously** when someone else does, but when told to look at the eyes of a yawner, they do 'catch' the yawn.

Other groups have similarly found that people with autism do well on **laboratory tests of executive function** — complex mental processes involved in planning and problem-solving — when the instructions are explicit. But in daily life, or when they have to guess at the experimenter's intent, they do poorly.

I think it would be interesting to know what people with autism experience when they are asked to pay attention to eyes, intentions and other social information. Do they have an 'Aha' moment, finally getting an inkling of what the fuss is about, or a 'Ho-hum' moment, finding the information uninteresting?