

How touchscreens and eye trackers can tell us something about the dating life of orangutans

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Credit: Dan Dennis / Unsplash.com

Aesthetic attraction plays a big role in orangutans' mate choice, behavioral biologist and Ph.D. candidate Tom Roth has observed. But to discover just how big that role is, more research is needed into the emotions of the great apes.

Roth visited Apenheul Zoo at least 300 and perhaps more than 400 times in the past five years. Not as an avid visitor but to conduct research into the Bornean orangutans in the park. The goal? To learn more about the relationship between attentional processes and [mate choice](#) in great apes, and thus make [orangutan](#) breeding programs more successful.

Developing useful tests

Whereas much research on apes tells us something about ourselves, this time the roles were reversed. Experiments with eye trackers (more about these later), touchscreens and a big speed-dating event for humans were used to develop tests for the orangutans. But they did not all prove equally successful.

A [test](#) with a touchscreen worked other than Roth had expected. On a screen, female orangutans were shown photos of two males. One of the males was dominant with cheek flanges (wide flaps on the sides of its face) whereas the other was not. The two females could press a red or green dot to choose one of the two photos.

"We expected them mostly to choose the [dominant males](#), but it turned out to be 50/50. The females mainly seemed interested in the red dot. They were also more likely to choose the dot that they had to lift their arm least for. So other motivations seem to be at play in this test."

Eye tracker and special drinking spout

A test with an [eye tracker](#) proved to work better. The female orangutans were lured to the window of their sleeping quarters with a special drinking spout. There they were again shown images of a dominant and a non-dominant male. A special camera measured the amount of time their eyes fixed on the images. As expected, the images of dominant males appeared to attract more attention.

Mate preference or vigilance?

But here too there were still question marks, says Roth. Were the females looking at the dominant males out of mate preference or

because they were more vigilant around these males? "The females didn't show any signs of stress or anxiety, which suggests that mate choice plays an important role. Hopefully, we'll also be able to test for emotions in the future. That could be done by measuring their nose temperature. In spontaneous stress, this temperature drops as more blood flows to the major organs."

Roth set up the eye-tracking experiment himself. He applied for funding and approached a producer behind the technology. "I'm really pleased it worked. The touchscreen tests did not reveal what we had expected. There's a saying in science: no result is also a result. But the eye-tracking study succeeded and that's what I'm most proud of."

Help from zookeepers

In his research, Roth received a lot of help from his supervisor Mariska Kret and his fellow Ph.D. candidates. But the Borneo orangutan zookeepers at Apenheul deserve a special mention. "They know the animals really well. If two orangutans came and sat at my screen, a zookeeper would say, for example: 'Gosh I don't think this one is in the mood for this today. I'll lure it away with a food puzzle.' I'd never have been able to do this research without the zookeepers."

Getting to know personalities

As well as conducting research, Roth saw an added advantage of his weekly Apenheul visits. "At some point, you get to know their personalities. Some orangutans didn't spare me a glance. But there was one that would comfortably sit right in front of me and watch what I was doing. I watched two little ones grow up, change and become independent. It was a really special time."

Tom Roth will receive his doctorate on Wednesday 13 March for his dissertation "Tinder for Orangutans: Comparing Sexually Selective Cognition Among Bornean Orangutans (*Pongo pygmaeus*) and Humans (*Homo sapiens*)."

More information: Ph.D. defense: [Tinder for orang-utans: comparing sexually selective cognition among Bornean orang-utans \(*Pongo pygmaeus*\) and humans \(*Homo sapiens*\)](#)

Provided by Leiden University

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