



Science Magazine Podcast

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Promo

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Music

Interviewer – Isabelle Boni

Finally today, we have David Grimm, online news editor of *Science*, here to give us a rundown of some of the recent stories from our online daily news site. I’m Isabelle Boni. So David, the researchers in our first study for today were studying chimpanzees and found a wide range of intelligence levels. What did they make of this?

Interviewee – David Grimm

Well, Isabelle, we know obviously in human society that we have a pretty wide range of intelligence. There are some of us that are maybe not so bright, and then, of course, we’ve got individuals like Tesla and Einstein that are really sort of at the top of the heap. And the question is, “Do other animals sort of show the same range of intelligence that we do?” And to do this study, the researchers actually looked at a group of chimpanzees, some of whom lived in sanctuaries in Africa, others that lived in a zoo, others that lived in captivity in Germany. And they really sort of, they tested them on a lot of different tasks. In one experiment, they asked the chimpanzees to find food in a container after it had sort of been shuffled around with empty containers. Another experiment that chimpanzees had to use a stick to get food placed on a high platform. So sort of tests to see whether they could sort of intuit how to figure out different situations. And what they saw is sort of something that you’d probably see in humans too, was that there was a really big variation in how the chimps performed on these tests. Some of them did better on some, and some of them did better on others, but there was one individual – this female chimp named Natasha – who really sort of blew all the other chimps away.

Interviewer – Isabelle Boni

So you talked a little bit about the different sorts of tests administered to these apes. How reliable were individual intelligence tests? So how predictive of other measures of intelligence were they?

Interviewee – David Grimm

Well, that’s a good question. I mean, in humans, we have this IQ test, which is somewhat controversial. But people say the higher the score on this IQ test, the more intelligent you are. The researchers didn’t really find that for the chimpanzees. They found that, you know, chimps performed well on one test, they didn’t necessarily perform well on another. So there wasn’t one test they could give them and say, “This chimpanzee is

smarter than this other chimpanzee.” But with Natasha, she really excelled so much at all of the tests that the researchers could reliably say that, you know, if you want to use the word “smart”, she was sort of a lot smarter than all of the other chimps. She was sort of the “Einstein” of the group.

Interviewer – Isabelle Boni

What has this study taught us about intelligence, in general?

Interviewee – David Grimm

Well, basically, what it tells us is first of all that, you know, there is a range of intelligence in other animals – at least in chimpanzees – the same sort of range we see in humans. Although obviously chimpanzees aren’t going to be necessarily good at the same things that we’re good at. So just because we give a chimpanzee a math test doesn’t mean that because the chimpanzee fails that test that the chimpanzee isn’t smart just because chimpanzees don’t usually use math in their daily lives like we do. You know, the trick with trying to determine the intelligence of an individual is to try to design tests that are really specific to them, which is why the researchers had them doing tests where they were trying to find food or trying to sort of intuit where a treat might be, something analogous to something they might have to do in the wild.

Interviewer – Isabelle Boni

From smart apes to hungry monkeys, our next study covers the effects of a special diet called calorie restriction on the health of rhesus macaques. But let’s back up a bit. So what are some of the benefits for different species that have been found for this sort of diet?

Interviewee – David Grimm

Well, Isabelle, there is something known as the calorie restriction hypothesis, and the idea is pretty simple – the less you eat the longer you live. And it’s actually been shown, as you alluded to, in a number of species: mice, some worms that are given a lot less to eat, actually live a lot longer. But the findings haven’t been replicated in humans, and it’s been really hard to test this. These animals, like mice or worms, have life spans of sometimes days, with mice maybe a few months or a couple of years, so it’s relatively easy to run experiments where you can look at the entire life of an animal and see, okay, if we fed this animal 25% less food, does it live, you know, maybe a few months longer. But humans obviously have such big life spans, it would be really hard to do this study with people. So in this new study, they turned to rhesus monkeys, which are related to us – a lot more related at least than mice or worms are – but have a much shorter lifespan. The average lifespan for rhesus monkeys is about 27 years. And the results of this study with one group of monkeys came out in 2009 where researchers showed that monkeys living at the Wisconsin National Primate Research Center that ate a lot less than control monkeys seemed to live a lot longer: 13% of the calorie restricted monkeys had died from old age versus 37% of the control animals. So there really seemed to be this sort of significant effect of calorie restriction.

Interviewer – Isabelle Boni

So this study looked at two different groups of monkeys in Wisconsin and Maryland, respectively. Were there any differences found between the two groups?

Interviewee – David Grimm

Right. Well, there was another group of monkeys that was also being studied. This group lived at the National Institutes of Health Animal Center in Dickerson, Maryland. And the researchers conducted very similar experiments with these monkeys. They fed some of the monkeys a lot less than others. What was interesting about this study was in this study, the calorie-restricted monkeys did not seem to live longer. One similarity between the two studies is that in both the Maryland and the Wisconsin groups, the monkeys that ate less seemed to have a higher quality of life. They had less cardiovascular disease, they also had much less incidence of developing cancer. And that was also true of the Maryland group. So even though the Maryland calorie-restricted monkeys weren't living longer, they seemed to be living at least better than their counterparts that were eating a lot more calories.

Interviewer – Isabelle Boni

Okay. So is there still room for optimism about potentially expanding longevity?

Interviewee – David Grimm

There is and, in fact, some experts point to some differences between these two studies. They say that the Wisconsin group of monkeys were actually not eating as healthy of a diet and, in fact, they were eating a diet that was high in processed food and refined sugar. And obviously, the monkeys that weren't calorie-restricted were eating a lot more of this. And that could explain the differences in lifespan, whereas the Maryland monkeys were on a much healthier diet. So there could still be a cause for optimism. It could mean that in humans, it's not just sort of reducing the calories that we eat, but actually eating healthier food as well. Again, though, we're just talking about monkeys; these studies really haven't been done in humans, although there is a study that's currently ongoing that has tried calorie restriction in humans, and the results of that are actually going to be coming out pretty soon. So we should know in the fairly near future whether a calorie-restricted diet actually has benefits for humans in addition to the benefits that it's already been shown to have for mice, worms, and monkeys.

Interviewer – Isabelle Boni

Good to know. Now, this next study turned the tables on researchers making them the subjects. So what was this study exactly about?

Interviewee – David Grimm

Well, this study is kind of a fun one. It's about what researchers' faculty Web pages say about them. If you go to any university Web site and look for a scientist, chances are you will not only see their bio and their CV on the page, but you'll also see a picture of them. It turns out there's some differences in pictures. Some faculty members tend to have their left cheek facing the camera; some have their right cheek facing the camera. And this new study was trying to figure out is there any meaning behind that? Are these

faculty members consciously or unconsciously presenting something about their personality to the rest of us?

Interviewer – Isabelle Boni

So what is significant about the left side of the face?

Interviewee – David Grimm

Darwin postulated that emotions are stronger on the left side of the face. They actually sort begin on the left side of the face, and they're actually expressed more on the left side of the face. So if somebody was unhappy, you'd maybe have a better time being able to register that by looking at their left side of their face than their right side. And it actually sort of makes sense from a neuroscience point of view because the nerves on the left side of the face are actually controlled by the right side of our brain, which has also been linked to the processing of facial expression. So it all sort of adds up to this idea that if you're looking at the left side of somebody's face, you're seeing sort of maybe more of their emotional side, whereas maybe if you're looking at the right side, you're seeing maybe more of their rational non-emotional side.

Interviewer – Isabelle Boni

So how did the researchers conduct their study to determine whether the left-facing bias was consistent or true?

Interviewee – David Grimm

Well, yeah, and that was really the question, you know, "Do faculty present one side or the other of their face to the camera, and what does that say about how they want to be viewed by the world, either consciously or unconsciously?" The idea would be that if a faculty member is presenting the left side of their face, maybe they wanted people to think they're more emotional, maybe more sensitive; and if they're presenting the right side of their face maybe they want the public to think they're more calm, they're more rational, they're less emotional, they're more – as we say in our headline – a little bit more like Mr. Spock on Star Trek. And actually that's what the researchers found. They scanned almost 6000 faces from 30 university Web sites around the world, and they found that faculty members in the sciences and engineering and mathematics field were significantly more likely to show the left side of their face than the right side of their face in these faculty pictures, whereas their colleagues in the arts and humanities were statistically more likely to show the right side of their face, which again gets back to this idea that maybe faculty members want to show themselves as more cool and rational, and maybe the arts and humanities folks want to show themselves as more emotional.

Interviewer – Isabelle Boni

So are there any unanswered questions left, or what further research should be done?

Interviewee – David Grimm

Well one expert says that, you know, there's still really no evidence that just even if faculty members are purposely or unpurposely showing these different sides of their faces to the world, whether we're actually registering that as differences in their personality. In

other words, if I see the faculty page of a scientist who's presenting her right cheek to the camera, do I automatically think, "Well, hey, she seems a lot more serious, a lot less emotional." Or is that just sort of a hypothesis on the part of these researchers, and it's actually not really the case. So a little bit more research needs to be done to see not only how do faculty members present themselves to the world, but how do the rest of us actually react to the way that these people are facing the camera?

Interviewer – Isabelle Boni

All right, David. Now what are some of the other recent stories on our online daily news site?

Interviewee – David Grimm

Well, Isabelle, for *ScienceNOW*, we've got a story about using dogs to scare pigeons away on beaches and how that could improve public health. We've also got a story about weighing individual molecules with a mechanically vibrating beam. For *ScienceInsider*, our policy blog, we've got a story about how stem cell research is faring in the U.S. courts. Also a story about how President Obama is interacting with science teachers across the country. And finally, we are back in business with *ScienceLive*, our weekly chat on the hottest topics in science. Next week's *ScienceLive* is going to be about the impact of brain injury on cognition and how that might play into sports and the military. So be sure to check out all these stories on the site.

Interviewer – Isabelle Boni

Thank you, David.

Interviewee – David Grimm

Thanks, Isabelle.

Interviewer – Isabelle Boni

David Grimm is the online news editor for *Science*. You can check out the latest news and the policy blog, *ScienceInsider*, at news.sciencemag.org, where you can also join a live chat, *ScienceLive*, on the hottest science topics every Thursday at 3 p.m. U.S. Eastern time.