

Researchers debunk the IQ myth

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After conducting the largest online intelligence study on record, a Western University-led research team has concluded that the notion of measuring one's intelligence quotient or IQ by a singular, standardized test is highly misleading.

The findings from the landmark study, which included more than 100,000 participants, were published today in the journal *Neuron*. The article, "Fractionating [human intelligence](#)," was written by Adrian M. Owen and Adam Hampshire from Western's Brain and Mind Institute (London, Canada) and Roger Highfield, Director of External Affairs, Science Museum Group (London, U.K).

Utilizing an online study open to anyone, anywhere in the world, the researchers asked respondents to complete 12 cognitive tests tapping memory, reasoning, attention and planning abilities, as well as a survey about their background and [lifestyle habits](#).

"The uptake was astonishing," says Owen, the Canada Excellence Research Chair in [Cognitive Neuroscience](#) and Imaging and senior investigator on the project. "We expected a few hundred responses, but thousands and thousands of people took part, including people of all ages, cultures and creeds from every corner of the world."

The results showed that when a wide range of cognitive abilities are explored, the observed variations in performance can only be explained with at least three distinct components: short-term memory, reasoning and a verbal component.

No one component, or IQ, explained everything. Furthermore, the scientists used a brain scanning technique known as [functional magnetic resonance imaging](#) (fMRI), to show that these differences in cognitive ability map onto distinct circuits in the brain.

With so many respondents, the results also provided a wealth of new information about how factors such as age, gender and the tendency to play computer games influence our [brain function](#).

"Regular [brain training](#) didn't help people's cognitive performance at all yet aging had a profound negative effect on both memory and reasoning abilities," says Owen.

Hampshire adds, "Intriguingly, people who regularly played computer games did perform significantly better in terms of both reasoning and short-term memory. And smokers performed poorly on the short-term memory and the verbal factors, while people who frequently suffer from anxiety performed badly on the short-term memory factor in particular".

To continue the groundbreaking research, the team has launched a new version of the tests at

<http://www.cambridgebrainsciences.com/theIQchallenge>

"To ensure the results aren't biased, we can't say much about the agenda other than that there are many more fascinating questions about variations in cognitive ability that we want to answer," explains Hampshire.

Provided by University of Western Ontario

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