

News

Magic teases out clues to consciousness

by Brooke Borel

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NEW YORK: Our reactions to common magic tricks and illusions are untapped resources for helping neuroscientists understand how the human brain works, an American study says.

'Cognitive illusions', used by performing magicians, could give insight into both human awareness and attention, two fields of great interest to neuroscientists, says the study in a recent issue of the British journal *Nature Neuroscience*.

Reinventing the wheel

According to Susana Martinez-Conde, co-author and visual neuroscientist, scientists have been "reinventing the wheel" by researching aspects of consciousness that magicians already intuitively understood.

"We want to establish a dialogue between neuroscience and cognitive art," she said.

According to Martinez-Conde, based at the Barrow Neurological Institute in Phoenix, Arizona, discussions with magicians have revealed several key principles that may be "fundamentally amendable to neuroscience research."

The principles – which were elucidated at the Magic of Consciousness Symposium, held in Las Vegas, Nevada, in June 2007 – include specific hand motions used to direct attention, the magician's use of humour during an act, and the fact that magicians perform under the audience's scrutiny, yet are still adept at fooling them.

Apollo Robbins, a professional thief once credited with pick pocketing secret service agents protecting former U.S. president Jimmy Carter, showed the cognitive scientists at the symposium that circular hand gestures catch the eye much better than moving a hand straight from point A to point B. This trick is used by pickpockets to distract their victims.

According to U.S. magician Jimmy Thompson – also known as 'The Great Tomsoni' – time stops for people



Magic at work: Apollo Robbins, a professional thief, demonstrates some principals of illusion at the Magic of Consciousness Symposium. By drawing the attention of *New York Times* science writer, George Johnson in one direction, he keeps him from attending to his valuables in the other.

Credit: Jorge Otero-Millan, Xoana Troncoso, Hector Rieiro, and Ravi Atreya.

as they laugh, a concept exploited by magicians when they want to distract an audience from a key part of a trick.

Combination of illusions

"Why is it that humour will engage attention to such a powerful degree that you can't do anything else at the same time?" asked Martinez-Conde, who hopes to find the answer to that question.

Most audience members operate on the assumption that the conjurer is using a combination of illusions to trick them. The important question for cognitive research, said Martinez-Conde, is how magicians are still able to trick an entire audience of people who are already sceptical of their work?

She now plans to test the hand motion concept in the laboratory, and if found to be true, why a curved motion better engages our brain's attention than straight one.

Samuel Wang, a neuroscientist at Princeton University in New Jersey, called the report "convincing".

"It's not commonly appreciated, but our everyday experience of life is deeply coloured by the way our brains work, quirks and all," said Wang. "[Magic] is a great example that brings this principle home."



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