

Neuroscientists to explain how the brain is tricked at upcoming discussion

Anne Constable | The New Mexican
Posted: Saturday, February 19, 2011

Comments

Like Email Share Share Tweet Google Bookmark

Print | Font Size:

Why is it that when you're watching a magic trick you fall for it every time — even though you know you're being fooled?

The answer has to do with neuroscience, and it's the subject of a book published by two researchers at the Barrow Neurological Institute in Phoenix and a Santa Fe-based science writer.

Stephen L. Macknik is director of the Laboratory of Behavioral Neurophysiology at BNI, and his wife, Susana Martinez-Conde, is the director of the Laboratory of Visual Neuroscience. Sandra Blakeslee is a science correspondent at the *New York Times* who specializes in the brain sciences.

"Magic tricks work because humans have a hardwired process of attention and awareness that is hackable," the authors say in their book, *Sleights of Mind: What the Neuroscience of Magic Reveals about our Everyday Deceptions*.

In other words, a good magician uses your own brain against you.

The process depends on the specific trick, Martinez-Conde said in an interview Friday.

"The basic story is that our brain takes shortcuts. We don't process all the information that enters our senses — only a tiny fraction," she explained.

For one thing, humans only have high resolution at the very center of their vision. So, even if you pay attention to what is happening at the periphery, that only helps so much because it is too far from the center.

Also, because the brain is limited in size and the number of neurons, "We cannot process everything out there," she said. In response, "The brain fills in gaps. It takes a guess. It makes predictions and simulations of the reality."

This approximation is generally pretty accurate. "For the most part (this ability) allows us to navigate in the world and not get eaten by predators," Martinez-Conde said. "But sometimes it's incorrect. Magicians take advantage of these limitations, these incorrect guesses we all make in everyday life" that lead to wrong conclusions about what's happening.

Macknik and Martinez-Conde, who describe themselves as a couple of Muggles — i.e. ordinary humans who are not like Harry Potter, born into the magical community — stepped into this world in 2005 when they decided to "rustle up some public enthusiasm" for their specialty of visual neuroscience by creating the Best Illusion of the Year contest for a meeting of the European Conference on Visual Perception, which they were organizing.

The contest was a huge success and has been held every year since then. The illusions can be viewed at <http://illusionoftheyear.com>, which gets about 5 million page views annually.

Literary agents and book publishers took notice of this and of the couple's articles in publications such as *Scientific American Mind*, and began calling.

And as scientists, they had read dozens of articles by Blakeslee in the science section of *The New York Times*.

Macknik and Martinez-Conde signed up with Blakeslee's agent and sold the book to Henry Holt and Company after meeting with a number of interested publishers. Since publication last fall, the book has garnered stories in the *Wall Street Journal*, *The Financial Times* and the *Times of London*, where the book debuted at number 51.

Macknik said one of the first things the authors did was buy an enormous whiteboard and sit down together over a weekend in Phoenix to structure the book.

They decided each chapter would describe a type of illusion — memory, choice, attention — and would include a particular trick to illustrate the psychological principle and its basis in neuroscience. Each chapter also includes "spoiler alerts" to prevent readers from inadvertently learning how the tricks are done — if that's their choice.

The book culminates with the story of the neuromagicians' own presentation of an elaborate trick — in which they pull a card out of a "brain" — at the Magic Castle, the Los Angeles home of the prestigious Academy of Magical Arts. Among other things, it involves a pinky break, a dovepan and a fake thumb tip.

Macknik said the couple wanted to write a book that would appeal to the general public's interest in how we interact in the world and how we behave, but also that would appeal to colleagues in the field. "Magic is still an area of knowledge people don't know a lot about," he said. "We could take advantage of the knowledge magicians have accumulated over millennia."

Neither of the neuroscientists had an interest in magic as youths, but they've realized that "magicians manipulate attention and awareness better than scientists," and that they are masters of a "very intellectual form of performance art."

Macknik said many of the magicians they worked with (James the Amazing Randi, Johnny Thompson, Omar Pasha, Mac King) are fans of cognitive science and interested in how tricks work in the brain. "These guys really know their stuff," he said. "To invent a trick, you have to have a theory of how the mind is working. Some of those theories we discovered are new. A subset of those are actually correct. Magicians have actually discovered new important principles of the brain."

On Wednesday, Macknik and Martinez-Conde will be in Santa Fe and will give a talk at the Santa Fe Complex on types of illusions magicians use, with particular focus on misdirection of attention. They promise a lot of illusions, videos and interactive exercises for the audience.

Contact Anne Constable at 986-3022 or aconstable@sfnwmexican.com.

IF YOU GO

What: Talk by neuroscientists Stephen L. Macknik and Susana Martinez-Conde, authors of *Sleights of Mind*

When: 4 to 5:30 p.m. Wednesday

Where: Santa Fe Complex, 632 Agua Fria St.

Cost: Free

Information: Call 216-7562

On the Web: www.sleightsofmind.com

You must register with a valid email address and use your real name to comment on this forum. Previous usernames are no longer valid as of Feb. 5. Once you've logged into the system, you'll be able to contribute comments. If you need help logging in or establishing your new user name and password, please visit [this tutorial](#).

All users are expected to abide by the [forum rules](#) and be courteous to other users. Comments can be accepted up to eight days following publication. After that, comments can be read but no new submissions made. Send questions to webeditor@sfnwmexican.com

IMPORTANT: Comments must be posted under your own full, real name. Anonymous comments and those posted under a pseudonym can be removed. Please consult the forum rules. If you have questions, e-mail webeditor@sfnwmexican.com.

Like

DISQUS

Comments for this page are closed.

Showing 0 comments

Sort by Subscribe by email Subscribe by RSS

Trackback URL <http://disqus.com/forum>

comments powered by DISQUS

Related Items

Recent articles by Anne Constable:

- Supreme Court ruling could require more analysts to testify, putting strain on state science lab
- Sequined vodou flags transform Haitian woman's visions into art
- Amid pressure, city pushes back craft-fair setup
- Business owners say arts and craft fairs on Plaza kill foot traffic, devastate sales
- Local news in brief, June 23, 2011
- Santa Fe Opera kicks off 2011 season with first 'Faust'
- Folk art market is natural fit for former Peace Corps members
- Spanish Market takes tradition to cutting edge
- New name, bigger mission for shelter undergoing renovations
- Folk Art Market: Women's network to help artisans go global

Refi Rates Hit 3.25%

If you owe less than \$729,000 on your mortgage, you probably qualify for the President's Making Home Affordable Program. This program helps homeowners refinance and take advantage of today's historically low interest rates. If you are a homeowner and you haven't looked into refinancing recently, you may be surprised at how much you can save.

Select Your State:

Select Your Age:

Calculate New Payment

Weekly Top Ten

Most read | Most commented | Most recommended

1. State tourism official resigns, blaming 'slanderous attacks' - 7278 views
2. Motorcycle crash kills Truchas man overnight - 6833 views
3. City axes parking worker targeted in probe - 6443 views
4. Ghost town a casualty of Las Conchas Fire - 6046 views
5. Former Sheriff Solano pleads guilty to five counts of fraud - 5848 views
6. Opera review: SFO premiere of Vivaldi's 'Griselda' misfires - 4836 views
7. Four-year-old injured when man throws rock through diner window - 4828 views
8. Possible panhandler hit by car in downtown Santa Fe - 4192 views
9. Environment Department official resigns after bureau move - 3964 views
10. Albuquerque public safety boss resigns - 2989 views

Advertisement

Community Ticker

Interaction with Santa Fe's stories

scott wilson commented on:
Group calls for ban on motorized vehicles in Jemez - 29 minutes ago

Lou Neiner commented on:
Nearly 90% of NM schools miss achievement goals - 56 minutes ago

Lou Neiner commented on:
Nearly 90% of NM schools miss achievement goals - 58 minutes ago

Steve Harbour commented on:
Hospital gears up for strike - 1 hour ago

Steve Harbour commented on:
Group calls for ban on motorized vehicles in Jemez - 1 hour ago

David Martinez commented on:
Nearly 90% of NM schools miss achievement goals - 1 hour ago

DrDeLong commented on:
Nearly 90% of NM schools miss achievement goals - 1 hour ago

steverizka commented on:
Letters to the editor for July 22, 2011 - 2 hours ago

View latest comments >>
Powered by Disqus

ASPEN SANTA FE BALLET PRESENTS

Summer Dance Season

July 8-9
Aspen Santa Fe Ballet

August 5
ONE NIGHT ONLY
Alonzo King LINES Ballet

September 3
Aspen Santa Fe Ballet

Tickets:
www.aspensantafeballet.com

Photo: Alonzo King LINES Ballet © Marty Sohl

4-DAY WEBSALE **LG Vortex™ Android Smartphone FREE** **Learn More**

NEW 2YR ACTIVATION & DATA PAK REQ. Today, save up to \$35 a line with Free Activation plus get Free Overnight Shipping with this offer.



The Current Issue of the Real Estate Guide

View past issues

- Submit a Sunday open house listing
- Submit a Sunday featured listing

View real estate listings

Advertise: Online advertising Classified advertising Advertising rate cards Contacts

RSS: Santa Fe News Santa Fe Sports

Visit: santafenewmexican.com santafescoop.com santafegreenline.com etastesantafe.com taosnews.com sangrechronicle.com

Learn more about The New Mexican's commercial printing operation.