Sleights Of Mind In Healthcare: Do You Believe In Magic?

Published on: December 7, 2011 **Tags: Blink, Cognitive Illusion, Healthcare, How We Decide, Lisa Suennen, Magic, mHealth Summit, Neuromagic, Neuroscience, Science, Sleights Of Mind, Stephen Macknik, Susana Martinez-Conde, The Female Brain, The Male Brain, Visual Illusion**

By Lisa Suennen (Co-Founder & Managing Partner, Psilos Group)

As health and science have entered the popular discourse in a greater way these past several years, there has been an upsurge in scientific literature delivered in an accessible pop culture format-science for the Everyman, if you will.

Especially popular among the books that have migrated from the lab to the NY Times Bestseller list have been those about the way humans think and why. Over the last few years I have noticed a myriad of what I will dub pop science books out there about the brain and cognition. There have been books that illuminate "How We Decide" and how we make decisions in the blink of an eye ("Blink").

I have seen books about how kids brains develop (very slowly, I might add) and how the brains differ by gender. "The Female Brain" has been a big bestseller among the pop culture-inclined, with it's 187 pages telling the tale of how a woman's brain changes as she matures and how that affects her parenting, sexual and partnering experiences. Perhaps none of you will be surprised to learn that the companion book, "The Male Brain", is a much shorter book at 135 pages, reinforcing the widely held belief that there is less to report about its maturity.

When I was perusing the airport bookstores shelves this week in search of diversion for my flight to the east coast, I came across a book called "Sleights of Mind". The subtitle of the book is, "what the neuroscience of magic reveals about our everyday deceptions." Intriguing, I figured, as the book is written by bona fide scientists from the Barrows Neurological Institute, widely regarded as one of the most prestigious neurological medical research and treatment institutions in the world.

The book jacket suggested that its contents would provide a science-based understanding of how magic tricks that deceive us time after time can teach us much about how we perceive everything from medicine to marketing, as well as how we might apply that understanding to everyday life. Science plus magic seemed like a perfect combination of the sublime and the ridiculous: Edward Teller meets Penn and Teller. I must admit I found some humor in the idea that the book's research subjects would be the humans who are watching rabbits get pulled out of hats, rather than the rabbits themselves, for a change.

The primary thesis of the book is really interesting. I'll quote from the book here:

> Cognitive neuroscience experiments are strongly susceptible to the state of the observer. If the experimental subject knows what the experiment is about, or is able to guess it, or even if she incorrectly thinks she has figured it out, the data are often corrupted or impossible to analyze. Such experiments are fragile and clunky. Extraordinary control measures must be put in place to keep the data pure.
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> Now compare this with magic shows. Magic tricks test many of the same hypotheses we study, but they are incredibly robust. It doesn't matter in the slightest that the entire audience knows it is being tricked; it falls for each trick every time it is performed...we thought, if only we could be that deft and clever in the lab! If only we were half so skilled at manipulating attention and awareness, what advances we could make!

So in their quest to learn about how the brain suspends it's disbelief for a guy with a black satin cape, funny moustache and underdressed buxom assistant, scientists Stephen Macknik and Susana Martinez-Conde teamed up with the actual Penn Gillette of Penn and Teller fame, the Amazing Randi, and several other professional magicians of the Vegas variety to found the field of Neuromagic.

It's interesting to see science and magic tied together. Normally science is, well, science, and magic is folly. We all know that magic isn't real and that coins don't come out of ears, but I have never thought of magic as a means of exploiting hard core neuroscience wrapped up in an entertaining package. As you read "Sleights of Mind", it is clear that magicians are relying on complex neurological phenomena, particularly the science of visual and cognitive illusions to make you think the elephant in the room disappeared.

Visual illusions are basically the lies your brain tells you, or information your brain fills in for you, so you can function in a visual society without being overloaded. We all know that our brain fills in images, sounds, and ideas that are not based on the factual data in front of you. For instance, if you look at a picture of a cat where the photo is half obscured, you still know it's a cat because your brain fills in the detail and says, "hey, look, a cat." If you look at the moon on the horizon you know it is huge, not tiny like it appears in your actual eye. The authors of the book elaborate on how the brain's natural propensity to fill in visual images by applying what the brain has already learned is key to how magicians manipulate; they basically do what you do not anticipate from past experience and your brain cannot account for it, so the action goes unseen.

Cognitive illusions are those that play on your sense of attention and expectation. Attention-focused acts draw your eye away from one place by causing it to refocus elsewhere. Expectation-focused ones are those that make you see what you expect to see rather than what might actually be in front of you. For instance, if you see someone make a gesture like they are throwing something, your mind processes it like something has, in fact, been thrown even though that may not be the case.

As I reflect on this book, I think the idea of using these findings about the neuroscience of magic are a fascinating opportunity in medicine and healthcare. So much of medicine involves getting the patient to believe certain facts and, more importantly, getting them to ACT in certain ways as a result of those facts regardless of their own powers of denial. Imagine a world in which you could, through good manipulation of the mind, not evil, get your diabetes patients to always take good care of themselves or get the hypertensive or chronically depressed person patient to take their medication every day. You might do this by putting a picture in their mind that, for all intents and purposes, hypnotizes them to act according to a treatment plan, much as a magician might get you on stage to willingly hand over your watch or quack like a duck.

I am presently at the mHealth Summit in Washington, DC and a great deal of what has been discussed so far is how to use the world of emerging mobile technology to get patients to make better healthcare choices, comply with critical treatment regimens and/or engage consumers in a fun way that will get them to refocus on their health.

Are there learnings in the field of neuromagic that would aid in this endeavor, which has been largely unsuccessful, at least in the long term?

One of the talks I went to at the mHealth Summit was on games and their ramification for health improvement (**I wrote about this topic recently here**).

After 30 minutes of speaking about how important health, wellness, blah blah blah are, the speaker asked the audience a question and offered the winner a choice of prize: a book or a Snickers candy bar. Yes, Virginia, dude picked the Snickers bar. But what if the speaker had employed more comprehensive methods of visual and cognitive illusion in his sales pitch? Would the "correct" healthy choice have been made?

This idea of using trickery is not an unprecedented concept in medicine. There has been widespread use of placebos in clinical studies where the participants who are not taking the drug experience similar effects to those who are due to their brain wanting, expecting, believing that they were being medicated.

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I know these are oversimplifications, but Sleights of Mind made me wonder. Are we missing something by not using all of this neuroscience to build a better mousetrap in medicine? We can make people "see" a woman has been sawed in half but we struggle to make them see that it will be their leg coming off if they don't manage their diabetes effectively. What would Penn and Teller do unleashed into the medical system? At the very least it would be entertaining. When was the last time you got a laugh at the hospital?

This post was originally posted at Venture Valkyrie.

About the guest blogger: Lisa Suennen is the Co-Founder and Managing Partner of Psilos Group, a healthcare investment firm focused on providing venture and growth capital to companies operating in the healthcare economy. She serves as a Director on the Board of several Psilos portfolio companies, including AngioScore (chairman), PatientSafe Solutions, OmniGuide and VeraLight (chairman). Lisa blogs at Venture Valkyrie. Follow her on Twitter at @VentureValkyrie.

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Wednesday, January 18 - Friday, January 20, 2012
San Francisco, CA

The Health Innovation Summit is a 3 day event focused on bringing great digital health solutions to market. Learn from experts about needs, opportunities, and stakeholders in the healthcare system, open technical challenges, digital health business models, technology platforms, and how to design great user experiences. Connect with developers, designers, entrepreneurs, and strategic partners including some of the biggest consumer and healthcare brands interested in digital health. Launch your own startup or watch others as they demo new products and services that will change healthcare as we know it today. Speakers include Linda Avey (Co-Founder, 23andme), Aza Raskin (Co-Founder, Massive Health), Nick Ganju (Co-Founder, ZocDoc), Rowan Chapman (Partner, MDV) and more. Women 2.0 members save 20% with discount code "Women2". For more info and to register, click here.

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Thursday, January 19, 2012, 8am – 3:30pm
Palo Alto, CA

The domestic clean technology industry has faced political, financial, regulatory, and competitive challenges. However, venture capitalists continue to invest in the industry, as illustrated by the $891 million raised by 80 cleantech companies in the third quarter of 2011*. Come hear from key leaders and industry influencers about innovative business models and technologies that are addressing global concerns around sustainability and climate change. Women 2.0 members save $10 with discount code "ENERGY". For more info and to register, click here.

Quotable Quotes

"A recession is the best time to start a company. The opportunity cost is low, hiring good people is relatively easy, rent and equipment are cheap (sometimes free) and established competitors are focused on reducing costs & staying in business, not on innovation. The key is being in a good position when the economy picks back up."

- Rebecca Lynn

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- Chris Shipley
Chairman, Guidewire Group