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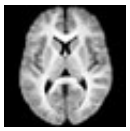

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The Seven Sins of Neuromarketing

I got quoted in a random neuromarketing article recently. In the flurry of people I have been chatting with about statistics and functional neuroimaging I often neglect to ask what organizations people are associate with. In this case it was Forbes magazine.

http://www.forbes.com/forbes/2009/1116/marketing-hyundai-neurofocus-brain-waves-battle-for-the-brain.html

In the online version of the article there was a user comment from a neuromarketing company CEO defending the honor of his business and the field in which they operate. He went so far as to compare the launch of neuromarketing with the initial steps of market research in the early 20th century. He further argued that neuromarketing would bring about the next revolution in understanding consumer behavior.

I have to admit, my gut reaction on first reading this statement was one of mild disgust. This got me thinking about why neuromarketing hangs in a cloud of disdain among many scientists. Below are some of the 'sins' which I feel currently plague the field of neuromarketing. This is all just my opinion of course, but I do think that it raises some interesting points for discussion.

1) The curtain of proprietary analysis methods limits our knowledge of how effective neuromarketing can be.

Neuromarketing seems to be primarily driven by the private industry, not academia. This is not to say that research into consumer behavior has not occurred at the university level. There has been a lot of good

neuroeconomics research in the last several years. Still, it is mostly companies in private industry that are driving the application of these findings to practical consumer behaviors. Because these companies are in competition with each other they are reluctant to give others the recipe to their secret analysis sauce. From the outside this means that the analysis pipeline of all neuromarketing companies is that of a black box, with data going in one end and the results-you-need coming out the other.

My colleagues and I have the position that fMRI research utilizing incorrect statistics can generate a large number of false positives. That is, many of the results will be there simply because of noise. Because so much of the current neuromarketing data is hidden behind the veil of proprietary analysis methods it is impossible to judge how successful their methods actually are, and to what degree their findings are false positives.

2) There is little peer-reviewed literature that is specific to neuromarketing.

Neuromarketing is an emerging discipline that will, in time, give us new insight into human behavior. Unfortunately, little peer-reviewed research has currently been published in this area. Search for 'neuromarketing' in the PubMed database of abstracts (www.pubmed.com) and you will find all of ten publications. This must change for neuromarketing to mature.

Again, without peer-reviewed results on the effectiveness of neuromarketing experiments all we have to rely on are self-reports from the neuromarketing firms themselves. An issue similar to the file-drawer problem then exists. The file-drawer problem is when only positive results get published in journals while negative results sit unpublished in the file drawer. Neuromarketing companies will be likely to report positive results while negative results sit undistributed. Either way, the end result is a biased understanding.

3) Most people's introduction to neuromarketing is through press releases, not peer-reviewed studies.

In 2006 there was an "instant-science" article released online by Marco Iacoboni et al. revealing their analysis of fMRI date obtain while subjects were watching Super Bowl advertisements. The much-discussed post, entitled "Who Really Won the Super Bowl?", tried to determine the most effective commercial by judging which one activated regions involved in reward and empathy to the greatest degree. They determined that a commercial from Disney fared the best when evaluated by these measures. Many neuroscientists shook their heads and moved on.

In 2009 the same group published an op-ed in the New York Times detailing the results of scanning 20 individuals while looking at pictures and videos of leading political candidates. They drew conclusions on candidate evaluations by examining activity in areas like the amygdala and anterior cingulate. For example, they concluded that amygdala activity indicated a state of anxiety and cingulate activity indicated cognitive conflict. These oversimplifications were so well publicized and widely distributed that a number of leading neuroscientists were compelled to publish a letter in the New York Times calling the Iacoboni results into question.

Let's put it this way, when many of the top minds in neuroimaging feel compelled to assemble a letter to the New York times regarding your non-peer-reviewed neuromarketing/neuropolitics results then the field has a problem.

There are a handful of peer-reviewed neuromarketing papers that do deliver. One recent paper by Michael Schaefer was a very interesting investigation into the representation of brand associations. However, these type of studies are typically rare, and it remains that the signal-to-noise ratio of information in the press is very low.

4) Neuromarketing methods are not immune to subjectivity and bias.

One of the most highly touted aspects of neuromarketing methods is that they are free from subjectivity and bias on the part of the participant. For example, asking a subject what they thought of a particular brand introduces the muddying waters of conscious consideration. The person's response will be colored by a complex web of tangential cognitive factors and contextual biases. The promise of neuromarketing is that you can bypass these confounding factors to get at the heart of the matter – the real representation of the brand. While this is true to a degree, an entirely new set of confounding factors is introduced during the analysis of neuromarketing data.

While many neuromarketing measures are indeed more objective than verbal reports, I must disagree with the observation that they are unfiltered, true reports of the underlying representation. While the signals are not filtered by the consciousness of the research subject, a great deal of manipulation and filtering of the data is done by the researcher. This does introduce the potential for bias, simply by a different avenue.

Small changes in processing pipelines can have a huge impact on the power of fMRI to detect relevant signals. Some excellent papers by Stephen Strother come to mind with regard to this point. With no knowledge of what is going on we have no idea how objective the analyses by these companies can be.

5) The value per dollar of neuromarketing methods has yet to be determined.

Neuromarketing studies are expensive. The Forbes article says that an average EEG or fMRI marketing study costs in the neighborhood of $50,000. Immediately this number can trigger a 'more expensive = better' response, especially if you have a large budget to support such studies. What rarely gets discussed is what kind of value you obtain in return for the huge amount of money that is spent.

The key question in neuromarketing is what information can you get with EEG / fMRI / eye tracking / biometrics that you cannot obtain using other methods. If I can spend $1000 to do a traditional market study that gets me 85% of what a $50,000 fMRI study does then the return on my neuromarketing investment is not great. Thinking about it another way, how much less or more could I get across 50 traditional studies relative to the value of one neuromarketing study.

Many companies are not limited by the extreme cost of neuromarketing studies, and a significant fraction of them are not afraid to take the risk to try something new. Perhaps part of the motivation is also the fear of being left behind – that a competitor will take the risk and gain a competitive advantage in consumer understanding. Whatever the motivation, there will always be a market for neuromarketing methods. Still, we must still acknowledge that the value of neuromarketing is an open question.

6) People are rushing the field to make a quick buck, and not everyone is trustworthy.

The emergence of neuromarketing represents a modern day gold rush in terms of buzz and promises. Brilliant researchers will be attracted to this opportunity and will significantly advance the field of neuromarketing. Morally questionable individuals will also be drawn to the opportunity, and will end up giving the field a black eye. Reputations will build up over time and trustworthy companies will emerge from the fray, but the current situation is more akin to the wild west than a civilized exchange.

7) The true value of neuromarketing is obscured by the above-mentioned problems.

I thought I would end on a high note. There is certainly significant value to using neuromarketing methods in consumer research. Why else would companies like Nielsen Holdings be investing in neuromarketing firms like NeuroFocus? One of the biggest problems is that the true value of these methods is obscured by

those who treat it as a gimmick and have the loudest voice. The next ten years will represent a true shakedown of the neuromarketing industry. Companies that are able to provide real value to their customers will live on while those who simply seek to make pretty pictures will fall by the wayside. It will be a fascinating time to be an observer of the business and politics in this emerging field.

Conclusions.

The above points ignore many other issues facing neuromarketing. I have completely bypassed a discussion of the ethics of neuromarketing. Many people worry that technologies like fMRI will help marketers find the 'buy button' in the brain, stripping away people's free will in product choice. I am not terribly worried about that discussion, perhaps because I am ignoring the problem or perhaps because I know too much about brain function or neuroimaging methods. Regardless, there are other issues and hurdles that neuromarketing must address to grow as a field.

In the end I do wish neuromarketing great success. I simply fear that those individuals who are seeking to profit on the popularity will tarnish the reputation of neuromarketing before it is able to legitimize itself.

April 22, 2011 • Posted in: CogNeuro, MRI, Psychology

5 Responses to "The Seven Sins of Neuromarketing"

1. Critical Thinking About Neuromarketing | Neuromarketing - May 27th, 2011

   [...] The Seven Sins of Neuromarketing, Prefrontal.Org author Craig Bennett takes neuromarketing to task, but in a well-reasoned manner. [...]

2. Erik du Plessis - September 7th, 2011

   Hi, I devoted a full session at the Brandconclave workshop of the Confederation of Indian Industries to this topic.
   Fortunately it was recorded.

   http://www.youtube.com/watch?v=YoFivExYtBw

3. Åse - December 31st, 2011

   I teach a course on the psychology of marketing (basically applied social psychology – very much based on Robert Cialdini), and neuromarketing does come up on occasion. And, in some ways, it really is a marketing ploy in itself (me and a student decided). As brought up in "The Invisible Gorilla" (and probably elsewhere), the presence of a brain image seems to be very persuasive in itself – dubbed brain-porn. And, knowing how full of superstition marketing can be (I did work for an advertising agency once, before I went and became all sciencey and stuff), I figure that those beautiful brain-images, or ideas that "we can show it in the brain" is very very very seductive.

   After all, if it is shown in the brain, in must be true ;)

4. Felipe Almeida - May 21st, 2012

Great article! Indeed a great true as well. I'm an academic in the field of Neuromarketing and I just agree 100% with everything you wrote in this article.

5. Neuromarketing. Factibilidad de aplicación de la Neurociencia al Marketing - GestioPolis - July 27th, 2018

   […] The Seven Sins of Neuromarketing. Por Craig Martin Bennett . 22 de abril de http://prefrontal.org/blog/2011/04/the–seven–sins–of–Neuromarketing/ […]

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