

# Science of brain signals opens new era for advertising

July 29 2014, by Richard Ingham

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Companies in the near future will be able to test public reaction to advertisements, music and films before they are released by monitoring the brain signals of a select group as they watch a trial.

So say psychologists who on Tuesday unveiled the results of an unusual set of experiments into so-called neural signals.

Their idea is that by scanning [brain activity](#) in just a few individuals who watch a test commercial or TV programme, this will predict how a wider audience will also react to it.

The same method could also be applied to test political ideas on focus groups.

Reporting in the journal *Nature Communications*, a team led by Jacek Dmochowski at Stanford University in California asked 16 volunteers aged 19-32 to watch TV as their brain signals were recorded.

They watched the 2010 premiere episode of the popular TV series "The Walking Dead" and a set of commercials which first aired in American football's Super Bowl in 2012 and 2013.

The volunteers wore electroencephalography (EEG) sensors to monitor electrical activity in the various parts of the brain.

They were also scanned by functional magnetic resonance imaging

(fMRI), which maps brain activity by pinpointing cerebral blood flow.

What emerged was a strong correlation in the pattern of signals, showing that the individuals were all focused—"engaged"—in what they saw.

Their level of interest matched the response of the wider public to the show and to the commercials as measured by Twitter and the Nielsen TV audience rating.

Of course, to be focused on something does not necessarily reveal whether you liked it or disliked it.

But the experiments with the Super Bowl ads provided a useful clue.

## **Brain patterns**

Hugely expensive commercials for the Super Bowl are usually followed up with lots of research to see whether the ads were a hit with the public or not.

"In the Super Bowl study, we observed a strong relationship between the amount of neural agreement in our sample and the popularity rating of a given ad," Dmochowski said in an email exchange with AFP.

"This tells us that, in general, stimuli which we prefer are experienced similarly in our brain as that of others."

"So at least in this experiment, a high level of neural similarity translates to 'liking' the content. However, further research is needed to fully understand what happens in our brain when we are positively versus negatively engaged."

After being fine-tuned, neural signalling could be a useful tool for

predicting audience response, said Dmochowski.

A common marketing technique today is to try out a prototype product or new idea—including political—on a panel chosen to represent the audience which is being targeted.

The flaw, though, is that individual responses can be muddled by self-reporting, poor verbal skills or group pressure—so data that comes direct from the brain could be invaluable.

"Marketing firms will likely be the first to adopt this technology, as in this domain even a small predictive edge can translate into large value," Dmochowski said.

"It is possible that focus groups that preview new advertisements will soon include measurements of brain signals in addition to subjective self-reports."

He added: "Yet another possibility is music production, where multiple versions of a particular song can be evaluated by measuring the neural responses of a group of listeners.

"In general, any application in which one seeks to forecast the population response to some content could benefit from the method."

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