



Where Is Consumer Research Going Next?

Consumer behaviour may be influenced by a host of neurobiological factors that science is just beginning to understand.

The rise of **neuromarketing** has already begun to provide companies and researchers with greater insight into consumer behaviour than consumers themselves were capable of giving. Neuromarketing tools such as facial affective recognition, eye tracking and fMRI technology can illuminate the neurobiological responses that may underlie people's likes and dislikes. Going straight to the source, i.e. the nervous system activity during moments of thinking and decision making, often lets us see beyond the conscious rationales, biases, second-guessing and omissions that crop up in consumer survey responses.

The addition of neuroscience to the marketing toolkit also necessitates more nuanced thinking about human perception. Traditionally, the line between conscious and unconscious marketing has been considered clear and inviolable. For example, fears about **subliminal messaging flare up periodically around the world**, despite **conflicting information** as to the technique's effectiveness. Recent neuroscientific research has found stronger evidence for the significance of a range of responses that are neither purely conscious nor unconscious. They occur regardless of our awareness and attention, **but can be regulated by the conscious mind**. That said, recent work by Steven Sweldens, INSEAD Distinguished Research Fellow, finds that

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our conscious resistance to advertising has limitations. No matter how hard we try, some messages will slip through and make an impact.

Vision neuroscience regards consciousness as a continuum between unconscious, preconscious and conscious processes that activate different key neural networks in the brain. Preconscious processes predominate when, for instance, consumers perceive, but do not consciously attend to, marketing cues promising a luxurious experience from certain products. My research on **wine tasting and fMRI scans** found that the exact same wine was capable of producing very different neurological responses, depending on how expensive consumers thought it was. Not only did people claim the wine tasted better when it carried a higher price tag, but their increased pleasure showed up in the scans as heightened activation of the brain's valuation and motivation system (BVMS).

Going forward, there are several other trends in cognitive neuroscience that will eventually allow researchers – and businesses – to see below the surface of what consumers report.

A neurobiological perspective on segmenting customers

Researchers have begun to trace differences in how consumers react to products, marketing campaigns and policy interventions based on their neurobiology. For example, in the study about the influence of wine price tags, we found that people whose BVMS were especially sensitive to the prospect of winning monetary rewards in a completely different experiment were much more affected by the price tag of the wine.

Using neurobiological markers to identify various types of decision makers offers opportunities for behavioural economists and policymakers. For marketers, it may create new ways to segment customers based on biological differences, in addition to the familiar socio-economic factors and very broad categorisations such as age and gender.

There are three additional compelling research areas that may deliver marketing breakthroughs further down the line:

Measures of gray matter volume: A 2015 paper I co-wrote found that people whose brain structure had higher gray matter volume (GMV) in regions linked to cognitive processing, and low GMV in the brain's sensory systems, were more influenced by marketing cues. The ability to resist marketing, we surmised, was related to the reliance on external information such as price and brand labels, rather than on one's gut feelings, when making decisions. Also, we found that people with high GMV in regions linked to reward-seeking behaviour were more affected by marketing.

Measures of brain connectivity: Another hot topic in cognitive neuroscience is the study of how brain regions are "talking" to each other, or how they are connected. Differences in brain connectivity can influence how consumers make decisions. Brain connectivity can be observed on different levels. For example, researchers have started to look at the structure of white matter that helps with long-range connectivity between different brain networks. Researchers could show that people consistently choosing smaller, immediate monetary rewards over larger, delayed ones have lower white matter connectivity between brain networks involved in self-control and those associated with reward and motivation. Another area of investigation is how connectivity during the brain's "downtime" – when it is not busy with problems or tasks – affects personality, thought processes and decision making at rest, without our conscious awareness.

Measures of gut-brain connectivity: A recent discovery has been that our gut forms its own independent nervous system. The enteric nervous system consists of about 500 million neurons and is often called the "second brain". The gut is constantly sending signals to the brain and a bi-

directional connectivity exists. Neuroscientists have been increasingly interested in understanding the neurobiological basis for our 'gut feelings' about a person or event, or the 'butterflies' in our stomach when something exciting happens. Researchers have shown, for example, that neural activity in the gut precedes – and, in some cases, predicts – neural activity in the brain before a symbol reaches conscious awareness.

At the forefront of this research stream are studies examining how the tens of trillions of bacteria that dwell in our gut contribute to the communication between the gut and the brain. For example, bacterial byproducts from fibre digestion have been linked to promotion of the neurotransmitter serotonin, which influences mood and mental focus, among other vital functions. Although this research is still in its infancy, especially in regard to humans, so far it seems to point to a connection between gut bacteria diversity and overall health and well-being. **A 2013 study** found some apparent differences in brain functions between a very small group of women who consumed probiotic yogurt every day over several weeks, and a group that did not. Viewing photos of angry and fearful faces, the women on the yogurt diet showed decreased activity in areas of the brain involved in threat and stress response.

Pooling resources

The more we learn about processes along the consciousness continuum and their key role in guiding consumer choices, the clearer the need for interdisciplinary collaboration becomes. Consumer researchers, cognitive neuroscientists and other neurobiologists could team up to explore the mechanisms at work and their potential applications.

Collaborations between business and scientists can also be mutually beneficial. Academic research would be enriched by the vast consumer-related datasets large companies have at their disposal, while businesses would receive neurobiological data to help improve their predictions.

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