

# Leveraging competitive value from neuromarketing research in retailing – An opportunity waiting to be exploited

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## PERSPECTIVE

Understanding the consumer and in the case of retailing, the shopper, is a key contributor to business success and has been acknowledged in marketing literature for a long time. In fact, in 1923, Professor Kitson already recognised the need to understand the consumer's mind addressed in an article entitled, not surprisingly, "Understanding the consumer's mind" (Kitson 1923). Building on the need to focus on the consumer's mind, the marketing concept, first put forward by McKitterick<sup>1</sup> CEO of General Electric in 1957, speaks of addressing consumer's needs as the concept's first and original cornerstone. The other cornerstones include an integrated systems approach and the focus on profitable business (both articulated by Kotler [1967]), as well as societal awareness – a more recent addition to the concept (Kotler 2000:14). Understanding retail consumers goes deeper than gathering broad insights into the community of consumers and shoppers, and instead focusses on understanding their individual needs and wants. This is where marketing research comes into play and much of the marketing research effort undertaken today is about understanding these individual needs and wants through the use of survey and interview research. But even understanding the needs and wants of consumers is not enough and the shift, more recently, has been on understanding how consumers think subconsciously and how they go about mentally making decisions as to what they

need and want, as well as what to buy and their response to marketing promotions (Brosekhan & Velayutham 2008). This is where neuromarketing comes into being.

Neuromarketing is a relatively new field of endeavour (Ćosić 2016:140; Kumar 2015:525–526; Martinez 2011) and is about studying the neurophysiological workings of the brains of individuals. Neuromarketing attempts to understand their mental or 'subconscious' activities in reaction to marketing stimuli, not least of all their decision making when choosing between alternatives (e.g. products, prices, brands, etc.) or their rational or emotional responses to marketing campaigns initiated by organisations (advertising, social media campaigns, sales promotions, etc.). Lee, Broderick and Chamberlain (2007:200) define neuromarketing "as the application of neuroscientific methods to analyze and understand human behaviour in relation to markets and marketing exchanges". It therefore provides an insight into the 'black box' of the brain, directing the decisions of consumers and shoppers and their actions.

There are different acknowledgements for the origin of neuromarketing. Some sources credit Professors Zaltman and Kosslyn from Harvard for first linking brain-imaging technology with marketing in the late 1990s (Fisher, Chin & Klitzman 2010:3; The Economist 2004;). Other sources credit Professor Ale Smidt and Brighthouse

<sup>1</sup> Druker has also been acknowledged as one of the 'fathers' of the marketing concept (Drucker 1954).

(an Atlanta-based advertising agency) respectively for first introducing the term neuromarketing in 2002 (Ćosić 2016:140; Fisher, Chin & Klitzman 2010:2; Kumar, 2015:525). Neuromarketing is also an offshoot of neuroeconomics, which in turn, is an offshoot of neuroscience (Rebecca & Belden 2006). The phrase ‘neuromarketing’ (and derivatives thereof) is not a phrase that has entered mainstream research yet (the Web-of-Science [WOS]<sup>2</sup> and Scopus<sup>3</sup> bibliographies reveal no articles with this keyword and neither does Google Scholar<sup>4</sup>).

Marketing and retailing have advanced beyond making inferences about consumer decisions on the basis of their explicit or overt behaviour. Neuromarketing recognises that decisions are not merely a sequential process of optimally fulfilling a need that many marketing theorists have advocated in the past, but that decision making has been superseded by the acknowledgement that intrinsic or covert emotional- and cognitive-based forces play a role in the ultimate decision. These forces lend themselves to measurement using biometric tools.

Much of the research in neuroscience can be termed ‘deep brain’ research which strives to understand how the brain functions at neural level (at the level of the central and peripheral nervous systems making up the brain and connecting it to the rest of the body – Banich and Compton [2011:5–6]) and in accessing, processing, storing, recalling, sharing and using stimuli from the various senses and transforming this information into actions (reflexive and/or deliberate movements), as well as thoughts and decisions. This type of research is quite difficult to do and often requires the use of fMRI (functional magnetic resonance imaging) scanners which are very expensive and somewhat restrictive in their use. In other words, this sort of research is generally confined to laboratories and hospitals and is seldom used in everyday research of consumers and shoppers.

Beyond deep brain research, there is shallow or surface brain research in which the electrical signals given off by the brain are recorded as brain

waves by a special device. This device is called an electroencephalograph (EEG) and is much more usable for everyday research into brain activity compared with fMRI research. Shallow brain research is not the same as deep brain research. In the first instance, EEG only tracks the tiny electrical signals given off by the brain across the surface of the brain and provides an approximate measure of the magnitude of brain activity at various points across the surface of the brain, while fMRI scans can ‘peer’ into the heart of the brain and determine with greater accuracy the extent of activity within the brain. Nevertheless, EEG measures are accurate enough to gain quite a bit of understanding of how the brain is dealing with stimuli and how it makes decisions. EEG devices are today being used increasingly in consumer and shopper research often in conjunction with other neurological or biometric measures.

The other devices that are used together with EEG include eye tracking (ET) devices which indicate where an individual is focusing visually and what attracts him or her to a specific visual cue; electrodermal response (EDR) devices which measure skin conductance of minute electrical signals from the nervous system at skin level when the individual is aroused by external or internal stimuli; heart rate response (HRR) devices which indicate an increase in heart rate when individuals are stimulated by various external and internal cues, and facial expression reading devices which can interpret how individuals respond to external stimuli in terms of their facial expressions.

Eye tracking is an often used device in contemporary retail research with new wireless devices that allow a research participant to wander around a shop and make purchases without much hindrance at all (the modern devices are extremely mobile, light-weight and unobtrusive, as well as accurate). In shopper research it is possible to get very accurate responses to visual stimuli and to determine what is attracting a shopper in the context of the participant’s ‘mental screen’ of what he or she sees. It allows the researcher to answer questions such as: Are participants attracted to a

<sup>2</sup> <http://www.webofscience.com>

<sup>3</sup> <http://www.scopus.com>

<sup>4</sup> <http://scholar.google.com>

particular brand; does the positioning of products make a difference to the participant; do store atmospherics influence the visual focus of the participant; how does the participant go through the process of shopping (i.e. is there a purpose in their movement through a store)?

Eye tracking is not new and has been used in consumer and shopper research for many years. In fact, the other biometrics mentioned above have also often been used in shopper research in the past. However, currently four factors can be seen to enhance the value of neuroscience in shopper research. The first is the fact that the various biometric devices are being used in combination, rather than singularly, to track and understand a much greater range of responses from the individual. While the benefits of using various biometric measurements may appear obvious to some, actually bringing together and synchronising the data from various biometric devices at millisecond intervals is very difficult. In the past this required considerable human effort and technical expertise. Today software such as iMotions<sup>5</sup>, QuadServer<sup>6</sup> and Tobii Biometric Software Suite<sup>7</sup> have made advances in dealing with this synchronisation task, making it possible for all levels of researchers to examine the data from various biometric devices at the very same instance in time. Consider the importance of knowing the exact EEG, EDR, HRR and/or ET data for a given event concurrently, in milliseconds, otherwise it would be impossible to determine what neural response is being influenced by what event, and what the correlations are.

The second factor influencing neuromarketing research is the fact that all of the devices mentioned above are available today as wireless and mobile devices. This gives participants the freedom to move around and it also gives researchers the possibility to undertake research on the go – in stores and in malls – without being restricted to rigid laboratory conditions. At the same time, the sensitivity of these devices and the power of the recording and analysis software have made them more accurate and thus far more valuable in

measuring and understanding individual feelings and thoughts, thus representing the third factor alluded to above. The fourth and final factor has to do with the advantage of biometric devices that the physiological responses they generate are only marginally influenced by the participant in the research. The responses of participants theoretically return a more accurate reflection of what is being measured. This is in contrast to surveys and questionnaires that are commonly used to collect data in traditional marketing research, where the answers to questions may not always be a true reflection of what the respondent actually feels or thinks.

Neuromarketing is thus able to optimally utilise the new advances in hardware and software for measuring biometric data. As mentioned above, biometric measures can now be extricated from the laboratory environment and can be utilised in real-life environments. This is a boon for marketers wanting to better understand shoppers' needs and wants. Shopper decisions can be examined at an intrinsic level at the exact moment the event occurs as opposed to seeing the results of a decision and making inferences about how that decision was made based on a survey.

Research using biometric measures has already been undertaken with some success. In a study by Graffeo, Polonio and Bonini (2015), eye tracking was used to confirm that both higher levels of cognitive reflection and numeracy skills can predict a more involved decision process when it comes to making purchase decisions. Use of biometrics can also support the more traditional methods of marketing research. By using eye tracking to investigate whether a survey questionnaire is correctly understood, greater insight into the veracity of the answers supplied can be obtained. Biometric measures can confirm a respondent's self-reported reactions to a stimulus. Neuromarketing research can also be used to better understand consumers' and shoppers':

- Choices driven by emotional and cognitive decision-making processes
- Purchase intent

<sup>5</sup> <http://www.imotions.com>

<sup>6</sup> <http://www.eyetracking.com/Software/Quad-Server>

<sup>7</sup> <http://www.tobiiipro.com/product-listing/biometric-software-suite>

- Response to reward programmes
- Interfaces with computers
- Reactions to advertising
- Perceptions to products and brands
- View of packaging and design
- In-store atmospherics
- Response to service interaction with retail staff

Notwithstanding the value of these new technologies, the question arises as to whether they are being used as much in research as they could be? An analysis of the WOS bibliographic database using the keyword 'neuromarketing' reveals that only 13 articles<sup>8</sup> were written about this topic in 2015 (with 11 articles in 2012, 8 articles in 2013 and 9 articles in 2014, representing a small growth over this period). The Scopus bibliographic database, in contrast, contains 22 articles written in 2015 with the keyword 'neuromarketing' (with 19 articles in 2012, 17 articles in 2013 and 16 articles in 2014, representing a small growth over this period). The topics covered include amongst others, product shapes and design, reactions to prices, brand switching behaviour, understanding integrated content in television advertisements, preferences for organic foods, reactions to social networking, and the role of novelty and emotion. None of the results were focused on retailing per se. Even outside the WOS and Scopus, a search on Google for 'neuromarketing' and 'retailing', combined with keywords representing the various biometric tools discussed above, reveals only 35 results. Of these results, the majority were the websites of neuromarketing companies, informational websites on this topic, broad studies looking at the potential of neuromarketing, or articles reviewing past studies on neuromarketing. It seems clear that, notwithstanding the apparent benefits of measuring the emotional and cognitive behaviour of consumers and shoppers using multiple biometric measures, this type of neural research is still limited or is not being widely reported. This could be because companies may be doing private research which they do not report on for competitive reasons or possibly because

neuromarketing has only recently become more accessible to the marketing researcher as an additional tool in their research arsenal.

Given the apparent dearth of research into the emotional and cognitive decision making of consumers and shoppers and the benefits of neuromarketing research as posited above, researchers are encouraged to consider looking into this field. Lee, Broderick and Chamberlain (2006) proposed an agenda for future research into neuromarketing areas such as consumer trust in brands, consumer processing of price information, understanding what elements of advertising are critical to the awareness of, attitude towards and evaluation of products, examining ethical issues in marketing, and understanding what makes great sales people 'tick'. Beyond these suggestions, the opportunities for research are immense and the benefits for companies, equally considerable. After all, a deeper and better understanding of the needs and wants of consumers will make it easier to develop better and more relevant marketing and retailing solutions that will provide firms with greater competitive advantage.

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<sup>8</sup> These are articles where the keyword appears in the abstract or title of the article.

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