



# NEURO MARKETING: A TOOL TO UNDERSTAND CONSUMER PSYCHOLOGY

Gunjan Mishra, Mithi Shukla

E-Mail Id: [gunjanmishramishra15@gmail.com](mailto:gunjanmishramishra15@gmail.com)

Amity Institute of Behavioural & Allied Sciences, Amity University, Chhattisgarh, India

**Abstract-**Neuromarketing is an important development in the field of understanding about how the subconscious mind helps the consumer to take decisions. The field is gaining rapid credibility and adoption among advertising and marketing professionals, controversial to when it first emerged in 2002. Marketers work to attract the customer towards their product. For this, ground breaking research has been taken place to study the human brain. Consumer behaviour has been impacted creatively so that the customer gravitates towards the product. The concept of neuromarketing reflects the psychological perception of the customers's relationship with the seller.

Neuromarketing is a amalgamation of neuroscience and market research that aims to observe and understand the buyers physiological and psychological response to any stimuli like digital content. A multitude of techniques have been discovered for these researches, including Eye Tracking, EEG, fMRI, Galvanic skin Response, and Face Emotion Analysis. All these techniques are very useful for the companies to understand how a consumer will respond physically as well as psychologically to stimuli like the desired product.

This paper analyses the studies of neuromarketing applied to consumer behaviour through literature reviews, finding how the research on this concept are evolved. This study concludes that major advances are being made in the marketing area, and that neuromarketing can really help in the understanding of cognitive processes of consumer and their influence on decision – making.

**Keywords-**Consumer neuroscience, Neuromarketing, market research, Eye Tracking, EEG, fMRI, Galvanic Skin Response and Face Emotion Analysis.

## 1. INTRODUCTION

Organizations aim to develop and launch products and services that can increase their profits and market share. They look for initiatives that generate the expected demand and make them able to engage consumers on the benefits and qualities of the products and services offered. The main objective is to generate an impact on the consumer, so that at the time of decision making it is clear to the consumer that why they must select the organization's brand over the other. One of the biggest questions that is yet to be clarified is that what leads the consumer to make a choice for a specific brand or product over the other, based on the perceived costs and benefits (Hsu and Yoon, 20151; Solnais et al. 20132).

## 2. NEURO MARKETING

An alternative to better understand consumer behaviour has gained strength in the marketing field that is neuromarketing. The combination of 'neuro' and 'marketing' terms implies the convergence of two fields of study, neuroscience and marketing. Plassmann et al. (2012)<sup>3</sup> indicate that neuromarketing can be distinguished from consumer neuroscience by restricting the former to industry applications and the latter to academic research. Consumer neuroscience is thus a more rigorous version of neuromarketing, delivering findings that are embedded in theory (Agrawal and Dutta, 2015)<sup>4</sup>.

One can make a parallel in which neuromarketing is to marketing as neuropsychology is to psychology. While neuropsychology studies the relationship between the brain and the cognitive and physiological functions of the human being, neuromarketing promotes the value of inquiring about consumer behaviour from a physiological perspective (Morin, 2011)<sup>5</sup>.

The use of brain monitoring techniques, which is fundamental to medicine and biology, also contributes significantly to non – medical areas, such as marketing. The use of some of these methods has been focused on analysing and understanding consumer behaviour at the brain level (Oliveira et al. 2014)<sup>6</sup>, as well as allowed the development of innovative models and techniques in order to understand experiences of the human unconscious (Cruz et al. 2016)<sup>7</sup>.

## 3. NEUROMARKETING AND THE STUDY OF THE BRAIN

According to studies, the striatum is the area where social factors have greater influence, and are directly linked to the purchasing decision, identifying preferences for products and also making the relation of expectations and recompense of previous purchases (Knutson et al. 2007)<sup>8</sup>.

Also according to Knutson et al. (2007)<sup>8</sup> the insula is another area of brain which is of great importance in decision making, especially because it is an area affected by negative stimuli, such as previous experience of frustration or very high risk which helps in being fundamental at the moment of deliberation for making decision. The amygdale appears as an important modulator of memories and the strengthening process, either positive or negative, and therefore is very important in understanding and analysing marketing stimuli and their

position in long – term memory. The hippocampus also appears as a closely related memory area, especially taste and products already experienced and used by the consumer. Thus, both areas also have great importance in the study of the brain (Murray, 20079; Reimann et al. 201110).

The final area is the ventral tegmental area, which is largely responsible for the transmission of dopamine among brain areas. The modular role of dopamine is decision – making, and can be of fundamental importance in understanding an advertisement or a stimulus made by a company and its sense of reward for the individual affected, thereby determining the success, or not of the stimulus (Fields et al. 2007)10. Dopamine and another neurotransmitter called serotonin are very promising to neuromarketing, as they affect neural activity in cerebral structures associated with adaptive behaviours, especially that involving decision – making and reinforcement learning which are recurrent situations in consumer behaviour (Lichters et al. 2016)11.

#### **4. NEUROMARKETING AND TECHNIQUES FOR RESEARCH**

There are many ways to measure physiological responses to advertising but there are only certain well established non – invasive methods for measuring and mapping brain activity: functional magnetic resonance imaging (fMRI), the electroencephalogram (EEG), Galvanic Skin Response (GSR), Eye Tracking and Face Emotion Analysis.

##### **4.1 Functional Magnetic Resonance Imaging (fMRI)**

It is a technique that shows which parts of the brain are active by detecting changes in blood flow and the amount of oxygen consumed in different areas. More the area is active, the more oxygen and blood flow needed. In fMRI subjects are placed into a cylindrical imaging device and exposed to content related to market. fMRI scans offer great spatial resolution and poor temporal resolution. This means we can see clearly what's happening inside the brain, but we don't really know what caused it.

##### **4.2 Electroencephalography (EEG)**

The EEG technique measures the electrical activity of the brain (neurons) as recorded by electrodes placed on a subject's head. Subjects are either given special EEG headsets to wear while exposed to marketing materials. However, it lacks good spatial resolution, meaning the source of the brain signal recorded by the EEG is hard to locate exactly in the brain.

##### **4.3 Eye Tracking**

Eyes are the main focus in this technique as the location and pattern of a subject's gaze is studied to determine which images or portions of an image illicit the most attention. Because modern eye tracking equipment is very light and portable, it's possible to create real time scenarios and register the natural eye gaze of customers.

##### **4.4 Galvanic Skin Response (GSR)**

Galvanic Skin Response is a method of measuring the electrical conductance of the skin, which varies with its moisture level. In this the sweat glands are controlled by the SNS so skin conductance is used as an indication of psychological or physiological arousal. Therefore, if the SNS or ANS is highly aroused, then sweat gland activity will also rise, which in turn increases skin conductance and skin conductance can be applied as a measure of emotional and sympathetic responses.

##### **4.5 Face Emotion Analysis**

In the same line as equipment to measure the brain and our eye gaze, there are also sensors that can be attached to the face and measure tiny movements of muscles. When we show some specific emotion, like smiling, some specific muscles are used for this. The same principles applied to other emotions such as anger or surprise. Of course, a slight expression of a faint smile does not always mean that someone is happy. But the point is, facial equipment can measure subtle, oftentimes subconscious, reactions to stimuli that hold information about how we feel about something. Even better, it can predict what behaviour will follow said expressions.

#### **5. HINDRANCES IN NEURO MARKETING**

There are several limitations and marginal notes to mention when it comes to neuromarketing. First, many criticize the simplified explanation of results of neuromarketing research that are used for marketing purposes. Just because there exists a relation between certain areas of the brain and behaviour, does not mean there is a casual link between the two. Second, there are individuals who see neuromarketing as ethically irresponsible. In their opinion marketers are given too much power with neuromarketing as it enables them to take a peek in the consumer's mind to manipulate them afterwards. Some even suggest that political groups could potentially use this type of marketing strategy in order to create and spread very powerful propaganda. Third, neuromarketing gives insight into the mind of the average consumer. Neuromarketing research is expensive and much smaller samples are being used than in other marketing research methodologies. Therefore one cannot guarantee that the results will remain the same in larger scales.

#### **DISCUSSION**

The Neuromarketing field should be considered a legitimate and important area for future research, for it enables a better understanding of consumer behaviour contributing for the advance of tactics and strategies of

marketing in the organizational context.

In the academic field, it is worth noting as a main contribution the interdisciplinary approach among psychology, neuroscience, and marketing, bringing to light the applicability of neuromarketing. Thus, the development of this science led to the search for new knowledge by mapping brain records through research and discoveries in several areas of knowledge. In this context, studies focused on consumer behaviour presenting practical applications were performed through experiments. Also, it emphasized the importance of neuromarketing against traditional methodologies – such as focus group studies, in – depth interviews, and surveys – as it enables a better understanding of brain functioning, providing the qualification of marketing researches.

Furthermore, it may be used for both commercially and intra - /inter – organisational researches, and not only for consumer behaviour studies. In this perspective, neuromarketing seeks to understand what motivates the human brain, in order to learn whether marketing efforts are consistent with what really motivates human beings.

Considering the results analysed in this neuromarketing systematic literature review, it is clear that the advances in the field allow further understanding of relevant and specific issues about consumer behaviour. Hence, an agenda for future studies is proposed.

## CONCLUSION

Neuromarketing indeed is a need of hour, with its limitless scope and applicability it helps in drawing immediate and accurate feedback on consumer's preferences and behaviour. Neuromarketing offers progressive methods for directly questioning minds without requiring demanding cognitive or conscious involvement. The utility of Neuromarketing is of course rely on the development of Neuroscience. Future of neuromarketing is without any doubt very promising and it would be too early to predict the extent of success that can be achieved by it in near and distant future.

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