

## A study on neuro marketing: A unique bond between consumer's cognizance and marketing

Dr. Ritty Francis, Reena R

Assistant Professors, Department of Commerce, Kristu Jayanti College, Bangalore, Karnataka, India

### Abstract

Neuro marketing is a new scientific technique that has gained increasing acceptance in recent years. This concept makes use of brain research to overcome the drawbacks of traditional marketing to understand the consumer behavior.

Our paper focuses on acquainting the readers with the concepts of neuromarketing and ascertaining its prominence for companies as well for the consumers. An effort is also made to bring out the various neuro marketing techniques used by companies for which the paper adopts a case study approach. In spite of being a very noticeable concept in the field of marketing, neuro marketing faces a lot of criticism. Our paper discusses the limitations of this concept in the marketing arena and also suggests that it has the potential to establish a unique bond between consumer cognizance and marketing and significantly improve the effectiveness of both.

**Keywords:** neuro marketing, technology, FMRI, consumer behaviour, neural activities

### 1. Introduction

The concept of marketing is a wide term. The early stages of growth of the concept of marketing were considered as selling and no distinction was made between the two terms selling and marketing. Today the term marketing has been clearly defined. Marketing is a societal process by which individuals and groups obtain what they need and want through creating, offering and freely exchanging products and services of value with others. The process of renovation is stirring at a fast-tracking rate, continuing today's strategy is risky to sustain in the competitive market. To endure in the market, one has to win the minds of the customer, and for this vigorous marketing strategies should be adopted.

Many new concepts like network marketing, digital marketing, relationship marketing, location marketing, green marketing are developed and implemented to serve the changing needs and demands of consumers in the society. One such type of creative marketing is neuromarketing. Neuromarketing is the practice of using technology to measure brain activity in consumer subjects in order to inform the development of products and communications. Neuromarketing is a marketing concept designed on the foundation of neuroscience and it is the most recent mechanical method utilized to understand consumers' mind. Neuromarketing helps the marketers to gain insight into consumers' intentions regarding a particular product. The first step involved in new product development is to collect information on how the target market would respond to the future product. The concept of neuromarketing was therefore introduced to study the emotions and behavioural patterns of target consumers, associated with new products, ads and decision-making. Neuromarketing is vibrant and it can connect to all such consumers who have established an opinion about a product or brand and have decided upon their preferences.

Neuromarketing uses procedures like Magnetic Resonance Imaging (MRI) and Electroencephalogram (EEG) technologies to investigate and learn how consumers respond and feel when presented with products and/or related stimuli. The brand manager studies and revises the original product design in

response to the market research after attaining appropriate information regarding the future products. A greater understanding of human cognition and behavioural pattern can be done which results in effective marketing and advertising communications, ultimately leading to increase in successful sales.

### 2. Research Methodology

This being a review paper the main aim of this study is to elucidate the concept of neuro marketing and to discuss the various techniques used in it. Also the study aims at analyzing and describing the features of the neuromarketing researches during the past years. In regard to the topic, a literature review method is chosen so as to associate discovered findings of previous research and condense the experiences and findings of other researchers.

Furthermore, the paper embraces a case study approach and explores the various neuromarketing techniques taken up by the various corporates to establish a distinctive bond with the customers. The paper also brings to light the criticism made about this concept. Suggestions and recommendations are given towards the end of the paper in order to overcome the flaws of neuromarketing.

### 3. Review of literature

According to Lee, Broderick, & Chamberlain, 2007 <sup>[6]</sup>, neuromarketing is an emerging interdisciplinary field that combines psychology, neuroscience, and economics, being coined just six years ago and its goal is to study how the brain is physiologically affected by advertising and marketing strategies. Laybourne & Lewis, 2005; Smidts, 2002 further added that in order to evaluate the effectiveness of these strategies, brain activity resulting from viewing an advertisement is monitored and measured using neuroimaging techniques such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG).

McClure *et al.*, 2004 <sup>[5]</sup>; Schaefer, Berens, Heinze, & Rotte, 2006; Walter, Abler, Ciaramidaro, & Erk, 2005 correlated brand familiarity and product preference with neural activity.

In traditional marketing studies, measures such as the product preference for a particular advertisement is sometimes difficult to measure, as a viewer may hold a cognitive bias.

In order to develop a new behavioural model of consumer behaviour, Fúgate (2007) <sup>[4]</sup> argues that marketing researchers and practitioners should adopt new roles. Researchers should use neuroimaging to confirm, reconfigure or improve conventional theories of consumer behaviour. Such validation efforts might not be conclusive, but it is likely that some strengths and weaknesses in existing theories will be discovered.

Gang, Lin, Qi, & Yan, 2012, May; Butler, 2008 <sup>[10]</sup> reveals the fact that dazzling representations of products are growing constantly, an in-depth analysis, specifically by the use of neuromarketing techniques, of consumer-buying behavior can be advantageous. However, there are certain things that need consideration. First of all, it is significant that consumers are mostly not able to phrase their desires and needs when asked explicitly, which is why it is assumed that the brain itself encloses internal information, which could elucidate true desires and needs. If this knowledge would be available, the buying behavior of people could most likely be influenced and the disadvantage in regard to the cost of neuromarketing aspects would be outweighed by the advantage of the internal information delivered.

As stated by Ariely and Berns (2010) <sup>[11]</sup>, the techniques of neuromarketing are more appropriate when considering the product experience itself, and not the decisions prior to the actual design of the product. In other words, it is assumed that no valid results can be elaborated prior to the product development. Therefore, it is suggested to make use of alternative methods when developing new products.

Agarwal & Dutta, 2015, Neuromarketing research removes subjectivity and ambiguity by going right to measuring observable brain behavior. Neuroscience has played an important role in improving behavioural predictions and advancing the understanding of consumers. It also allows insight into neural differences seen in individuals when no behavioural differences are observed (Venkatraman, Clithero, Fitzsimons & Huettel, 2012).

As far back as 1957, when Vance Packard published his best seller, *The Hidden Persuaders*, critics expressed concerns that marketers were using psychological and subliminal tactics that were a threat to the public. Their warnings were based on the assumption that marketers were unscrupulous manipulators who would use any means at their disposal to get consumers to buy the brands and products under their care.

Wilson, R. M. Gaines, J. Hill, R.P. (2008) believe without regulation to maintain ethical standards, Neuromarketing could potentially invade privacy and threaten free will. Manipulating the consumers with scanning and persuasive techniques.

Wilson, Gaines & Hill, 2008, criticized that the use of such techniques would affect consumers' ability to choose not to consume marketed products, leaving the individuals unable to resist such efforts and making them easy targets for the company's campaigns.

On the other hand, defenders of neuromarketing activities, such as Lindstrom (2009a, 2009b) and Dooley (2010), discuss the benefits deriving from the technique to both consumers and organisations. According to these authors, consumers would benefit from the creation of products and campaigns directed to them and would have their decisions facilitated rather than

manipulated, while organisations would save large portions of their budgets that are currently used on inefficient and ineffective campaigns, ensuring greater competitiveness and improvements to customers. There is yet another segment of researchers who believe that neuromarketing would be much more science fiction than reality because it is impossible to find people with identical thoughts in the world, as thought is changeable and varies according to personal experiences, values and character (Hubert, 2010) <sup>[8]</sup>.

Some authors like Lee *et al.*, 2007 <sup>[6]</sup>; Murphy *et al.*, 2008 <sup>[3]</sup>; Fisher *et al.*, 2010; Butler, 2008; Senior & Lee, 2008; and Eser *et al.*; 2011 <sup>[1]</sup> see neuromarketing mainly as a means of acquiring scientific knowledge, while others like Perrachione & Perrachione, 2008; Hubert & Kenning, 2008 <sup>[9]</sup>; Fugate; 2007 <sup>[4]</sup>; Orzán, Zara & Purcarea, 2012; Green & Holbert, 2012; Vecchiato, Kong, Maglione, & Wei, 2012 view neuromarketing more as a potential tool for commercial marketing.

#### 4. Objectives

1. To familiarize the readers with the concepts of neuromarketing and to identify its prominence for companies as well for the consumers.
2. To throw light on the various neuro marketing techniques used by companies and to bring out the limitations of this concept in the marketing arena.

#### 5. Conceptual framework

Neuromarketing can be defined as the practice of measuring the neural activities of the consumers in order to understand their behavioural pattern towards the products offered. It can be termed as the most topical mechanical method developed to understand the target markets. It is noteworthy that, Bright House Company in Atlanta was the first to use neuromarketing in a press release on the creation of a market research division that uses medical imaging.

Technologies like functional magnetic resonance imaging (fMRI), electroencephalography (EEG) are the backbone of this concept, that are used by the researchers to measure changes in activity in parts of the brain and one's physiological state.

Functional magnetic resonance imaging or functional MRI (fMRI) is a functional neuroimaging procedure using MRI technology that measures brain activity by detecting changes associated with blood flow. This technique relies on the fact that cerebral blood flow and neuronal activation are coupled.

Electroencephalography (EEG) is an electrophysiological monitoring method to record electrical activity of the brain. EEG refers to the recording of the brain's spontaneous electrical activity over a period of time.

This biometrics also includes the monitoring of heart rate and respiratory rate, galvanic skin response to understand the reasons behind the consumer's decision and which areas of the brain are responsible for the same. As stated by Kolter *et al.*, 2013, market researchers use this biometrics information to decide if products or advertisements stimulate responses in the brain linked with positive emotions or not. According to Agarwal & Dutta, 2015 these tools can be administered to gain understanding on intention and emotions towards branding and market strategies before applying them to target consumers.

Through neuromarketing concealed information that would otherwise be inaccessible can actually be scrutinized. It can be

said that neuromarketing displays a right representation of reality, superior to any traditional methods of research. How amazing it is, that the sellers are now able to comprehend the consumers' intents in a much improved way as it is essential to understand consumers' true wants and underlying thoughts in order to win their loyalty.

Application of neuro marketing is seen in several areas such as selling various groups of goods and services e.g. cosmetics, FMCG, hospitality etc. and designing various categories of advertising material, websites or organizing online shops. This study plays an important role in studying consumer's perception regarding new products where the integration of various sensorial stimuli, such as taste, texture, smell and looks is required. In order to decode this multifaceted process and designing a new product successfully neuromarketing tools prove to be very competent. This concept can also be applied in the field of architecture where with the help of FMRI, the brain activity generated, by seeing the images of various parts of a building can be measured. Experiments are carried out with the help of a FMRI to measure different movie scenes and to include or exclude scenes from the final version of the movie depending on the registered brain reaction. The same procedure is applied in the music industry where similar studies are carried out to predict future listening resulting from new musical segments.

Needless to say, that the foremost step taken by any company, coming up with a new product is to gather information on how the target market would retort to the future product. Being dynamic in nature, neuromarketing can relate to nearly anyone who has developed an opinion about a product or brand and has formed preferences. The main aim of marketing is to construct positive and unforgettable experiences in consumers' minds the impact of which can be measured through neuroscience. This results in effective marketing and advertising, which ultimately leads to increased sales and customer trustworthiness.

## 6. An outline of concerns practicing neuro marketing

Many companies use brain imaging in order to develop more efficient ads, products or marketing materials.

- **Coca Cola** can be termed as the titan of neuro marketing since they have their own in-house neuroscience lab, where neuroimaging techniques are used to observe consumers while they are watching commercials, using the scientific method. Based on these scans the brand chooses which commercials are most effective in promoting their product.
- Yahoo! used neurometrics in order to maximize the return on investment. A 60-second television commercial that featured happy, dancing people around the world was shown to a group of consumers wearing EEG-caps. The brain waves showed stimulation in the limbic system and frontal cortices of their brains, where memory and emotional thought occurs. This experiment saved a lot of money that would have been spent on airing the ad on prime-time and cable TV, as well as online sites. This advertisement, which is now a part of Yahoo's new branding campaign, rolled out to bring more users to the search engine.
- Microsoft applied neuromarketing in some of its campaigns on the Xbox platform to measure the efficiency level of the gamers when they used an Xbox. A need was felt to understand the degree of brain spur during 30 and 60-

second TV ads compared with in-game ads run on the Xbox. As stated by Microsoft, while viewing TV ads for an automotive brand, the maximum brain activity happened in the first half of the ad but while watching the Xbox Live via in-game advertising, brain activity emaciated at the repeat image of the car, reinforcing the advertisement's memorability.

- Neuromarketing was practiced by Google to determine the usefulness of two forms of Internet advertising for YouTube i.e. the *pre-roll* ad is between 10 and 15 seconds that occurs before displaying any content, and *In Video* or *overlay* consists of overlapping announced in content. It was observed that the *overlay ads* are more operative because the ads do not interfere with the content and the user does not leave the site, transforming clicks into sales.
- Campbell's practiced neuromarketing and redesigned their soup labels. They introduced a contemporary soup, and the image was redesigned according to the customer's perception i.e. a hot soup with flavor and aroma. The logo size was reduced, typography was changed and new colors were introduced. These changes were found to be more pleasing to the consumer's mind.
- Frito Lay explored the concepts of neuro marketing in their advertisements, products and packaging. They also found out that natural or matte colors and images of healthy ingredients on their packaging did not motivate the consumers. Frito-Lay then switched out of shiny packaging and chose bright packaging and images of frying. They also concluded that some 30-second ads were more effective than others of 60 seconds – this discovery resulted in savings a lot of money.
- 20th Century FOX also analyzed the trailers of their films, video games and advertisements in outdoor advertising campaigns using neuromarketing. They found that saturation among the audience produced fading returns.
- Hyundai took to neuromarketing by taking a sample of consumers to test a sporty silver model of 2011. The consumers were asked to observe specific parts of the vehicle, including the bumper, the windshield and the tires. Electrode-studded caps on their heads captured the electrical activity in their brains as they viewed the car for an hour. Their brain activity showed preferences that could lead to purchasing decisions.

## 7. Limitations

Neuromarketing suffers from the issue of deceitful market research. Brain activity in a lab may not equate to brain behavior in the shopping center where the buying decision is consummated.

Neuromarketing studies have not been common in the B2B arena, perhaps because the customer buying process tends to be lengthy and involves many people so it may be difficult to measure these decisions reliably.

The cost of conducting these studies today is prohibitive for many companies. MRI scanners suitable for brain mapping are highly expensive. These high costs restrict smaller businesses to access this resource. This can help the already large and powerful businesses put the already struggling small businesses out of the market. Anti-marketing agencies have protested brain scanning saying these studies can lead to customer manipulation. There is a common fear that companies will learn just how to brain wash the unconscious

mind into buying their product

Some consumer advocate organizations, such as the Center for Digital Democracy, have criticized neuromarketing as potentially invasive technology. Jeff Chester, the executive director of the organization, claims that neuromarketing is "having an effect on individuals that individuals are not informed about." Further, he claims that though there has not historically been regulation on adult advertising due to adults having defense mechanisms to discern what is true and untrue, that it should now be regulated "if the advertising is now purposely designed to bypass those rational defenses. protecting advertising speech in the marketplace has to be questioned."

According to Joseph Turow, a communications professor at the University of Pennsylvania, "There has always been a holy grail in advertising to try to reach people in a hypodermic way. Major corporations and research firms are jumping on the neuromarketing bandwagon, because they are desperate for any novel technique to help them break through all the marketing clutter. 'It's as much about the nature of the industry and the anxiety roiling through the system as it is about anything else.'"

### 8. Findings

- It is found that the increased use of neuromarketing techniques for the evaluation of customer preferences and decision-making processes is considered to be an advantage for customers and marketers simultaneously.
- The results indicate that neuromarketing is associated to have a high influence on consumer buying behavior, advertising, pricing and distribution of products, branding and decision-making as marketing inputs.
- As for the regulations, some countries require government approval to carry out this type of research.
- It's estimated that 95 percent of all thought occurs in our subconscious minds—which traditional research methods can't measure.
- Neuromarketing studies are expensive.

### 9. Conclusion

In the above paper, we have given a detailed overview about the concept of neuromarketing and its technical components. Neuro marketing provides fresh thinking and new viewpoints to marketers since it has a very different perspective from traditional research. It can measure the lower level effects of print ads as well as TV and web ads in terms of people's attention, emotion and memory responses. This study includes insights like designing images to capture the customer's attention, editing the ads to make key information more memorable, that help in initiating emotional engagement in a product, service, ad or package.

By making use of neuromarketing techniques, marketers can analyze the effects of consumer buying behavior. Neuromarketing methods can often help uncover the triggers to the emotional responses of the consumers in a way that just asking questions can't. These feelings and emotions can be influencing the consumer behaviour, such as what they choose to buy.

Neuromarketing offers research techniques that companies can scale up, often internationally, using comparable methods, and hence gaining comparable results. It is a scientific tool to understand the basics of the buying behaviour mechanism of

consumers. This will serve as the base for understanding customers' perception towards various marketing stimuli.

Neuromarketing helps us understand how semiconscious mind can have an impact on the decision to purchase, providing a better understanding of the consumers' thoughts, emotions, feelings, needs and motivation in relation to the marketing products.

### 10. References

1. Eser Z, Isin F, Tolon M. Perceptions of marketing academics, neurologists, and marketing professionals about neuromarketing *Journal of Marketing Management*. 2011; 27(7-8):854-868.
2. Morin C. Neuromarketing: The New Science of Consumer Behavior Society. 2011; 48(2):131-135
3. Murphy E, Illes J, Reiner P. Neuroethics of neuromarketing *Journal of Consumer Behaviour*. 2008; 7(4-5):293-302.
4. Fugate DL. Neuromarketing: a layman's look at neuroscience and its potential application to marketing practice. *Journal of Consumer Marketing*. 2007; 24(7):385-394.
5. McClure SM, Li J, Tomlin D, Cypert KS, Montague LM, Montague PR. Neural correlates of behavioral preference for culturally familiar drinks. *Neuron*, 2004; 44:379-387.
6. Lee N, Broderick AJ, Chamberlain L. What is 'neuromarketing'? A discussion and agenda for future research. *International Journal of Psychophysiology*, 2007; 63(2):199-204.
7. Lee JA, Kacen JJ. Cultural influences on consumer satisfaction with impulse and planned purchase decisions. *Journal of Business Research*. 2008; 61(3):265-272.
8. Hubert M. Does neuroeconomics give new impetus to economic and consumer research?. *Journal of Economic Psychology*. 2010; 31(5):812-817.
9. Hubert M, Kenning P. A current overview of consumer neuroscience. *Journal of Consumer Behaviour*, 2008; 7(4-5):272-292.
10. Butler MJ. Neuromarketing and the perception of knowledge. *Journal of Consumer Behaviour*, 2008; 7(4-5):415-419.
11. Ariely D, Berns GS. Neuromarketing: the hope and hype of neuroimaging in business. *Nature Reviews Neuroscience*. 2010; 11(4):284-292.