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A Perspective on Neuromarketing

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ABSTRACT

It's easy for business enterprises to keep track of the things we consume, but difficult to figure out why. Market or consumer research technologies are the options available to unlock the mysteries of consumer choice and behaviour. As we dig for better insights, startling new findings in the brain sciences emerge and fundamentally change the way in which we think about thinking. This review paper is a shot to give a perspective on this blooming technique of market research – Neuromarketing. It is an evolving and rapidly growing tool and therefore a moving target. The foundations, measures of the concept and its ethical implications are detailed in this paper.

Keywords: Consumer Behaviour, Market Research, Marketing research, Neuromarketing.

1. INTRODUCTION

The broad idea of the concept of Marketing is, that the crucial point in accomplishing organizational goals comprises of defining the desires and essentials of target markets and providing the preferred tastes more efficiently and at the same time effectively than their contenders. Just as the American Marketing Association has rightly defined: “Marketing is the process of planning and executing the conception, pricing, promotion, distribution of ideas, goods and services to create exchanges that satisfy individual and organizational goals.” This definition portrays the subject as an interchange of a process or discipline that involves strategies, activities, positions, and institutions. If it is the case of marketing for a non-profit organization, the goal would be to convey a social-benefit message about the organisation and its services to the appropriate audience. The Governments often and usually engage marketing to converse messages with a societal purpose, like that of public well-being or safety to the citizens.

To win market share and stay relevant in the industry any organisation has to contemplate many types of marketing strategies. Each marketing strategy carries with itself, the advantage and disadvantage attached to it, and can equally communicate to a target market the benefits and features of a product. Developing tactics and approaches for marketing in present days is the most perplexing task than in the past. In today's market, there is an inconceivable and steadily increasing choice of alternatives and interactive procedures, platforms and canals from the attractive smartphones and tablets to social linkages and search engines which enhances the quantum of informed customers. Though, investing in traditional channels of marketing such as TV, Newspapers and Radio is declining, still they remain an indispensable part of integrated campaigns for many businesses.

Marketing in traditional means often seeks to pull the customers towards the product or service, irrespective of its cost. It focusses more on the market in which the company operates rather than the target consumer to whom it ultimately sells the product. Hence, the conventional method seems to be outdated. Conventional marketing techniques have always proven as to be inadequate when assessing the humans as subjects and they have often been condemned for this incapacity.

2. OBJECTIVES

1. To acquaint and explain the evolution, foundations and measures of neuromarketing as an emerging field of market research to assess the consumer buyer behaviour.
2. To underline the ethical implications and cost aspects of techniques used for neuromarketing and to bring out practical snags in adopting the same in India.

3. RESEARCH METHODOLOGY

Being a review paper the sole aim of this paper is to throw light on the concept of neuromarketing, in terms of its evolution, foundation and the synergic techniques used for analysis on consumer behaviour. Also this study is aimed at highlighting the prospects of this scientific tool in a developing country like India. For this, the researcher has adopted the method of literature review method so as to ascertain and analyse, describe and condense the implications of the concept on the basis of ethical and cost implications to which the Indian market is prone to.

3.1. Evolution of Neuromarketing

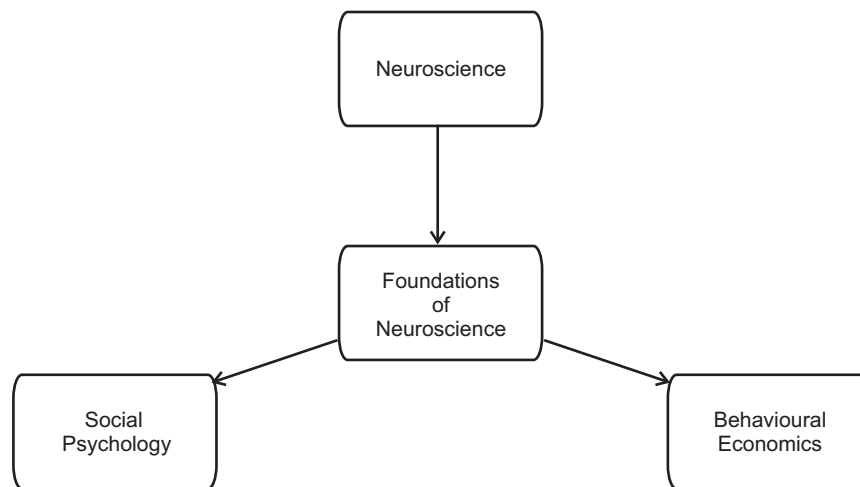
Neuromarketing is a new area of marketing; before which market research has contributed to the knowledge about the behaviour of consumers till the notion of neuromarketing was shaped. The theories which underline the concept of neuromarketing were originally discovered by marketing Professor Gerald Zaltman in the later part of 19th Century. Professor Zaltman along with his acquaintances was engaged by popular organizations, like the Coca Cola Ltd, towards initiating brain scans in order to detect neural activity of the consumers (Kelly, 2002). Tools of Psychoanalysis similar to the one as functional magnetic resonance imaging (fMRI) and the other such neuro-technologies are predominantly used to uncover the underlying emotions of individual's and in the process of their social gatherings as represented in the brain scans (Fisher, Chin and Kiltzman, 2011).

Unconscious intellectual processes are major inspirations in people’s decision making. Experts and psychological researchers have more queries and doubts than the solutions regarding the functions of the mind of the humans and also have been struggling to assimilate the developments that happen in the brain so as to interpret the output of what the researches hear or see. The branch of science which examines such aspects of the human brain on the perspective of biology and as well as theoretical point is neurology. The concept of Neurology from physical sciences and marketing from social sciences have often been associated in a wide range of human studies and have many a times provoked the interest, and also an yearning for understanding, which led to the evolution of “neuromarketing” (Marcel et al., 2009). Amongst the latest methods available for the measuring the extent of marketing stimulus are the neuroimaging techniques, which by non-invasive methods make the image of the patient’s brain. When marketing research adopts such techniques to compare the product/service with the behaviour of its consumers, these methods are labelled neuromarketing practices (Broderick, Lee & Chamberlain, 2007).

In the recent past, these techniques have been into considerable development in neuroimaging, with special reference to the technique of functional magnetic resonance imaging (fMRI). The tenacity of fMRI amongst all the other neuroimaging tools for neuroimaging is predominantly to discover the foundations of social interactions and emotions which make the people to take clear and specific adoptions (Fisher et al., 2010). BrightHouse, a marketing firm based in Atlanta was the first commercial organisation to use the concept of neuromarketing as is published in a separate article in the month of June in 2002. This firm, is the one which initiated the intervention of research through neurophysiologic into the marketing arena, brought out a department which had used fMRI for the purposes of marketing research and now holds more and above 500 FMCGs as their clients for this purpose (Fisher et al., 2009; Thompson, 2003).

3.2. Foundations of Neuromarketing

Neuromarketing is a distinctive approach to market research. This rich and rapidly growing body of knowledge provides many new perspectives on understanding consumer behaviour. This labels the traditional *rational consumer model* to a contemporary *intuitive consumer model*. The basic tenets of Neuromarketing are:

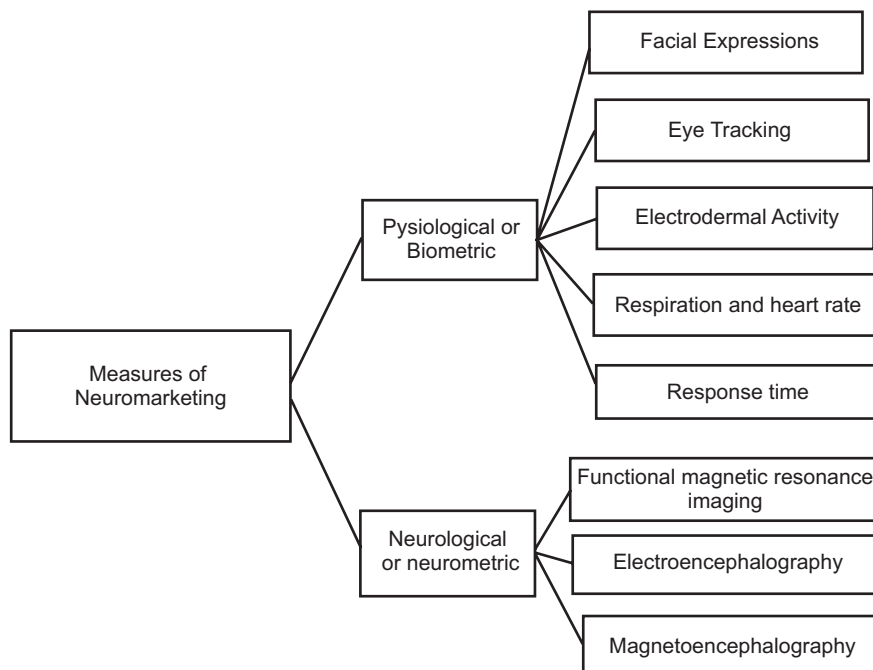


Source: Stephen et al (2014), depicted by authors

Figure 4.1: Foundations of Neuroscience

1. **Neuroscience:** The multidisciplinary knowledges of science that will analyse the human nervous system to better understand the biological basis which is the foundation for behaviour is Neuroscience. It includes a broad range of doubts and questions about how the nervous systems are organized, and how they will function to generate behaviour. Neuroscience is the most relevant in the path to understanding the states of the brain and the physiological reactions which accompany as a result of exposure to brands, products/services and marketing materials.
2. **Behavioural Economics:** Is the operating combination of psychology and the field of Economics that investigates, what will happen in the market where some of the agents exhibit human limitations and hitches. It increases the expounding power of the study of economics by providing it with a higher realistic psychological footing. This is the most relevant to understand situational influences on the consumer choice and behaviour.
3. **Social Psychology:** Social psychology is the study which scientifically provides study of how the consumer's thoughts, behaviours and feelings, are prejudiced by other consumers. Social psychology, in the recent past, has focussed about the influence of nonconscious processes on the activities of human. It's more deserving to understand how the conscious and the unconscious brain processes develops into human actions. Therefore, it's the most relevant outcome on how conscious as well as non-conscious brain will work together in the consumer's choices and behaviour.

3.3. Measures of Neuromarketing



Source: Stephen et al (2014), depicted by authors

Figure 4.2: Measures of Neuromarketing

Basics of Neuromarketing measuring techniques differ from traditional market research by adapting tools and technologies of brain science. The new neuromarketing research tools fall into two categories or approaches. While the first one, measures responses of the body, the second one measures the responses of the brain to a marketing stimulus. Both the approaches come with their own pros and cons.

3.3.1. *Physical or Biometric Measures*

1. **Facial Expressions:** The basic emotions, represented by the facial expressions of any human being are not conscious and can therefore bring out a great deal of information about subconscious processes. The additional significance of evaluating facial expressions is the advantage of detecting slight changes in emotions, which relates a lot about appreciation/depreciation towards brands or products. A positive reaction towards a product can define a positive decision and vice versa. It's always all about the acquaintances that are made in the brain unconsciously. As soon as the product or visual is presented to the consumer, he or she feels either positive affect or negative affect about it. Researchers all over the world can assess these affect even with the help of soft wares that automatically categorizes facial expressions.
2. **Eye Tracking:** devices disclose exactly what product a person is watching at (Attention), whether he is feeling a positive affect or negative affect sentiment (Valence), the strength of that sentiment (Arousal) and the emotions he is conveying at that given point in time. It hunts to relate the cognitive and affective responses of consumers with their visual attention. There has been enhanced interest and attraction on this topic (Solnais, Andreu-Perez, Sánchez-Fernández, & Andréu-Abela, 2013).
3. **Electrodermal activity:** It measures the level of skin conductance level (SCL) and the level of skin conductance response (SCR) as they tend to change along with sweat glands (eccrine) - an activity in response to the stress, provocation or emotional enthusiasm.(Senior C et al, 2008)
4. **Respiration & Heart Rate:** These measures focus on the beating speed of the heart and how deep and fast a person is breathing. Heart rate momentarily reduces when attention increases. Fast and deep breathing is associated with excitement while shallow breath indicates concentration and anticipation.(Stephen et al, 2014).
5. **Response time:** It measures the speed of response to comparisons and visual choices. This simple and accessible way is successfully used by neuromarketers in brand, product and package testing (Stephen et al, 2014)

3.3.2. *Neurological or Neurometric measures*

1. **Functional Magnetic resonance Imaging (fMRI):** fMRI wishes to define the neurobiological association of behaviour by way of locating the vigorous parts of the brain in the process of marketing research (Kulich, R., Maciewicz, R., & Scrivani, S. J. 2009) and also to derive the quantum of flow of blood which may be at higher than 100,000 odd locations in the human brain and to deduce how the brain processed the information (Hunt, 2008) Along with the capacity to image the deep human brain constructions, statistics can also bring out what the human subject/consumer was thinking, each moment and also if he/she was happy or sad, paying attention or not, scared or excited.

2. **Electroencephalography (EEG):** Electroencephalography (EEG) measures electrical differences and potentials on the surface of the scalp. By identifying these areas of activity we can make inferences as to the specific mental process and emotional states that are experienced at particular moments in time during the consumer experience on a per-second basis.
3. **Magnetoencephalography (MEG):** Magnetoencephalography (MEG) is yet another non-invasive manner for the investigation of brain activity. It permits the assessment of ongoing human brain activity on every millisecond basis, and at the same time exhibits the location of such brain. In the context of accuracy, MEG has advantages over both fMRI and EEG.

3.4. Discussion on Ethics of Neuromarketing

The usage of neuromarketing undertakings has roused some controversy. The exploitation of the process of neuroimaging in the field of market research, has also provoked significant debate among the neuroscience circles, especially in the light of ethical concerns and that of the privacy of the subjects (Lee et al., 2006). In a sense, critics of neuromarketing trust that when such practices are continuously carried out, it would in due course affect the consumers' capability to avoid consumption of the products that are being marketed, and thereby leaving the individuals inept to repel the marketing efforts and therefore making them as soft targets for the manufacturing company's marketing campaigns (Wilson, Gaines & Hill, 2008).

Another sector of researchers do believe that the tools of neuromarketing are more of a fiction than the actual reality because it's quite impossible to locate likeminded individuals around the world, and that consumer preferences can widely vary along with their personal experiences, basic values, their ethnicity and character (Hubert, 2010). Lovell (2008) contends that the concept of neuromarketing will gradually empower huge firms to monitor their consumers' liberty and may tend to treat them as rats which are experimented in a lab if used abusively and impudently. Significant numbers of researchers do claim that the advertisements and marketing activities which are displayed may lead to dangerous impressions, such as overconsumption.

Some critics feel that neuromarketing besides taking pure data from customers may also, on the flip side, make use of it to excerpt their autonomy (Appleyard, 2008). Also, companies which violate the ethical code of business, will deceitfully take undue advantage of the prevailing data to generate addiction among the consumers for their products/services and brands to the disadvantage of consumers' physical and mental health, in the words of Gary Ruskin, the executive director at the Commercial Alert (Marcel et al., 2009).

3.5. Discussion on Cost Implications

The concept of neuromarketing research was first conducted in early 1990s but is yet to gain roots owing to its high capital cost. Considered to be demonstrating the potential of neuroimaging the first such study was conducted in the Harvard in the 1900s with the help of a fairly invasive device called the PET-SCAN (Zaltman, 1997). Quiet another landmark project used a technique that also drew extensive attention of the market researchers is functional magnetic resonance, which is rather costlier (McClure et. al, 2004).

In 2005, a medium sized neuroimaging device costed between USD 94000 and USD 188000 (Moore 2005) whereas the on date set up cost of a similar device is around USD 2,50,000. This huge investment consequently leads to very small samples and thereby the generalisability of the research studies. Also, the cost of acquiring the magnetoencephalography as well as the session costs are high, it yields to less preferred than the EEG and MEG equipment (Crease & Robert, 1991)

Due to the huge costs involved in the neuromarketing techniques, individual researchers are totally dependent on the market research companies which can afford the infrastructure required for the consumer behaviour research. (Hubert & Kenning, 2008) Yet another critical question of high importance is the benefit reaped from such neuromarketing techniques. Assuming a company spends USD1000 on traditional market survey methods and is able to get 85% of information which a USD 3,00,000 neuroimaging device can bring out, these techniques lose their charm and significance.

Table 4.1
Comparison of selected marketing research approaches

| <i>Approaches</i> | <i>What is measured</i> | <i>Cost and risk involved</i> |
|-------------------|---|---|
| Focus groups | Open-ended responses, body language and behaviour; which is not suitable for statistical analysis | Low cost; risk comes only from misuse of data |
| Questionnaires | Importance weighting for Product differentiation | Moderate cost and some risk of alerting competitors |
| Simulated Choice | Choices among the products/ brands | Moderate cost and some risk of alerting competitors |
| Neuromarketing | Decision to buy and choice among products | High cost and high risk of alerting competitors. |

Source: Ariely, D., & Berns, G. S. (2010). Neuromarketing: the hope and hype of neuroimaging in business. Nature Reviews. Neuroscience

4. FINDINGS

1. The field of neuromarketing was originally discovered by Professor Gerald Zaltman in the 19th Century.
2. The pillars of Neuromarketing are Neuroscience, Behavioural Economics and Social Psychology
3. The branch of Neuromarketing measures 2 categories of brain imaging which are physiological/biometric and Neurological/Neurometric
4. The physiological measures facial expression, eye tracking, electrodermal activity, respiration & heart rate and response time
5. The Neurological measures are Functional Magnetic resonance Imaging, Electroencephalography and Magnetoencephalography.
6. The neuroimaging techniques tend to breach into the privacy of the individual consumer.
7. The liberty of an individual consumer to make his choice may be tampered.
8. Unethical companies may tend to make their consumers addictive because of which the consumers are prone to the danger of overconsumption.
9. The cost involved for set up and as well session costs are very high which makes in unaffordable to Indian scenario, whereas few big companies may reap enormous benefits.
10. With a huge population embedded in traditions, getting samples for research is also a cause of concern

5. CONCLUSION

In today's competitive market, considering consumers' behaviour and being empathetic about the foundations of their buying behaviour are crucial achievement aspects for any business house. The upcoming approach of the neuroscience – “neuromarketing” is encouraging and also gives the perspective of an assessable method to examine the success of a product's / service's promotional matters well before spending huge funds on the promotional means. The concept of neuromarketing has been progressively gaining ground, as it bids a better thought about the decision making process of the targeted audience.. The decision-making process of the consumers is short of any single buying button and is a far more intricate process than we could imagine. Any and every decision, either strategic or trivial, includes different zones of our human brain which are often being dragged in different ways by varying factors.

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