

Neuromarketing: An Emerging Marketing Tool

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Abstract:

Neuromarketing is the emerging field in marketing which makes use of brain research. Neuromarketing gained very much popularity in academic as well as industrial world. This paper majorly focuses on Neuromarketing as significant and emerging tools in marketing. This study aims to understand influence on traditional form of marketing and influence on consumer behaviour further the research is going on this domain which tries to give deeper understanding on some technical as well as ethical issues in Neuromarketing.

Now days the use of Neuromarketing has been seen in marketing domain, which can be used to evaluate customer preference and consumer decision making. In Neuroscience some techniques like fMRI, EEG, MEG are the most popular techniques but other side of coin is many researcher think that this Neuromarketing tools are restricting consumer's free will and ultimately reduce their decision making ability.

This paper mainly emphasizes on the influence of Neuromarketing tools on marketing inputs within the ethical frame. The zest of this research highlights the fact that how Neuromarketing is highly associated with consumer buying behaviour, Channel of Distribution, advertising and pricing.

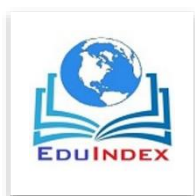
Neuromarketing is a remarkable milestone in the field of human behaviour which is now emerging marketing tool and gaining importance in the fields of consumer behaviour.

Keywords: Neuromarketing, EEG, MEG, fMRI, Consumer buying behaviour, advertising

1. Introduction

Neuromarketing is basically measurement of physiological and psychological signals which gives insights into consumer's motivation, decisions, preferences which can be used in creative advertising, new product development, pricing and in other marketing areas. The most common method of measurements consists of brain scanning (neural) and eye movement (physiological).

The business world is rapidly changing and it is because of strong competition, availability of substitutes, and up gradation of technology and short sales cycle because of which it becomes



difficult to understand changing consumer behaviour. Now companies are more focusing on managing special consumer group than that of managing market.

Marketing research is providing great insight in the area of understanding consumer behaviour by using qualitative and quantitative research. Quantitative research is about data analysis and possible predications of relationship between variables and quantitative research is about the in-depth understanding of the problem by using various tools and techniques. Neuromarketing is one of the important qualitative techniques which help marketer to have depth knowledge about consumer buying process and consumption pattern. Consumption is a very important part of human day to day life most of the human behaviours are directly or indirectly connected with the consumption pattern.

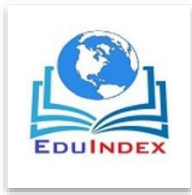
Understanding consumer behaviour developed over a period of time, this development is clearly visible through various stages.

The stages are as follows,

- a. First State (Pre-Scientific Stage): In this stage understanding consumer behaviour is based on the concept from philosophy and sociology.
- b. Second Stage (Modernist approach): In this stage Freud proposed his psychoanalytic theory which mainly focused on the new concepts like ego and super ego where he firstly proposed the significance of qualitative research.
- c. Third Stage (Information Processing Stage, Year 1970): It was the experimental stage where ample of information is given to the consumer (target audience) to record their response to understand their behaviour.
- d. Fourth Stage (Affective approach, Year 1980): Researcher mainly focused on feeling component.
- e. Fifth Stage (Experimental approach, Year 1990): Researchers mainly concentrated on expressive value of consumers

But in last decade due to tremendous development in technological domain and increasing importance of measuring consumer behaviour to devise product marketing strategy importance neuroscience is growing rapidly which is used in marketing domain which helps to understand the consumer behaviour in better way with the new and emerging tool in marketing that is Neuromarketing.

Why Neuromarketing gaining importance in marketing domain?



It is very important to discover implicit and automatic process which leads to decision making process in consumer behaviour as result it will also provide the deep and secret information regarding to consumer behaviour which was the lacuna in traditional marketing orientation. Neuromarketing considered as a effective tool which can be used for better consumer segmentation by which marketer can deliver right blend of marketing mix elements.

Neuromarketing defines how consumers think, perceive, choose products with the application of methods of neuroscience which helps to understand the human behaviour when they exposed to the marketing stimuli.

The rapid change is technology and penetration of internet which changed the way that information is collected, analyzes and used. This can be considered as input to those who actively involved in deciding the marketing strategy. This paradigm shift in deciding the need of combination of physiology and psychology, results into emergence of ‘Neuroculture’.

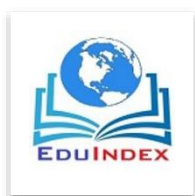
Neuromarketing consists of study of brain activity which is the combination of neuroscience and clinical psychology which helps to understand how consumer responds to the particular marketing stimuli, products, brands and advertisements.

Research in the domain of marketing and neuroscience will make the revolution in the understanding of consumer behaviour. Many researcher believe that the Neuromarketing is important milestone which shapes the marketing strategies and provides the direction to which how to meet the customer expectations.

According to Science daily a leading American website, Neuromarketing is being used to make campaign more effective and efficient. Neuromarketing considered as upcoming science which primary focus on nervous system, dominantly human brain, and cognitive psychology and describe the connection between human brain and consumer behaviour. Neuromarketing consists of new research methods like neurological methods like Functional Magnetic Resonance Imaging (fMRI), Electroencephalogram (EEG), Magnetoencephalography (MEG), Position Emission Tomography (PET), Steady State Topography (SST) and Transactional Magnetic Stimulation (TMS). Using such techniques researcher measures the rational activity in the human brain.

Definition of Neuromarketing

It is defined as measurement of brain response to marketing ads. It is the additional use of biometric to analyze heart rate, breathing rate and galvanic skin response. It can also be defined



as marketing tips/decisions based neuroscience, neuromarketing, behavioural economics and psychology etc. It is also the study of nervous system that seek to understand the biological basis of behaviour.

2. Objectives of study

1. To develop understanding the concept of Neuromarketing in detail
2. To study the techniques in Neuromarketing
3. To study the influence of Neuromarketing on marketing inputs

3. Research Methodology

The research paper is a conceptual research, based on the secondary data sourced from various research journals and articles

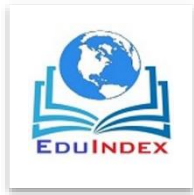
4. Technicalities of Neuromarketing

The main goal of neuromarketing techniques is mainly to understand connection between consumer behaviour and marketing activities and its influence on consumers. The different methods used are body language, empathic design, facial coding, eye tracking other than fMRI, EEG, MEG, Heart rate etc. All these techniques basically provide a keen understanding of black box i.e. ‘BRAIN’. All these instruments of neuromarketing can be used in the suitable environment from which we can get better result.

5. Outside Reflexes and Neuromarkeing

One of the limitations is that people are not expressing their feeling and thought in rational manner so it is necessary to differentiate between outside reflex ,input/output models and inside reflexes.

Outside reflexes mainly focus on body language, facial coding, empathic design, eye tracking. In the past decade because of lack of technology infrastructure only these instruments used to collect the information of the brain and use to understand the consumer buying behaviour. It



should be clear that these methods do not look at the inside activities of brain only gives the outside reflexes, perfect example of this is lie detector.

a. Body language

It is one of the outside reflexes that are organized in the body. It basically reflects person's emotions. It is the analysis of biological reflexes which is visible. Body language is form of the reflex which is part of non-verbal communication and it is expresses mainly in conscious or unconscious ways mainly in the form of gesture, mimic, posture and other body movements which are visible. It is also playing a very important role in the understanding human behaviour mainly consumer behaviour.

b. Empathic Design

It is way of analyzing human being without any device in this observation is made of human behaviour mainly in consumers own environment so it can be analyzed in daily routine. In this method subject is aware that they are being observed.

c. Facial coding

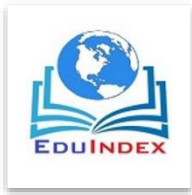
In this method the facial expressions are captured, systematized and are coupled to emotions of human being. This can be used to understand consumer behaviour. According to Darwin who found that people from different nations have the same pattern of facial expressions. Mr. Danhill who established 24 combination of muscle movements which can be use to track seven basic emotions.

Business Cases: Toyota and Capital one are mostly using these techniques to understand the consumer behaviour.

d. Eye tracking

Eye tracking is the method in outside reflexes it mainly provides the information about the internal brain activity which is non suppressible reflex. This is very old techniques and now days this eye tracking is controlled by computer and sensors.

6. Brain- ‘Black Box’ Input-Output Model



Brain is very complicated part of human body it is very difficult to analyzed the brain only with I/P and O/P models but the interpretation is possible by systematically analyzing inside and outside reflex and established the results so that we can understand the consumer behaviour. According to Postma in 2012 in his research pointed that only consideration of I/P and O/P is not sufficient but the understanding of the in between process is also important.

7. Inside reflexes

Inside reflexes approach makes use of technologically advanced methods developed in medical area. This methods helps anyone to looks inside the brain self. The most famous techniques are EEG and fMRI scans. Inside reflexes can be used to understand the consumer reactions to advertising, packaging and price etc. nobody is asked actually to purchase anything but can examine about consumer experience when he/she exposed to advertisement neurologically . I/P-O/P model in neuromarketing is about the more focused on the buying behaviour of consumers.

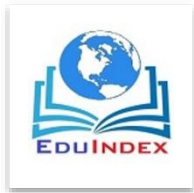
a. EEG

EEG stands for Electroencephalogram it is nothing but the electrical responses of brain activity. It is majorly the electrical changes which take place around the brain. This method majorly used to access the brain activity. In this method many electrodes are attach to skull that helps to record the electronic signal associated with brain activity. The time duration for recording the electronic signals to understand the brain activity is approximately 20 to 40 min. Neurons are cells which are responsible for cognitive process when target is exposed to advertisement, neurons emitted the electric signal which can be easily recorded by EEG and these signals are make available for analysis. To be more effective and precise EEG method and eye tracking can be combined to get more proper results.

b. fMRI

fMRI is the abbreviation of ‘Magnetic Response Imaging’. With the use of magnet brain can be analyzed with automatic representation. It is use to measure the oxygen level in the blood. In this if the neural activity of brain increases then the oxygen level of blood increases so we can understand the human behaviour with the help of this method.

For marketing process fMRI is used which is the form of non invasive neuroimaging technology. In fMRI ‘f’ stands for ‘functional’. fMRI method is used to recognize the increase in brain activity in certain brain region. The working of fMRI scanner is simple, the oxygenated blood has different magnetic waves than deoxygenated blood so the difference can be easily measure.



c. MEG

MEG is the abbreviation of Magnetoencephalography and quite similar to the non-invasive procedure. MEG captures magnetic field of neural activity as compare to EEG, fMRI . MEG is costly activity.

8. Influence of Neuromarketing on marketing inputs

Neuromarketing is a qualitative research technique which delivers enormous benefits as compared to traditional marketing, since consumer behaviour is a sort of neural activity in which majorly brain dominates to better understand the consumer behaviour it is very necessary to understand the brain activity.

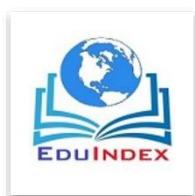
a. Neuromarketing and Consumer Buying Behaviour

According to Gand, Lin Qi & Yan 2012, May Butter 2008, Neuromarketing is the best suited marketing tool because of its in dept analytical approach and precision in results, but still there are certain things that needs to be express their desires and needs when asked, so it is very necessary to analyzed the brain activity which could elaborate the needs and desires. If this knowledge is available then it becomes very easy to influence the buying behaviour of consumers so, neuromarketing is considered as a perfect tool

Neuromarketing basically uses the technologically advanced techniques like brain scanning which provides more insights on mental process behind the consumer purchase decisions, so we can say that by carefully analyzing ‘Buy Button’ in the brain and can easily understand the buying behaviour of consumers. It can be done by activating the area of brain which is responsible in decision making. The output of neuromarketing can be used for product development and analyzing the consumer behaviour.

b. Advertising and Neuromarketing

Advertising and product presentation to consumers are relative term but if we think about the effect of advertising it is difficult to understand yet. To understand the influence of advertising and its impact on consumer behaviour, neuromarketing and specially neuroimaging are the



perfect instrument to understand how these advertisements affect the consumers specially ‘Brain’.

There is correlation between the advertisement attractiveness and the specific brain areas. Neuromarketing tool are the prominent tools which helps to understand how the advertisement activate ‘ventromedial prefrontal cortex’ and ‘ventral stratum which are mainly responsible for decision making process. (These brain parts are not activated until and unless effective advertisement are shown to target with neuromarketing techniques) it is possible to trace whether the advertisements is perceived very attractive or perceived to be unattractive so that the attractiveness can be measured. The crucial factor is the facial expressions to understand how advertisements are perceived by consumer when marketers apply advertising properly one can influence the buying behaviour of consumer.

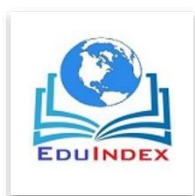
c. Pricing and Neuromarketing

Pricing plays very important criteria when it comes to consumer perception. Generally consumer assumes product with higher price as high quality product and product with low price as low quality product. Pricing is very prime indicator in relation with the presentation of product. Price is also very important factor which majorly impact the consumer decision making process. Price element is a very important because cost is the more influential factor as compared to benefits.

If marketer wants to set price, one must consider very important factor from consumer point of view that is ‘willingness to pay’ which indicated maximum price which consumer can invest to certain product or service. Generally consumers are not willing to express their desire and why they are willing to pay. Application of neuromarketing technique is very important which can used to determine consumers’ willingness to pay which helps marketer to set the price accordingly. Understanding brain activity can promote great insight to marketer and in which neuromarketing tool plays very important role, so neuromarketing can rightly referred on consumer neuroscience.

d. New product development and Neuromarketing

Neuromarketing and New product development are related but effectiveness might be limited neuromarketing is appropriate more after product experience prior to the product development it is not possible to validate the result, so it is suggested that they should adopt the innovative product development techniques for new product development.



According to calvert and Brammer 2012, fMRI is effective tool which can filter information effectively this can be used in pretest process and new product development. Neuromarketing is the effective tool which can be used in final product testing.

e. Communication and Neuromarketing (Especially non verbal)

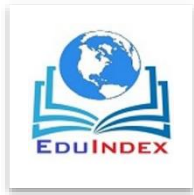
Neuromarketing also influence communication (especially non verbal) like face recognition (facial expression) and body language which can be analyzed by neuromarketing methods. Specially related to outside reflexes. It can be easily understand by the techniques like EEG and fMRI, verbal communication can also be influenced by neuromarketing tools and techniques.

f. Merchandising and Neuromarketing

Outside reflexes are important in area of consumer behaviour these techniques are eye tracking, body language and for this EEG, fMRI such techniques are used. The best example to understand it is tip-self (It is the merchandising in which the place of product is very important). Chandon Hutchinson, Bradlow and Young 2009 in their research stated that these product which have position on the Top shelves in stores are mainly evaluated by consumers. It is because these location have prominent place are the point of attraction which may likely to be chosen by consumers. To understand this one can attach EEG cap to consumers head when they are going to shopping in case of grocery shopping during their shopping journey and analyze their eye tracking this might helps in understanding the decision making process this activity is very useful to understand the behaviour.

g. Branding and Neuromarketing

In decision making process branding and loyalty of consumers for the brands which they preferred is interconnected with consumer's emotions as compared to other brands. Consumers are loyal to their favourite brands. According to study by Bechara and Damasio 2005 stated that consumer emotions influence the decision making process when they came across their favourable brands which is known as ;'winner-take-all' effect. Marketers are mostly interest in this which help them to devise their marketing strategy. Neuromarketing tools such as MRI results shared that there is the significant difference in brain activity when consumers are exposed to common brands and favourable brands so neuromarketing tools such as MRI, fMRI and MEG can be use to figure out the brain activity or activated brain region when their favourite brand is presented in front of consumers.



The branding issue has significant impact on decision making of consumers which may results in brand preference and brand loyalty, so neuromarketing techniques application is very helpful in improving the perfect representation of brand, brain activity mapping can be easily implemented for setting product preference and brand familiarity.

h. Consumer decision making and Neuromarketing

Consumer decision making process is very crucial and important in undertaking consumer behaviour which starts with i. Problem identification ii. Information Search iii. Evaluation of alternatives iv. Purchase decision v. Post purchase behaviour and finally gaining experience from the current buying and can use that for future shopping. It is the fact that the decision making process is highly influenced by consumer emotions attached with buying. Neuromarketing techniques can be used to analyze the decision making process positive and negative. This can be better understand by understanding the Ventromedial prefrontal cortex and the striatum are the brain region which should be analyzed. fMRI, EEG are the neuromarketing techniques which are helpful.

9. Ethical issues in Neuromarketing and its critical evaluation

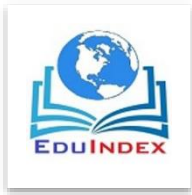
a. Ethical issues in Neuromarketing

There are ethical concerns when it comes to neuromarketing tools and techniques which is one of the ethical issue in elimination of individual's free will some of the options are the use of neuromarketing techniques which influence the 'Buy Button' which eliminate the consumer free will and ultimately becomes 'buying robots'. Consumers are having their own thought process and involvement in decision making process to make their individual choices, the time we start manipulating the idea of free will the idea of free market will disappears.

The problem with free will occur when the entire focus of trade would be commercial without actually taking in account the consumer desires, needs and preference.

According to Murphy, Illes and Rainer, 2008, they started two ethical issues which concerns with research of neuromarketing and protection of affected parties and other is about autonomy of consumers in decision making process. With all these concerns there is urgent need of prevention of consumers personal/ individual privacy to achieve this there is need of code of ethics.

b. Critical evaluation of neuromarketing



One should consider critical option when consider neuromarketing. Mr. Gary Ruskin throw some light on this and stated that the reason behind epidemics in care of diabetes, alcoholism, obesity and smoking which also have an impact on marketing strategies. Other critic also stated that neuromarketing techniques sometimes intervene into the privacy of customer but it will continue in future because companies consider mainly on increasing profit no matter if they are having interference in the consumer privacy.

One of the critics also started by using neuromarketing tools it is not possible to examine actual behaviour of consumer actually it gives only physiological evidence of the consumer behaviour.

Conclusion

This paper provides the detailed about what is mean by neuromarketing and its technical components. This paper also highlights the influence of neuromarketing on various marketing input. Neuromarketing as various marketing input like advertising, merchandising, consumer behaviour, pricing etc. While doing this study new concepts and literatures are reviewed which helps in giving shape to this paper.

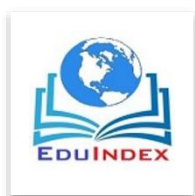
The neuromarketing techniques helps revel the internal information about human behaviour with all these tools can also also evaluate the relationship between the neuromarketing and marketing elements

Neuromarketing is the tool which revels ‘secrets’ in the brain by using the neuromarketing techniques. Researcher mainly pay attention to emotions and braining process which mainly influence the buyer behaviour.

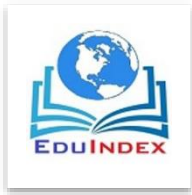
The region in the brain which is prefrontal context is very important when neuromarketing is concerned. If the neuromarketing is considered in a ethical way then neuromarketing helps to create the ‘Win Win situation’ for marketer as well as consumers.

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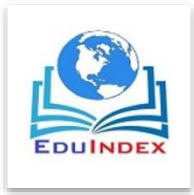
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