

## Neuromarketing: A Review Of Literature

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### Abstract

The report revolves around the topic of neuromarketing and the various segments associated with it. For the evaluation purpose, the tools and techniques associated with neuromarketing has been discussed in detail. Furthermore, it has been observed that neuromarketing can also be used a marketing tool, that can impact the customer mindset. Using neuromarketing as a business tool also ensures that the purchasing decision of the customer base can be influenced. This will be beneficial for business scenarios as more loyal customers and increased sales can be gained with the help of this method. The ethical considerations are also discussed in detail so that clearer understanding can be achieved on the ethical segment. In the later part of the study, recommendations are provided for the betterment of the entire process. The study also contains references from trusted sources and reputed authors, which make the entire discussion more authentic and informative.

**Keywords:** Neuromarketing, information, customer, human attitude

### 1. Introduction

Neuromarketing has transformed the concept of marketing in recent times as it includes various tools and techniques to assess neurological test results of the customers to influence their behavior. The amalgamation of neuroscience with marketing for enhancing the profitability of an organization is a considerably complex yet highly beneficial method for marketing that is able to identify the needs, wants of the customers, and includes these aspects in their marketing strategies. Neuromarketing is used to influence the customers' behaviors and design products that can be marketed in a way that stimulates the customers emotionally. As per the words of Jordão *et al.* (2017), the use of traditional marketing for products such as cars and shoes has failed within the first six months for 70% of the products. However, the use of neuromarketing strategies for companies such as *Cheetos, Paypal, and Hyundai* and so on for commercial design and product designing has produced positive results (Lindquist, 2014). The tools used in neuromarketing aids in generating desired responses from the customers. The effectiveness of neuromarketing in practice is dependent upon its ability to affect the emotions of the customers. According to Nilashi *et al.* (2020), neuromarketing in practice assesses the brain activities of the customers in order to stimulate their decision-making process and purchasing behaviors. Thus, the paper seeks to conduct a thorough literature review on neuromarketing and assess the various dimensions of neuromarketing

tools and techniques and the impact it bears on customer behavior. The problem statement of this paper is the evaluation of neuromarketing in practice and its analysis in a comprehensive manner to determine the contributions of and challenges of it.

The aims of this paper are as follows:

- **To recognize the appropriate techniques to proceed the effective neuromarketing**

Usage of information is also an integral part of the theory. The human brain can be stated as a mechanism that processes the overall collected information and makes decisions based on that. Behaviors and psychology these are two tools of this theory that have been investigated by the observer. As per the views of Lim *et al.* (2020), the cognitive theory can also be implemented towards the social perspectives. This process of collecting and information processing is something that also affects our overall thinking process along with providing accurate responses towards both the internal and external stimulus.

- **To analyze the both effectiveness and limitations of neuromarketing tools and techniques**

Electroencephalogram or EEG is one of these methods that are used for the purpose of recording data with the help of electrical activity in the brain. In cases of changes in the neural activity of the brain, the changes can be measured (Craik *et al.* 2019). In the purpose of measuring the activities, several electrodes are used to balance the

effectiveness. Various types of examines are happened in the advantages of EEG using in the process of observing a patient properly. According to the statement of Antoniak (2020), compared to other methods of doing the same, EEG has both advantages and cons. Most importantly, the implementation of this method ensures measurement of brain activity, compared to the other processes that record blood flow.

- **To identify the effect of neuromarketing on consumer practices from a psychological and emotional perspective**

Neuromarketing is an effective tool for enhancing brand awareness and formulating relationships with customers that contributes to customer acquisition and retention. However, the issues of ethics in such practices require refinement in order to avoid misuse by the companies to attain profitability and market advantage. Further recommendations for improving R&D for avoiding inaccuracy in results and interpretations should also be considered. Despite the growing popularity of neuromarketing as technological phenomena in the field of marketing, its psychological impacts should be considered as well in order to assure the interest of the customers is retained.

The research questions are as follows:

- What are the effective tools and techniques of neuromarketing?
- What are the contributions and limitations of neuromarketing and its effectiveness in practice?
- How are the customers impacted by neuromarketing, both psychologically and emotionally?

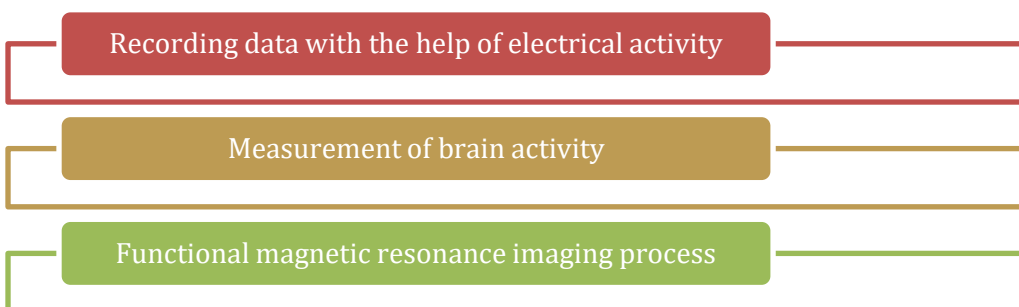
- What is the nature of the relationship formulated between the audience and the organizations with the aid of neuromarketing?

The study reveals the various dimensions of neuromarketing in practice and the impact it bears on the psychology of the customers. Thus, this paper will have significance in the field of neuroscience, psychology, social studies, and professional marketing. It will also be significant to provide proper application techniques of neuromarketing by various corporations.

## 2. Theoretical foundation

### 2.1 Tools and techniques of neuromarketing

Neuromarketing is a very common and effective procedure that includes brain scanning, brain imagining, and brain activity. It provides electrical activity that is able to record the essential data and help the observer to monitor the entire process. This specific imaging process is capable of measuring the changes in the carnival blood flow along with the oxygenation of different brain segments. It can be stated as a completely new field of science that can also be termed as an interdisciplinary segment. This field tried to incorporate the views from the marketing field into the segment of neuroscience. However, it can be stated here that both of the scenarios are interdisciplinary. As the field of neuroscience can consist of multiple fields, there are multiple techniques associated with it. This diversity in techniques is helpful to understand the various portions of the human brains. Some of these tools and techniques will be evaluated here.



**Figure 1: Tools and techniques of neuromarketing**

(Source: Self-developed)

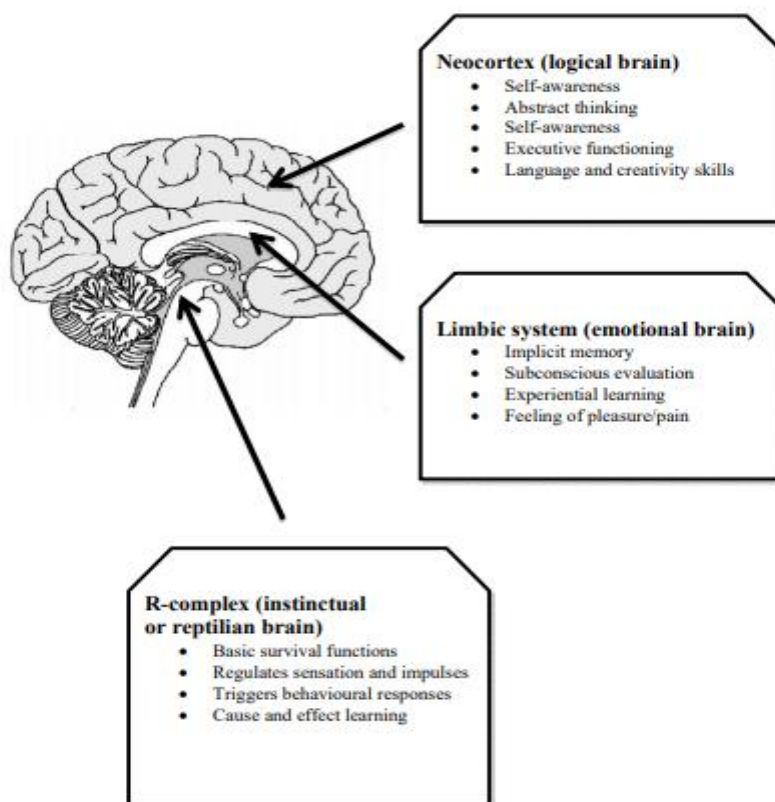
Another technique that can be stated as beneficial in this process is the functional magnetic

resonance imaging process. This process is very efficient as it uses a strong but harmless magnetic field along with the use of radio waves.

### 2.2 Neuromarketing as a decision making tool

Neuromarketing can be used as a viable tool towards understanding the process of decision-making. It refers the ability of measuring neural and psychological signals in order to increase perception of customers preferences, motivations and able to make them difficult decisions. According to the statement of Bault and Rusconi (2020), the usage of neuroscience can be beneficial to understand the customer mindset. Multiple

researches on the topic clearly indicate that brain mechanism is the reason that creates a perspective about a specific subject or topic. This subjective value is often based on the various experiences of an individual. An opinion or perspective towards something new can be manipulated with the help of specific neuroscience tools or techniques (Golnar *et al.* 2019). This has been categorized into three distinct segments along with the neuroscientific methods that can be used as a tool to manipulate the neural activity related to decision making.



**Figure 2: Triune model of brain proposed by Paul MacLean**  
(Source: Shukla, 2019)

### 2.3 Ethics of neuromarketing

The segment of neuromarketing and the ethical potition associated with it is a topic of many arguments. In this section the examine process is observing the patient according to their attitude, behavior and activity. The main achievement of the neuromarketing can be simply analyzed as matching a product with the requirements of the consumers. Brain activities are closely associated with the customer mindset along with the purchasing decisions. The perception of the brand in the customers mind can significantly affect the purchasing decisions of the customer (Spence, 2020). This is something that can be emphasized on and can be used as a marketing tool. However,

this is where the ethical concerns come into play. Every time a product satisfies the need of the customer, it will ensure a growth in sales. With the help of marketing, products can be placed in such a way that quickly grabs the attention of the potential customer base (Isa *et al.* 2019). This is also beneficial towards covering the potential customer base into a loyal one. In another word, it can be stared as the form of neuromarketing is manipulating customers towards the product that the shopkeeper wants to sale. Observing the mindset of the consumers the shopkeeper provides the product to them in order to satisfy them.

#### **Cognitive Theory**

The cognitive theory is a collective process that focuses on everything that takes place inside our brain. It is one kind of approach that psychologically attempts to describe human attitude and behavior by observing their thought process. As stated by Cristofaro (2020), processes such as perception or attention are a part of our everyday brain activities. In the process of cognitive theory implications, objective based and controlled scientific methods are used for investigating the behavior of an individual. Observing well the external activity and thought patterns of the consumers the shopkeeper is able to provide products by adapting this effective theory. The data gathered from these fragments are used towards improving the overall mental process.

#### **Literature gap**

The topic is associated with various corners of the human mind, which is very unpredictable. Less number of face-to-face interactions can be stated as a literature gap.

### **3. Methodology**

Proper research methodology is essential for providing the researcher with a framework of design that is used to gather relevant data and interpret it objectively. As per the words of de Gooyert (2019), the use of proper research design enables the researcher to gain direction in the research procedure. Thus, the research strategy helps to strategize the entire paper that also helps in time-management and proper data collection process.

Research philosophy is adopted in order to provide direction in accordance to the beliefs that lead to the attainment of objective truth. According to Alharahsheh and Pius (2020), adoption of a particular research philosophy helps in guiding the researcher to identify genuine knowledge. The identification of knowledge is required to base on worldly phenomena of social traditions that affect the experiences of groups or individuals. This paper will adopt the *philosophy of positivism* in order to gain an objective perspective where the basis of truth is rooted in human experience that is analyzed in the course of the research.

The design of the research is also essential for deciding upon the correct method of data interpretation. There are various research designs that can be used such as descriptive, case study, experimental, correlation and so on that are chosen, based upon the overall research design (Schoonenboom and Johnson, 2017). For this particular research paper, *descriptive* research design has been adopted in order to evaluate the

existing literature on the topic and identify the underlying issues that affect upon neuromarketing and consumer behavior.

The research approach provides the researcher with an ability to enhance the scope of the research that helps in the achievement of genuine and unbiased knowledge. As per the words of Alase (2017), research approach enables the researcher to identify the proper methods for identifying the characteristics and trends in accordance with the topic. For this particular topic, *a deductive* research approach has been adopted in order to evaluate the existing resources, especially secondary resources for this topic and deduce the findings in a logical and scientific manner.

Data collection methods for this research had mainly focused upon collecting secondary resources, namely peer-reviewed journals, published articles and so on. These resources had been sampled through an inclusion-exclusion method in which certain criteria has been followed. The criteria included peer-reviewed and published journals and articles, available in English language, published between the years 2017-2021, available in full pdf-texts and accessible in online databases such as ProQuest and Google Scholar. The overall data interpretation process had been conducted through a comprehensive *thematic analysis* that will adopt qualitative research methodology. It has also been observed by the codes of ethics by attributing the authors and their works with due respect through proper referencing.

### **4. Analysis and Discussion**

#### **4.1 Theme 1: neuromarketing as a tool for psychological stimuli**

Neuromarketing is essentially based upon the neurological system that helps in understanding the experiences of the human mind and producing marketing campaigns that include elements capable of stimulating the minds of the customers. According to Garczarek-Bak *et al.* (2021), the customers are influenced significantly in neuromarketing as it applies techniques that are based upon the workings of the brain. The activities of the brain studies in neuromarketing gather data from various brains such as insula, which contributes to design making as it is affected by certain negative stimuli (Jordão *et al.* 2017). Thus, by affecting various parts of the stimuli, neuromarketing is able to stimulate the customers psychologically and affect their purchasing decisions.

The success in neuromarketing in the contemporary age has provided scope for accurate marketing that influences the behavior of the customers. According to Nagy (2020), the use of TV, advertisements grab the most attention and induce brain responses and globally 33.6% of share is spent on such marketing strategies. It is also identified that neuromarketing influences the brain circuits responsible for product choosing and purchasing (Vences *et al.* 2020). Thus, neuromarketing affects the consumers psychologically and influences their decision-making processes.

The use of neuromarketing influences the subconscious mind of the customers. According to (Antoniak, 2020), the use of EFG (electroencephalogram) is used to monitor the changes in neurological activities in the cortex. Thus, the human brain is influenced by emotions that can be conditioned by neuromarketing, which marks neuromarketing as a tool for psychological stimuli for the customers.

#### **4.2 Theme 2: Issues in neuromarketing**

The application of neuromarketing in practice faces various issues, regarding its ethical implications that limit the scope of neuromarketing. As per the words of Hensel *et al.* (2017), the marketing objectives are fulfilled through neuromarketing is often regarded as tricking customers which questions the ethical codes. Moreover, the codes of ethics for neuromarketing are developed according to their principles supplemented by Ethical Guidelines in Neuromarketing and Neuromarketing Science & Business Association (Hensel *et al.* 2017). However, despite the ethical considerations, use of technologies that are merely used for scanning or testing the responses in the brain is often accused of directing the minds of the customers.

The limitations that interfere with the usage of neuromarketing tools for the purpose of brand positioning, customer demands, product launching and so on can also be attributed to lack of accuracy. As per the words of Fotunato *et al.* (2015), the issues of implementation of neuromarketing technologies in practice require significant investment. Thus, many organizations do not receive the scope of using neuromarketing tools for furthering their marketing strategies.

#### **4.3 Theme 3: Effectiveness of neuromarketing in formulating relationship between the organizing and customers**

The effectiveness of neuromarketing is considered from the accuracy of its results and the application

of neuromarketing in customer acquisition and retention. As per the words of Gómez *et al.* (2020), marketing strategies developed based on neuromarketing techniques aim at attracting the customers. Moreover, the recent use of social media in influencing their customers, which has provided scope for communication, has contributed to the formation of an intimate relationship between the organization and customers or audience (Vences *et al.* 2020). In essence, such relationships are forged by analyzing various neurological tests and application of the data acquired from these tests in marketing that caters towards the emotional aspects of the mind.

The formation of such relationships provides effective increase in sales and raising brand awareness. As per the words of Cadaver *et al.* (2017), through gaining knowledge with the help of neuromarketing helps the organizations to review ratings and feedbacks of the customers and provide them with exactly what they desire to purchase. Moreover, Neuromarketing is through the analysis of EEG signals enables the company to personalize their products according to the market demands that influence the customer behavior to feel loyal to a specific brand. Thus, a healthy relationship is formulated that leads to optimization of profitability.

Neuromarketing is essentially used to provide an organization an insight into the minds of the customers. Based upon the previous thematic analysis, neuromarketing is an effective tool for marketing. Despite the questions of ethical considerations, the contribution of neuromarketing, in comparison to traditional marketing strategies, has been effective. According to Lim (2018), analysis of customer preferences enables the organization to influence the purchasing decisions of the customers. It has also been able to impart knowledge about the product, create, and identify market segmentations. Application of neuromarketing contributes in gaining competitive market advantage of an organization.

In recent times, the use of neuromarketing through social media enhances communication with the customers. Formation of a healthy relationship with the customers in this manner provides effective results in gaining market advantage and influencing the purchasing decision of the customers. As per the words of Nadanyiova (2017), the impact of neuromarketing through influencing the cognitive factors of the brain also

aids in the process of formulating an emotional connection with a specific brand.

The various technologies used for neuromarketing such as EEG testing, fMRI, and so on are used to attract the customers and deliver to them exactly what they had desired. Thus, the use of technology may sometimes cross the limits of customer privacy, which is considered as unethical. The application of neuromarketing to arouse pleasure in certain regions of brain enhances the effectiveness of neuromarketing and the contribution of neuromarketing in enhancing the effectiveness of marketing strategies is significant.

### 5. Final thoughts

From the overall evaluation of the collected data, it can be observed that neuromarketing can be used as a viable tool towards marketing. There are various tools and techniques associated with it. The implementation of these tools and techniques will ensure that understanding the customer mindset is easier. These evaluations will act as a support mechanism towards creating products that will have a higher rate of acceptability across the customers. However, as this process influences the mindset of the customer, ethical considerations also come into play. Although, it is a very minor issue as all forms of business somehow affects the customer mindset.

The objectives formulated in the study are met within the different portions of the overall structure. The first objective focuses on various tools and techniques associated with neuromarketing. The objective has been met with in the literature review section. Both the third and fourth objective focuses on customer mindset and it is also discussed in the literature review section.

The various aspects associated with neuromarketing are discussed in a detailed manner in this report. The study will act as groundwork for the future researchers trying to understand more on this topic. Along with that, the study is beneficial towards understanding the changing customer mindset along with providing more knowledge on the subsequent fields.

The limitations of the study can be stated as an absence of enough time for the conducted research. As the overall study is somehow associated with customer mindsets and changes in purchasing patterns, more time is essential to get better understanding.

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