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Neuromarketing-deciphering the consumer buying decisions

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Abstract

Neuromarketing is the latest research approach in the field of marketing. It uses neuroscience techniques to understand the brain responses towards marketing stimuli such as advertising and branding and making improvements based on these feedback for a better response. The present paper studies the concept of neuromarketing as a tool to understand the consumers buying behavior so as to make better marketing decisions. Understanding the consumer behavior is important as it influences the decision related to product design, advertising and branding. The objective is to study the latest scenario of neuromarketing along with current techniques used such as Functional Resonance Imaging (fMRI), Electroencephalography (EEG), Eye Tracking, Positron Emission Tomography (PET), Magneto Encephalography (MEG) and Galvanic Skin Response (GSR). Moreover, the growth and expansion of Neuro marketing market worldwide is also analyzed.

Keywords: Neuromarketing, eye-tracking, meme, functional resonance imaging (FMRI).

Introduction

Understanding the human behavior has been a question before researchers of almost all disciplines including psychology, management, computer, economics medicine, marketing, philosophy and political science. All have used various techniques to predict the human behavior. The predictions through these traditional methods were not very precise which led the researchers to move towards more new and innovative techniques. This resulted in the entry of neuroscience. The bases of neuroscience in marketing rest on the fact that the decision-making process is guided by the areas of brain. The stimulus which is provided is acted by both conscious and subconscious brain and is responsible for a particular behavior. So, if we are able to understand the brain functions which result in a particular behavior, we can predict a consumer behavior more confidently and accurately. The use of Neuroscience tools such as Magneto Encephalography (MEG), Electroencephalography (EEG), Eye Tracking, Positron Emission Tomography (PET), Functional Resonance Imaging (fMRI), and Galvanic Skin Response (GSR) can help us to understand consumer behavior which has given rise to neuromarketing. Neuromarketing is based on the concept of processing of the decision. Consumers use both subconscious and conscious process while making decisions. Subconscious process called system one is characterized as quick, emotional, intuitive, effortless, and fast. The conscious process also referred as system two is rational and slow, full of effort and involves conscious decision processes. When a consumer reads certain ads, he is using his conscious mind to process the decision. Rather taking time for reading the text, the subconscious system instantly reads the clues related to color, shape, size and imaginary. It is emotional and it confirms our loyalty and trust to the stimulus and initiates call to action, whatever the action may be.

The word neuromarketing was first used by German professor Ale Smidts of Erasmus University in 2002. However, the real founder of neuromarketing is Gary Zaltman of Harvard University who took Functional Resonance Imaging as a marketing instrument in 1999. In 2004, one of the neuro marketing researches by Read Montague was published in a scientific journal 'Neuron' called the 'Pepsi Paradox'. Under this study, the brains of 67 persons were scanned, they were blind tasted for Coca Cola and Pepsi to find out which tasted better. Initially 50% of the respondents chose Pepsi. Once they knew that they were drinking Coca Cola, 75% responded that Coca Cola tasted better.

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The results indicated that Pepsi should have had 50% the market share as it tasted better but it got far less as the advertisements of Coca-Cola were successful in striking an emotional cord with the customers.

The core of neuromarketing is 'meme'. This is the unit of information and is stored in the brain. They powerfully influence the decision made by a person within a short duration of 2.6 seconds. The positive messages could be remembered properly if memes are properly chosen as they stay in memory and these are the target of marketers.

Neuromarketing is that area of marketing which utilizes technology of medicine such as fMRI in order to study the response of brain to a marketing stimulus. This stimulus can be an advertising or a message. Thus, it is the process of interpreting the consumer behavior through the application of various tools. It explores the non-conscious actions of consumers which result in their different buying behavior. It can effectively predict the result of a campaign in a more reliable way as compared to the traditional marketing techniques.

Literature review

Plassmann *et al.* (2015) found that neuromarketing is different from consumer neuroscience. Neuromarketing has industrial and real-life applications and the neuroscience is related more to academic research. Morin, (2011) ^[7] indicated that neuromarketing is about finding consumer behavior from physiological perspective as against neuropsychology which assesses the association of brain and the cognitive functions of humans. Plassmann *et al.* (2012) ^[10] also found five methods which help neuromarketing, such as identifying behavioral mechanisms which help or redefine the current theories, assessing the implied processes involved in making decisions, disassociating the various physiological process, finding the difference between various individuals and improving the behavioral predictions. According to Vlăsceanu, S. (2014) neuromarketing makes it possible to find out how consumers make decisions by assessing his unconscious thoughts, feelings and emotions. Thus, one can understand how buying decisions are influenced by unconscious mind and what is its relation to marketing of the products. Olenski (2011) ^[12] referred that chips ahoy conducted a study to find out how the consumers react to different designs and found that package design impacts consumer purchase decisions. They then transformed their cookies packaging and increased the sales.

Objectives

The main objectives of the study are

1. To study the present status of neuro marketing.
2. To analyze the current neuromarketing market and prominent players worldwide.

Research methodology

The study is exploratory in nature. It tries to analyse the concept of neuromarketing by understanding the process of decision-making made by the minds of the consumer as well as marketers. The research is qualitative in nature and uses secondary data along with the review of previously existing literature, books, journals and reports.

Neuromarketing rising usage

Hyundai has used the technology of EEG to test their

prototype. They measured the activity of the brain in response to various designs and identified which stimulation resulted in buying. The findings of the study resulted in changing the exterior design of Hyundai cars.

Yahoo with an objective to bring more users to their search engine, used neuromarketing technology for evaluating its 60 seconds TV commercial. The ad showed happy and dancing people all around the world. EEG technique was used before airing this ad on TV and online. The ad showed high in neuro test, depicting stimulation in the areas of brain which controlled memory and emotions. Frito Lays, used neuroimaging techniques and found that shiny packaging which they were using for their potato chips triggered a negative response as compared to a packing of matte color. The findings resulted in change of color, image, typing etc. of the package resulting in positive response. Microsoft, with an objective to find advertisers to purchase a spot of 30 seconds in Xbox games, used neuromarketing techniques to show the extent of engagement of the gamers while using an Xbox. The findings were that the ads which excited the specific parts of the brain were supposed to be more likely for the viewers to go and make a purchase. eBay PayPal, used neuromarketing to get more shoppers using their payment services which were online. They observed that the ads which concentrated on features like convenience and speed stimulated greater response in the brain as against safety and security features. These insights were used to create ads for online payment service. Google, used neuromarketing techniques to develop SEO structures. They rewarded websites having strong visual appeal, unique content and were able to deliver emotional engagement leading to more retention.

Tools and techniques of neuromarketing

The Technologies which are used to identify the purchase decision of the customers are Electroencephalography (EEG), Magneto Encephalography (MEG), Functional Resonance Imaging (fMRI), Eye Tracking, Positron Emission Tomography (PET), and Galvanic Skin Response (GSR).

Electroencephalography (EEG)

This method came in 1929. Its principal rests in electrodes placed on skin which can measure the current pulses in the activation of neuron. There are electromagnetic waves in the brain and they are spread which help to measure the reactions of brain. This is the most extensively used method in neuro marketing. It is useful as it measures the amount of marketing stimulus in terms of attention, valance, memorization and engagement.

Magneto Encephalography (MEG)

It assesses and acknowledges the magnetic activity happening in the brain by using a special helmet having 100 to 300 sensors. The magnetic field which is caused by the neuron activity is captured through this technique.

Functional Resonance Imaging (fMRI)

It examines the brain activity indirectly. It uses functional imaginary of brain and mapping brain responses to the external and internal stimulus. It precisely measures the specific parts of brain where some activity is happening, which includes small and deep structures of brain. Although it is an expensive technique, but nowadays it is the most popular among the marketers.

Positron Emission Tomography (PET)

This method is of nuclear medicine which uses radioactive substances. It is an invasive technique which measures the metabolic activity of the body when radioactive chemicals are injected in the body. Changes in the chemical composition and flow blood to deep and small structures of brain can be detected and analyzed through this method. It is less used in research as it is the most expensive method.

Eye Tracking

This technique records the movement of eyes to monitor the frequency and intensity of the view. It analyses where the person is looking for longer time and with more frequency along with enlargement of pupil people. It tries to identify the focus of the customer. Eye tracker glasses, virtual reality glasses and webcams can be used for eye tracking. Thus, it can measure attention through eye fixation points, arousal through dilation of pupils and facial expression coding by reading the minute movement of facial muscles.

Galvanic Skin Response (GSR)

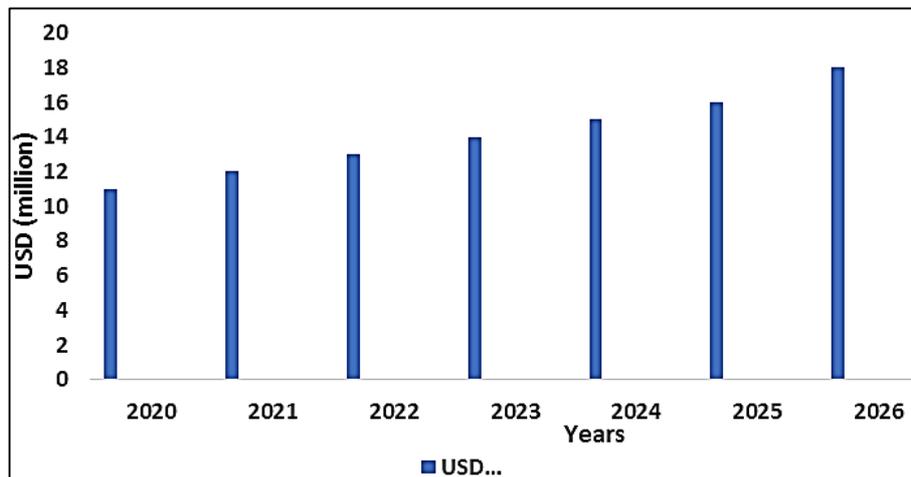
This technique assesses the state related with emotions,

attention as well as cognition where electrodes are attached to the fingers of a person to measure electro dermal activity.

Neuromarketing market

Major industries which use neuromarketing services are FMCG (fast moving consumer goods), media, retail, automotive, food and beverages, finance, insurance and banking. The neuromarketing has expanded over more and more industries including pharmaceuticals, health care, education, politics, digital advertising, telecommunications, tourism, product development, real estate, multimedia and gaming, video content developers, cloud services, big data service and internet service providers. The increasing demand for studying consumer behavior has boosted the neuro market industry. Many companies around the globe specially the developed countries of North America have invested heavily in neuromarketing.

According to the Neuromarketing Technologies: Global Markets Report, 2016, the global neuromarketing market will stand at a value of USD 11.5837 million in 2020 and is estimated to reach USD 18.961 million in 2026. This shows a CAGR of 8.89% during 2021- 2026.



Source: Neuromarketing Technologies: Global Markets Report, 2016

Fig 1: Value of Neuromarketing Market

North America holds the largest neuro market share with US as the leading country in this region. The neuro market research industry of US is expected to generate over USD 47 billion as revenue in 2019. Asia Pacific is emerging as the fastest growing neuro market.

Major players in neuromarketing

The prominent players in neuromarketing industry are as follows:

Neuro Strategy South America

This is a company of Argentina which specializes in neuro strategy, political assessment, qualitative and biometric research.

Tobii Pro Latam

This company uses eye-tracking, webcam, facial coding and implicit association test to increase sales and it belongs to Argentina.

Neuro-Insight Pty

This is an Australian company which specializes in brain

activity measures and implicit measures of brand attribution along with TV internet and mobile advertising research and media research.

iCense

A Belgium company which looks into the neuromarketing research consultancy, pricing, consumer experience, media consumption, branding, positioning, development of new products and research.

Mindspeller

This company also belongs to Belgium which looks into to the group and predict word association and the emotional effects. Artificial intelligence techniques are also used for the above processes.

Neurons Inc Brazil

This company is a neuroscience research company where neuro labs and eye-tracking research are carried out with implicit and explicit measurements along with artificial intelligence techniques.

Cloud army

Canadian company which uses neuroscience, computer science and data science to give deep level neurobehavioral insights.

Nine foresight

This is a Chinese company involved in marketing research and works along with the department of psychology of one of the universities of China where it mixes neuromarketing with the conventional research methods for getting latest insights.

Mindmetriks Colombia

New marketing methods and the traditional market research techniques are used to optimize the catalogues, shoppers, neuro politics, sales and training of neuro technology, by this company.

UNIMER Costa Rica

This company combines neuroscience that is eye-tracking, facial coding with qualitative and quantitative methods to find out the rational decision-making of the customers.

Neurons Inc

Company from Denmark is a neuroscience research company with, eye-tracking research and neuro online measurement along with artificial intelligence techniques.

Ipsos

This is a French company which combines neurophysiological attributes, market and media to get the insights about society, markets and people.

Neurons Inc India

This company specializes in online implied measurements and eye tracking along with artificial intelligence as well as EEG.

Adv Media Lab.

An Italian company which specializes in assessment of the signals of the brain and bio signals with various techniques of neuroscience.

Mindmetriks Mexico

The company uses modern neuromarketing methods and traditional marketing research for optimizing neuro politics and sales.

Expoze.io

This company belongs to Netherlands and has a strong artificial intelligence induced eye tracking platform which can predict which part of image draws attention and through this, redesigning of image can be undertaken.

Neuro Trend

This is a Russian company which is engaged in neuromarketing, biometrics, eye-tracking and facial coding.

Neurotrend Pte. Ltd.

This company is situated in Singapore and it integrates consumer neuroscience tools which can measure the response of the customers for the ads, websites, in store experiences.

Split Second Research Limited

This company is from UK and it can test the brand equity, brand positioning, taglines, logo and packaging through the help of neuroscience methods.

Walnut Unlimited

This is a company which belongs to United Kingdom and they integrate neuroscience with behavioral science along with traditional methods for better understanding of consumers.

Affectiva

This company belongs to United States of America and they can measure the emotional responses of the consumer to the advertisements, videos and television programmers through neuroscience.

BIOPAC Systems, Inc.

This company is USA based company which offers tools that can give insights about the behavior and decision-making processes of the customer. They analyze the data which is biometric, temperature, face expressions, videos and eye tracking.

Nielsen Consumer Neuroscience - Chicago

This company helps to create powerful brands by using the neuroscience instruments such as biometric, facial coding, eye-tracking at a global level.

Salesbrain LLC

This is the USA based company which specializes in neuro creative services and neuromarketing where they apply scientific persuasion model.

Restraints of Neuromarketing

Neuromarketing has brought various advantages and comforts to the advertisers and marketers. The governments worldwide have recognized this fact. They have also brought some regulatory provisions on the use and implementation these technologies at a large level. In Europe and some regions of US, the neuro marketer may come under scrutiny from consumer protection organizations and data protection authorities. Similarly wrong implementation of techniques leading to an abrasion to the subject undergoing the test, may lead to facing of a trial. Eye tracking regulators believe that these technologies can give misleading results as consumers may make biased decisions as they know they are being monitored. Ethical issues which are involved in neuromarketing are also raised by many social organizations.

Conclusion

Neuromarketing is the new frontier of marketing which uses hard science to measure the effects of emotional marketing on the consumers. The present paper has analyzed various techniques used in neuromarketing along with the current status of neuro market. It is seen that neuro market is emerging as a significant field in the area of marketing. The prominent players worldwide have been discussed who deal with various areas of neuromarketing strategy. There is a vast scope for expanding the research in the area of neuromarketing. The study can be conducted by analyzing the impact of neuromarketing on specific industries such as tourism, real estate, video gaming etc. Similarly, whether

the neuro marketing is ethical or not can be further assessed. The deep impact of various neuromarketing tools and their combined permutation combination effect analysis can also be investigated.

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