

ROLE OF NEUROMARKETING IN UNDERSTANDING CONSUMER BEHAVIOR: A LITERATURE OVERVIEW

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Abstract

Neuromarketing has been widely used to measure consumer behavior through several stimulation, including logo colors of a brand. Neuromarketing is applied using electroencephalography (EEG) signal analysis to the human brain's responses. This article explores the emerging field of neuromarketing and its potential impact on consumer buying behaviour. Neuromarketing combines neuroscience, psychology, and marketing to better understand consumer decision-making processes. The article discusses the various techniques used in neuromarketing research, including functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye-tracking, and the insights they provide into the subconscious factors that influence consumer behaviour. The article also discusses the ethical concerns surrounding neuromarketing, particularly regarding the manipulation of consumer behaviour. Overall, the article suggests that neuromarketing has the potential to revolutionize the way marketers understand and influence consumer behaviour. Neuromarketing has the potential to revolutionize the way businesses understand and engage with consumers. By providing insights into the emotional and psychological factors that influence purchasing decisions, businesses can create more effective marketing campaigns that resonate with consumers on a deeper level. However, it is essential to balance these benefits with ethical considerations and ensure that consumers' privacy is protected.

Keywords: Neuromarketing, fMRI, Consumer Buying Behaviour, EEG, Consumer Decision-Making.

INTRODUCTION

Neuromarketing is a field of marketing research that uses brain imaging and other neuroscientific techniques to study consumer behaviour. It seeks to understand how the brain responds to marketing stimuli and how this can be used to influence consumer decision-making. Neuromarketing has been touted as a game-changing approach to marketing research, with the potential to provide deeper insights into consumer behaviour and drive more effective marketing strategies. In this article, we explored the impact of neuromarketing on consumer buying behaviour. One of the ways that neuromarketing can impact consumer behaviour is through its ability to identify unconscious influences on consumer decision-making. For example, research has shown that subtle cues such as color and font can have a significant impact on how consumers perceive a brand.

It provides a better understanding of customers' behavior as well as insights on why very often they don't 'walk their talk'. To put it more simply, neuromarketing can explain why when going to a café, customers plan to drink tea with milk but order black coffee upon arrival. Is it unplan behaviour? An impulsive behavior is when you act quickly with no thought to the consequences. There's nothing on your mind beyond that exact moment.

We all engage in impulsive behavior from time to time, especially when we're young. As we mature, we learn to control our impulses for the most part.

The Theory of Planned Behavior assumes that individuals act rationally, according to their attitudes, subjective norms, and perceived behavioral control. These factors are not necessarily actively or consciously considered during decision-making, but form the backdrop for the decision-making process.

So far, we have studied the theory of planned behavior, but we forget that humans subconsciously make more decisions than planned behavior

Pros of neuromarketing

Filling in the gaps

Neuromarketing tools can easily highlight blind spots left by traditional methods of market research. It provides a better understanding of customers' behavior as well as insights on why very often they don't 'walk their talk'. To put it more simply, neuromarketing can explain why when going to a café, customers plan to drink tea with milk but order black coffee upon arrival.

Unlike traditional market research, neuromarketing derives data not only from information provided by customers (survey answers) but also from observations (of facial expressions, eye movements, shifts of the mouse cursor, etc.). Such data, which mainly originates from the unconscious reactions of respondents, can tell you a lot more about their true desires and attitudes than consciously controlled answers to questionnaires (get free pdf on how and why measure consumers' emotional responses).

Linking of physiological reactions to content

Neuromarketing enables the establishment of clear links between physiological reactions and particular moments of a video, elements of the website, packaging design, etc. For instance, emotion measurement can provide you with comprehensive data on respondents' reactions to particular parts of a video or marketing material and thus help you improve those parts which provoke negative emotional feedback.

Improved reliability of results

Neuromarketing helps to reach the unconscious realm of the customer's mind. It provides a better understanding of the process behind the automatic reactions which are taking place on the subconscious level of every customers' mind. Analysis of such reactions substantially facilitates the comprehension of customers' decision-making patterns ([Infographics] Accuracy in Research: How to Achieve High Data Quality?).

Customers can lie (consciously) but their brain can't, because they can't control their unconsciousness. Neuromarketing helps you to penetrate the domain of unconscious and thus get more reliable data on customers' motivation and true reactions to the product, design of website or packaging. This information can be further used to better satisfy customers' preferences.

Value for money

New digital tools and software substantially diminish the price of research while providing a better quality of insights. Online software-based tools, which can be used even by amateurs of market research, today provide quality and depth of insights unreachable for professional market research companies 15 years ago, and at a lower price.

Cons of neuromarketing

Ethical concerns

It's the eternal question. Some people think that neuromarketing is getting inside the brain of customers. Well, neuromarketing does things that a good psychologist does. It 'learns' your behavior patterns and makes smart outcomes, nothing more.

Availability of specific skills

The more specific knowledge you have the higher quality of insights you can achieve. Some time ago it was necessary to have a scientific background to be able to interpret the waves and graphs neuro-tools provides you with. Today it's not necessary because the reports became easier to understand (thanks to technology of course). But you still have to make some effort to sort out what all these heatmaps, statistics, and metrics mean. We have to help the machines to understand us!

Expensive equipment

It's true that neuromarketing equipment always used to be expensive. But today, thanks to the development of technology, a complete set of professional neuromarketing equipment costs around \$1,500, not \$50,000. It's still a considerable amount of money, especially for a small company, but it's far less than the tens of thousands of dollars which it used to cost. The quality of data which you get using expensive equipment is excellent but not so much as it was 10 years ago.

Privacy

All this buzz around the GDPR proves that people want to have more control over the data they share. Well, no one is truly insured from the leakage of data. That's why we should work for improving the technologies and ways of data protection. And it comes not only data that we get with the help of neuro-tools. It's quite doubtful whether an incentive to make customers happier through the improvement of the product and buying experience can be called a crime. Anyway, be ready for people to still consider attempts to get inside the brain of customers interfering with their right to privacy and personal life.

1 Understanding Neuromarketing:

Neuromarketing has its roots in neuroscience, which is the scientific study of the brain and nervous system. The field of neuromarketing uses techniques such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye-tracking to study the brain's response to marketing stimuli. By measuring brain activity, researchers can gain insights into how consumers make decisions and what factors influence their behaviour. The main goal of neuromarketing is to develop a better understanding of how consumers think and feel about products and brands. This information can then be used to develop more effective marketing campaigns that speak to consumers on a deeper, emotional level. By using neuroscience to gain insights into consumer behaviour, marketers hope to create campaigns that are more engaging, more memorable, and ultimately more effective (Nyoni & Bonga, 2017).

2 The Impact of Neuromarketing on Consumer Behaviour:

The field of neuromarketing—sometimes known as consumer neuroscience—studies the brain to predict and potentially even manipulate consumer behavior and decision making. Neuromarketing has the potential to have a significant impact on consumer behaviour. By understanding how the brain processes information,

marketers can create more effective marketing campaigns that are tailored to the needs and desires of individual consumers. One of the key ways that neuromarketing impacts consumer behaviour is through its ability to tap into consumers' emotions. Studies have shown that emotions play a powerful role in consumer decision-making. By using brain imaging techniques to measure emotional responses to marketing stimuli, neuromarketers can gain insights into which types of messages and images are most likely to resonate with consumers. This information can then be used to create more emotionally engaging marketing campaigns that are more likely to drive sales (Motte, 2009). Neuromarketing can also impact consumer behaviour by providing insights into how consumers perceive and process information. For example, research has shown that consumers are more likely to remember information that is presented in a visual or auditory format. By using techniques such as eye-tracking and EEG, neuromarketers can gain insights into how consumers process visual and auditory information, and use this information to create more effective marketing campaigns. Another way that neuromarketing can impact consumer behaviour is through its ability to identify unconscious influences on consumer decisionmaking. For example, research has shown that subtle cues such as color and font can have a significant impact on how consumers perceive a brand. By using brain imaging techniques, neuromarketers can identify these subtle cues and use them to create more effective branding and marketing campaigns (Cruz et al., 2016).

II. LITERATURE REVIEW

The principal objective of neuromarketing is to understand the emotions of people using different techniques as it gets an idea about the way people think about a particular subject. It is a great way to change your marketing campaigns or ads in a way that consumers are going to react the most. Alsharif et al. (2021) stated that due to advances in neuroscience, the field of neuromarketing had gained the capability to employ neuroimaging methods for various purposes, including advertising and the investigation of consumer behavior. The primary emphasis of this review was to demonstrate the effective utilization of neuroscience techniques in the examination of human decision-making. Accordingly, the authors elucidated the chronological development of neuromarketing and its application for evaluating responses to marketing stimuli. Moreover, they detailed the apparatuses for monitoring brain and other activities, along with their advantages, drawbacks, measured parameters, and optimal usage conditions. The study incorporated a discussion of numerous articles concerning neuromarketing. Additionally, ethical concerns arising from the utilization of these methodologies for analyzing consumer behavior were addressed. Concluding the presentation, an exploration of challenges and potential future prospects in this realm of study was undertaken (Alsharif et al., 2021).

Stefko et al. (2021) conducted a study aimed at investigating the impact of gender on consumer behavior through the lens of neuromarketing. The theoretical segment of the research focused on elaborating on neuromarketing and its applicability to gender-related shifts in consumer behavior. The central goal was to assess consumer purchasing behavior and neuromarketing from a gender equality standpoint and to unveil statistically significant variances. The study encompassed 204 participants, consisting of 126 men and 78 women, with age ranging from 18 to 59 and an average age of 33.69. Through random sampling, data from participants were collected using a questionnaire devised by the authors, which served as the primary instrument for data collection and subsequent analysis. The study formulated two hypotheses and employed descriptive statistics to process the collected data. The Mann-Whitney U test was employed for in-depth analysis at a significant level. Statistical analysis was conducted using IBM Statistics SPSS 22.00. The

findings of the study confirmed the existence of gender-specific disparities in purchasing tendencies and responsiveness to neuromarketing (Bercea, 2012).

Glova & Mudryk (2020) explored the future growth prospects of neuromarketing and examined the foundational principles underpinning neurotechnology's. The study highlighted the benefits of neuromarketing, such as the capacity to gather data on consumer reactions to diverse incentives and the intricate details of consumer purchasing behaviors. The research projected future trajectories for neuromarketing techniques and resources. Neuromarketing was identified as a vehicle for comprehending the intricacies of decision-making processes within the human brain (Mileti et al., 2016).

Singh (2020) delved into the substantial impact of Neuromarketing on companies and society as a whole. The study underscored the role of Neuromarketing in unearthing concealed insights into customer behavior and guiding decision-making processes through implicit and instinctive mechanisms. The study aimed to investigate the influence of various forms of advertising on online shoppers' decisions and to explore the correlation between customers' emotional states and responses to stimuli or advertisements. The article employed stimuli-based tools to gauge the influence of Neuromarketing strategies on customers' reactions to online merchants' promotional efforts. The findings indicated the potential utility of Neuromarketing techniques in evaluating the efficacy of marketing initiatives aimed at influencing online shopping decisions. However, the study acknowledged limitations due to the exclusive use of eye-tracking, mousetracking, and affect assessment. The study called for additional research into the ramifications of Neuromarketing on product, pricing, and distribution choices (Sanei & Chambers, 2013).

Arora & Jain (2020) noted the challenges in comprehending the motives, thoughts, and emotions of consumers, driving marketers to pay closer attention to customer emotions. Neuromarketing emerged as a tool enabling businesses to gain insights into customer reactions to diverse marketing campaigns by monitoring brain activity, sensorimotor responses, and emotional states. The term "Neuromarketing" was coined in 2002 by Ale Smids, a Dutch marketing professor. The study underscored the application of fMRI technology in mapping brain activity during exposure to stimuli, aiding in pinpointing regions engaged in decision-making. The article emphasized the increasing adoption of neuromarketing by businesses to attract and engage customers. The research aimed to explore the implementation of neuromarketing by marketers to understand consumer behavior and establish industry leadership (Schneider & Woolgar, 2015).

Golnar-Nik et al. (2019) investigated the potential of EEG strength in predicting and explaining customer choices within the context of neuromarketing. The study monitored participants' brain waves as they evaluated and selected items, highlighting the connection between EEG power, particularly alpha power, and customer choices. The study suggested the potential utility of EEG power as a predictive tool for analyzing shopper behavior, albeit with the limitation of a small sample size. The research called for further validation and broader application of these tools (Hakim & Levy, 2019).

Devaru (2018) advocated the integration of other fields with marketing, especially the emerging field of neuromarketing, to gain a deeper understanding of customer purchasing habits. The article introduced neuromarketing as a discipline bridging neuroscience and marketing, offering insights into consumer decisionmaking. Despite the growing interest, the study highlighted unanswered questions and variability in neuromarketing methodologies used by different firms. The research aimed to shed light on the synthesis of scientific disciplines and the impact of neuromarketing on consumer behavior (Sanei & Chambers, 2013).

Jordão et al. (2017) engaged in an integrated literature review to explore the application of neuromarketing to consumer behavior over a five-year period. The study identified key areas of focus, including conceptualizing neuromarketing, mapping brain areas in decisionmaking, and analyzing information processing in the brain.

The research suggested substantial progress in combining neuromarketing with conventional marketing strategies to comprehend cognitive processes and their impact on decision-making.

Cruz et al. (2016) conducted a comprehensive literature review to unearth recent developments in neuromarketing's application to consumer behavior analysis. The study employed Margarey's (2001) methodological approach and analyzed findings through correspondence methods. The review identified three overarching themes contributing significantly to neuromarketing research: conceptualization and methodological possibilities, brain area mapping in decision-making, and information processing. The study called for further exploration and addressed ethical concerns related to neuromarketing.

Nadányiová (2015) recognized the role of emotional responses in purchasing decisions and introduced neuromarketing as a means to understand consumer behavior. The article provided a definition, framework, overview of neuromarketing technologies, and discussions of ethical considerations. The research aimed to examine how Slovak customers perceive neuromarketing and its impact on buying habits. The study aimed to alleviate apprehensions about neuromarketing in the Slovak context.

Roth (2014) assessed how neuromarketing technologies could enhance standard marketing strategies to better understand consumer behavior. The study addressed concerns about technological and ethical aspects of neuromarketing, analyzed brain processes, and evaluated its impact on marketing inputs. The study concluded that neuromarketing could significantly impact consumer behavior and various marketing dimensions, presenting both opportunities and ethical challenges. Pop & Iorga (2012) outlined the emergence of neuromarketing as a new discipline that integrates insights from neuroscience and consumer behavior. The study discussed perspectives from specialist literature, mapped neuromarketing methods, and considered practical and ethical concerns. The study emphasized that neuromarketing offered a new perspective on understanding consumer decision-making.

Morin (2011) highlighted the growing acceptance and utilization of neuromarketing in the advertising and marketing industry. The study outlined the potential of neuromarketing to enhance advertising campaigns by providing insights into consumers' emotional responses. The article suggested that neuromarketing could contribute to more effective advertising and cause-related campaigns.

Wilson et al. (2008) explored the influence of neuroscience findings on marketing strategies, focusing on the concept of free choice and the ethical considerations related to consumer privacy. The study examined marketing persuasion models, the brain's scientific literature, and moral philosophy to address ethical dilemmas. The research highlighted policy implications and a novel perspective on consumer privacy.

III. The Potential Benefits and Drawbacks of Neuromarketing

There are several potential benefits of using neuromarketing to understand consumer behaviour. First, neuromarketing can provide a more objective and accurate understanding of consumer behaviour than traditional market research methods. By using brain imaging techniques to measure brain activity, researchers can gain insights into how consumers make decisions that they may not be aware of or able to articulate (Gui et al., 2010). Second, neuromarketing has the potential to create more effective marketing campaigns by tapping into consumers' emotions and subconscious desires. By creating campaigns that speak to consumers on a deeper, emotional level, marketers can build stronger connections with consumers and drive more sales. However, there are also potential drawbacks to using neuromarketing. One concern is that neuromarketing may be used to manipulate consumers in unethical ways. For example, some critics argue that neuromarketing could be used to create advertising campaigns that exploit consumers' fears and anxieties (Spence, 2020).

3.1 Neuromarketing Useful in Marketing Research: Neuromarketing is a field that has been growing rapidly over

the last decade, and it has become an essential tool for marketing research. The discipline of neuromarketing applies the principles of neuroscience to understand how consumers react to marketing stimuli. By using neuroscience techniques such as electroencephalography (EEG), functional magnetic resonance imaging (fMRI), and eye-tracking, neuromarketing has the potential to provide insights into consumer behaviour that are not possible with traditional marketing research methods (Nilashi et al., 2020).

3. Consumer Behaviour: One of the main benefits of neuromarketing is its ability to uncover unconscious reactions to marketing stimuli. While traditional research methods such as surveys and focus groups can provide useful information, they are limited by the fact that consumers may not always be aware of their true feelings and motivations. By using neuroscience techniques, neuromarketing can measure physiological responses to marketing stimuli, such as changes in brain activity, heart rate, and skin conductance. This data can provide valuable insights into consumer behaviour that would be difficult to obtain using traditional research methods (Bercea, 2012). A study conducted by a leading consumer research company, Neuro-Insight, used EEG to investigate the effectiveness of a TV ad for a popular soft drink. The study found that the ad triggered a strong emotional response in viewers, which was reflected in increased activity in the brain's reward centers. The ad also increased the viewer's engagement with the brand, as measured by an increase in attention and memory recall. These insights provided the soft drink company with valuable information about how to optimize their advertising strategy to increase brand loyalty (Kumar et al., 2013).

IV. CONCLUSION

Neuromarketing is a relatively new field that seeks to understand how the brain responds to marketing stimuli. By using techniques such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), neuromarketers are able to study consumer behaviour on a subconscious level. This allows them to gain insights into how consumers perceive and process marketing messages, and ultimately, how they make purchasing decisions. This paper explores the impact of neuromarketing on consumer buying behaviour. We begin by providing an overview of the field of neuromarketing, including the techniques used and the key areas of the brain that are studied. We then review the current state of research on the topic, discussing the various ways in which neuromarketing has been used to improve marketing strategies. Next, we examine the implications of neuromarketing for consumer buying behaviour. We discuss how neuromarketing insights can be used to develop more effective advertising campaigns, improve product design, and enhance the overall customer experience. We also explore the potential ethical concerns that may arise from the use of neuromarketing, such as privacy issues and the potential for manipulation. In conclusion, we argue that neuromarketing has the potential to significantly impact consumer buying behaviour. By providing a deeper understanding of how the brain processes marketing messages, neuromarketing can help marketers create more effective and ethical marketing campaigns that better resonate with consumers. As such, it is likely to play an increasingly important role in the future of marketing. Neuromarketing is a rapidly growing field that combines neuroscience with marketing to understand consumer behaviour and decision-making processes. The use of advanced brain imaging techniques and other physiological measures has allowed marketers to gain deeper insights into consumer behaviour and preferences.

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