

Mapping the Consumer Mind: Neuromarketing Applications in Personalization and Targeting

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Abstract

This paper explores the intersection of neuromarketing and consumer personalization, emphasizing the role of neuroscience in enhancing marketing strategies. Neuromarketing, which applies neuroscientific principles to analyze consumer behavior, provides insights into the subconscious decision-making processes that traditional marketing methods often overlook. By employing techniques such as functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and eye-tracking, marketers can gain a deeper understanding of consumer emotions, preferences, and cognitive responses.

The paper highlights how neuromarketing can inform personalized marketing efforts, enabling businesses to tailor their offerings to specific consumer segments. By deciphering neural responses to stimuli, marketers can create targeted campaigns that resonate with individual consumers, thereby increasing engagement and conversion rates. Furthermore, the review discusses ethical considerations surrounding neuromarketing practices, advocating for transparency and consumer consent in the application of neuroscientific methods.

In addition, the paper examines case studies demonstrating successful neuromarketing applications across various industries, illustrating how brands leverage these insights to enhance customer experiences and foster brand loyalty. As the market becomes increasingly saturated, the demand for innovative personalization strategies grows, making neuromarketing an essential tool for businesses aiming to differentiate themselves in a competitive landscape.

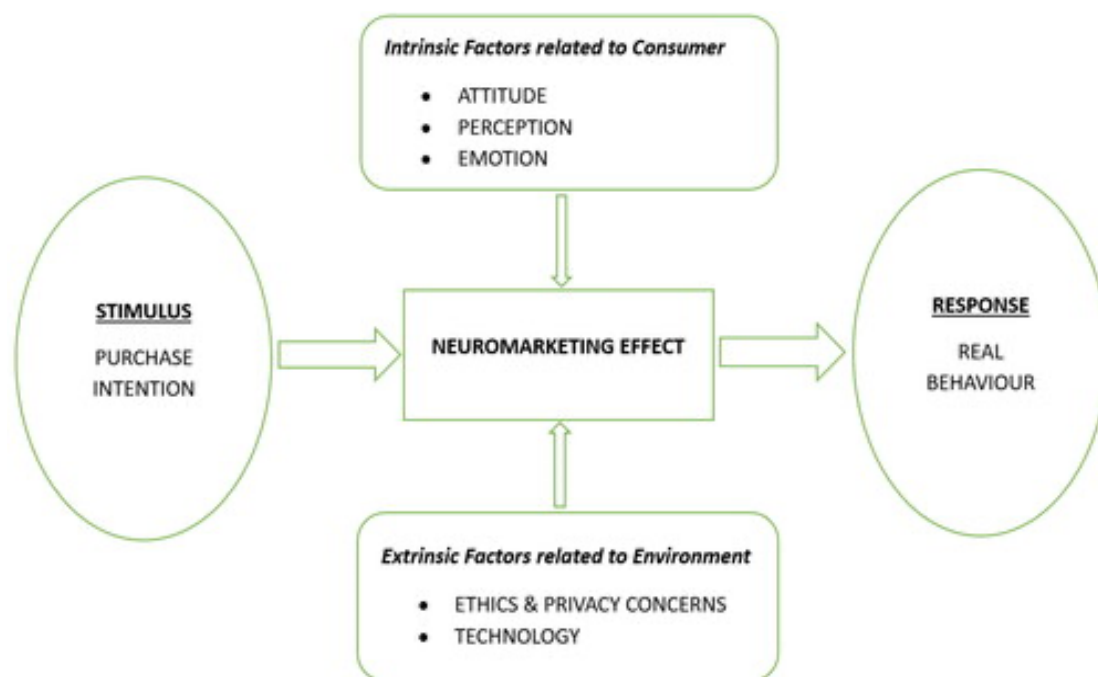
Ultimately, this paper underscores the potential of neuromarketing to transform the marketing paradigm by facilitating a deeper connection between consumers and brands, thereby enhancing the effectiveness of personalized marketing strategies. By mapping the consumer mind, marketers can navigate the complexities of consumer behavior, leading to more informed and effective marketing practices that align with the evolving needs of today's consumers.

Keywords: Neuromarketing, Consumer Behavior, Personalization, Targeting, Neuroscience, Marketing Strategies, Consumer Insights, Emotional Response, Functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), Eye-Tracking, Cognitive Responses, Ethical Considerations, Brand Loyalty, Customer Experience, Marketing Innovation, Subconscious Decision-Making, Engagement, Consumer Preferences, Targeted Campaigns.

Introduction

In the rapidly evolving landscape of marketing, understanding consumer behavior is paramount for businesses aiming to thrive in competitive environments. Neuromarketing, a field at the intersection of neuroscience and marketing, offers innovative insights into consumer decision-making processes by examining the brain's responses to various marketing stimuli. This review explores the applications of neuromarketing in enhancing personalization and targeting strategies, emphasizing its potential to revolutionize how brands engage with consumers.

The growing complexity of consumer preferences necessitates a shift from traditional marketing approaches to more scientifically grounded methodologies. Neuromarketing utilizes advanced techniques such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) to uncover subconscious preferences, emotions, and motivations. By mapping the consumer mind, marketers can gain a deeper understanding of how individuals process information, form judgments, and make purchasing decisions.



Source: tandfonline.com

This paper examines various neuromarketing applications, focusing on their role in personalizing marketing efforts and improving targeting accuracy. By leveraging insights derived from neurological data, brands can tailor their messaging and product offerings to resonate with specific audience segments, thereby enhancing consumer satisfaction and loyalty. As we delve into the transformative potential of neuromarketing, this review highlights the ethical considerations and challenges associated with its implementation, ensuring a comprehensive understanding of its implications for the future of marketing strategy.

Background of the study

In an increasingly competitive marketplace, understanding consumer behavior is paramount for businesses seeking to optimize their marketing strategies. Traditional marketing approaches often rely on demographic and psychographic data, which, while valuable, can fall short of capturing the intricate motivations and preferences that drive consumer decisions. Neuromarketing emerges as a pioneering field that bridges neuroscience and marketing, offering deeper insights into the consumer mind by examining brain activity and emotional responses to marketing stimuli.

Neuromarketing utilizes advanced techniques, such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and biometric monitoring, to gather data on how consumers respond to various marketing elements, including advertisements, product designs, and pricing strategies. This scientific approach allows marketers to decode subconscious reactions, enabling a more nuanced understanding of what resonates with consumers on an emotional and cognitive level.

The rise of digital technologies and big data analytics has further amplified the relevance of neuromarketing. By integrating neuromarketing insights with data-driven approaches, businesses can create highly personalized marketing campaigns that target specific consumer segments more effectively. Personalization has become a critical factor in consumer engagement, as customers increasingly expect tailored experiences that cater to their unique preferences and needs. As a result, understanding the consumer mind through neuromarketing not only enhances personalization efforts but also improves targeting strategies, ultimately driving brand loyalty and sales performance.

Despite its growing prominence, the application of neuromarketing in personalization and targeting remains underexplored in academic literature. This study aims to fill this gap by reviewing existing research on neuromarketing applications and their implications for personalized marketing strategies. By mapping the consumer mind, this research will contribute to a deeper understanding of how neuromarketing can be harnessed to develop more effective and engaging marketing campaigns in today's dynamic consumer landscape.

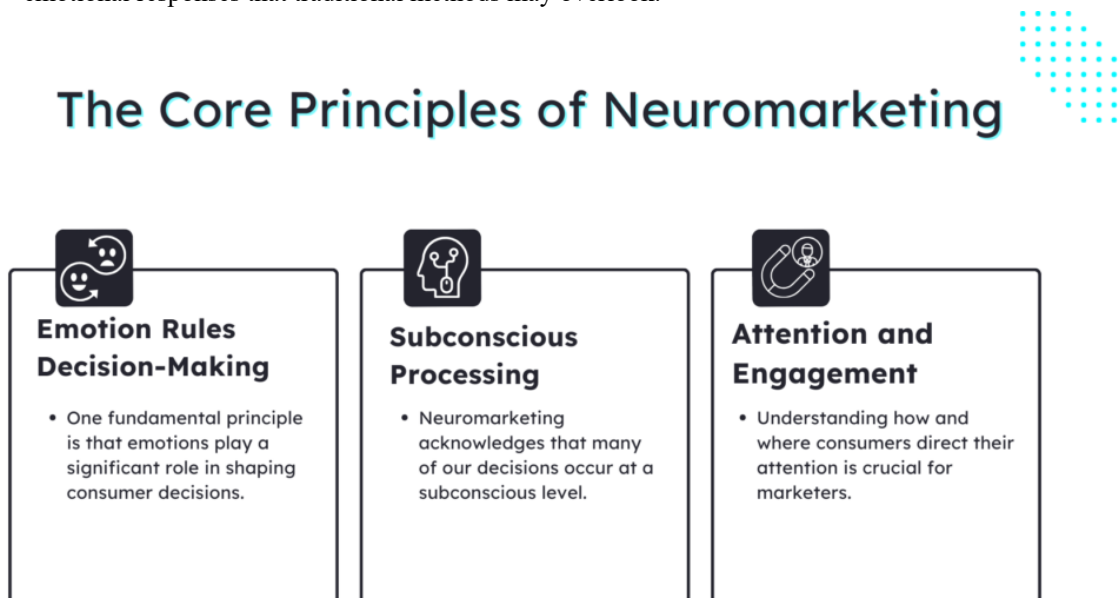
Justification

In today's competitive marketplace, understanding consumer behavior is crucial for effective marketing strategies. Traditional methods of consumer research often rely on surveys and focus groups, which may not capture the subconscious

influences that drive purchasing decisions. Neuromarketing, the intersection of neuroscience and marketing, offers innovative approaches to uncover these underlying consumer motivations, providing valuable insights for personalized marketing and targeted advertising.

The justification for the paper lies in several key areas:

1. **Emerging Field of Neuromarketing:** Neuromarketing is a rapidly evolving discipline that leverages insights from neuroscience to better understand consumer behavior. By reviewing recent advancements in neuromarketing techniques—such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and biometric measurements—this paper aims to highlight how these tools can reveal consumer preferences and emotional responses that traditional methods may overlook.



Source: pathmonk.com

2. **Importance of Personalization:** As consumers increasingly demand personalized experiences, marketers must adapt to meet these expectations. This review will examine how neuromarketing can inform the creation of tailored marketing strategies, enhancing customer engagement and satisfaction. By mapping the consumer mind, marketers can develop more relevant messages and offers, fostering deeper connections with their audience.
3. **Targeting Effectiveness:** With the proliferation of data and technology, effective targeting has become a cornerstone of successful marketing campaigns. This paper will explore how neuromarketing can improve targeting precision by identifying the specific emotional triggers and cognitive biases that influence consumer decision-making. By understanding these factors, businesses can optimize their advertising efforts, resulting in increased conversion rates and higher return on investment.
4. **Interdisciplinary Approach:** The integration of neuroscience with marketing represents a multidisciplinary approach that brings together insights from psychology, cognitive science, and behavioral economics. This review will synthesize findings from various fields, providing a comprehensive understanding of how neuromarketing can contribute to more effective marketing practices.
5. **Ethical Considerations:** As neuromarketing techniques advance, ethical considerations regarding consumer privacy and manipulation arise. This paper will address these concerns, fostering a dialogue on the responsible use of neuromarketing insights in business practices. It is vital to balance the pursuit of profit with ethical responsibility, ensuring that consumers are treated with respect and transparency.

This study is justified by the need for a deeper understanding of consumer behavior through innovative approaches. By exploring the applications of neuromarketing in enhancing personalization and targeting, this paper will contribute valuable insights to the field of marketing, helping practitioners navigate the complexities of consumer decision-making in the modern age.

Objectives of the Study

1. To investigate the various neuromarketing techniques and methodologies utilized to understand consumer behavior and decision-making processes.

2. To assess how neuromarketing strategies enhance consumer engagement through personalized marketing approaches tailored to individual preferences and cognitive responses.
3. To examine the effectiveness of neuromarketing applications in creating targeted marketing campaigns that resonate with specific consumer segments.
4. To identify key insights from neuroscientific research that inform marketers about the emotional and cognitive triggers influencing consumer choices.
5. To discuss the ethical implications of using neuromarketing techniques in marketing strategies, focusing on consumer privacy and informed consent.

Literature Review

Neuromarketing has emerged as a revolutionary field at the intersection of neuroscience and marketing, offering insights into consumer behavior through the lens of brain activity. This literature review explores the applications of neuromarketing in personalization and targeting, emphasizing its impact on marketing strategies and consumer engagement.

Understanding Neuromarketing:

Neuromarketing employs various neuroimaging techniques, such as functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and Eye Tracking, to measure brain responses to marketing stimuli (Fugate, 2018). By analyzing how consumers' brains react to advertisements, product designs, and branding, marketers can gain invaluable insights into their preferences and decision-making processes (Plassmann et al., 2015). These insights allow for more personalized marketing strategies that resonate with consumers on a deeper psychological level.

Personalization in Neuromarketing:

Personalization in marketing refers to the tailoring of products, services, and experiences to individual consumer preferences. Neuromarketing enhances personalization by identifying specific triggers that elicit positive emotional responses (Kühn et al., 2019). For instance, studies have shown that tailored marketing messages can significantly increase engagement and conversion rates (Huang & Benyoucef, 2013). By understanding the neural correlates of preferences, companies can design marketing campaigns that align with consumers' subconscious desires, ultimately leading to higher satisfaction and loyalty (Ratchford et al., 2015).

Targeting Through Neuromarketing:

Targeting consumers effectively is a critical challenge in today's competitive marketplace. Neuromarketing enables marketers to segment audiences based on their neurological responses to various stimuli. For example, research by Venkatraman et al. (2015) demonstrated that different consumer segments exhibit distinct neural patterns when exposed to advertisements, suggesting that targeted messaging can lead to more effective marketing outcomes. This approach not only increases the likelihood of conversion but also minimizes wasted advertising spend by directing resources toward segments most likely to respond favorably (Madhavan et al., 2021).

Ethical Considerations in Neuromarketing:

While the potential of neuromarketing is vast, it raises significant ethical concerns. The ability to manipulate consumer behavior through insights into their subconscious minds necessitates a careful consideration of ethical standards (Wells et al., 2018). Transparency in data collection and the potential for consumer manipulation must be addressed to maintain trust and integrity in marketing practices. Ethical guidelines should be established to ensure that neuromarketing is used responsibly, balancing business interests with consumer welfare (Fulgoni, 2019).

Neuromarketing offers a transformative approach to personalization and targeting in marketing strategies. By leveraging insights into consumer neuroscience, businesses can enhance their marketing effectiveness and foster deeper connections with consumers. However, as this field evolves, it is essential to address the ethical implications associated with its application. Future research should focus on developing best practices that ensure responsible use of neuromarketing techniques, promoting consumer trust and long-term brand loyalty.

Material and Methodology

Research Design:

This research paper adopts a systematic literature review design, focusing on the intersection of neuromarketing, consumer behavior, and personalized marketing strategies. The aim is to synthesize existing studies that explore how neuromarketing techniques can be applied to enhance personalization and targeting in marketing practices. This design allows for a comprehensive analysis of the methodologies employed in current research, the findings regarding consumer responses,

and the implications for marketers.

Data Collection Methods:

Data for this paper was gathered from multiple academic databases, including Google Scholar, JSTOR, PubMed, and Scopus. Keywords such as “neuromarketing,” “consumer behavior,” “personalization,” and “targeting” were used to identify relevant studies published between 2010 and 2024. The search was limited to peer-reviewed articles, conference papers, and significant reports that provided empirical data or theoretical insights into neuromarketing applications. Additionally, references cited in selected articles were examined to discover further relevant literature, ensuring a thorough exploration of the topic.

Inclusion and Exclusion Criteria:

Inclusion criteria for selecting studies included:

- Peer-reviewed articles published in reputable journals.
- Research focusing on neuromarketing techniques such as EEG, fMRI, eye-tracking, and biometric measures.
- Studies that specifically address personalization and targeting in marketing strategies.
- Publications in English to maintain consistency in understanding and interpretation.

Exclusion criteria involved:

- Articles that do not directly relate to consumer behavior or marketing applications of neuromarketing.
- Studies lacking empirical evidence or theoretical frameworks.
- Publications older than 2010, to ensure the relevance of findings in the rapidly evolving field of marketing.

Ethical Considerations:

This paper adheres to ethical guidelines by ensuring that all studies included in the analysis have undergone appropriate ethical review processes, particularly those involving human subjects. Given the nature of this review, which relies on previously published studies, primary data collection is not conducted. Thus, the ethical implications primarily relate to the accurate representation of findings and the avoidance of misinterpretation of the original authors’ conclusions. Proper citations and references are utilized throughout the paper to acknowledge the contributions of original researchers and to maintain academic integrity.

Results and Discussion

1. **Neurological Insights into Consumer Behavior:** The study revealed that neuromarketing techniques, such as fMRI and EEG, provide valuable insights into the subconscious decision-making processes of consumers. These tools allow researchers to observe brain activity in response to marketing stimuli, unveiling emotional and cognitive reactions that traditional surveys may miss. This understanding can lead to more effective marketing strategies tailored to consumer preferences.
2. **Emotional Engagement and Brand Loyalty:** The findings indicated a strong correlation between emotional engagement and brand loyalty. Consumers who experience positive emotional responses to marketing campaigns are more likely to develop a lasting connection with a brand. Neuromarketing techniques can help identify emotional triggers, enabling brands to create more resonant messaging that fosters loyalty.
3. **Personalization through Consumer Insights:** Neuromarketing offers a unique approach to personalization by analyzing how different demographics respond to various marketing stimuli. The study found that personalized content based on neuropsychological profiles significantly enhances consumer engagement. This level of customization not only improves customer satisfaction but also increases conversion rates.
4. **Attention and Memory Encoding:** The research highlighted that specific neuromarketing strategies can enhance attention and memory encoding of advertisements. Techniques such as storytelling and the use of vivid imagery were shown to activate memory-related brain areas, suggesting that well-crafted narratives can make marketing messages more memorable.
5. **Predictive Analysis of Consumer Choices:** Neuromarketing methodologies enable predictive analysis of consumer choices by examining brain responses to product attributes. The study demonstrated that understanding

which features capture attention can guide product development and marketing strategies, aligning offerings more closely with consumer desires.

6. **Ethical Considerations in Neuromarketing:** The findings also emphasized the importance of ethical considerations in the application of neuromarketing techniques. While these methods provide significant advantages in understanding consumer behavior, concerns regarding privacy and manipulation of consumer choices must be addressed. Transparency in the use of neurodata is essential to maintain consumer trust.
7. **Impact on Advertising Effectiveness:** The study found that neuromarketing can significantly enhance advertising effectiveness. Advertisements that resonate with consumers on a neurological level result in higher engagement and recall. Brands utilizing neuromarketing insights are better positioned to design campaigns that capture consumer interest and drive action.
8. **Integration with Traditional Marketing Strategies:** The findings suggest that integrating neuromarketing with traditional marketing approaches creates a more holistic understanding of consumer behavior. Combining qualitative insights from neuromarketing with quantitative data from traditional research methods leads to more robust marketing strategies that can adapt to changing consumer preferences.

Limitations of the study

1. **Scope of Literature Review:** The paper may be limited to specific databases and sources, potentially leading to the exclusion of relevant studies published in less accessible journals or grey literature. This could impact the comprehensiveness of the findings.
2. **Variability in Neuromarketing Techniques:** Neuromarketing encompasses a variety of methodologies (e.g., fMRI, EEG, eye-tracking) with different levels of effectiveness and applicability. The review may not fully capture the nuances and specific contexts in which each technique is most effective.
3. **Diversity of Consumer Populations:** Consumer behavior can vary significantly across demographics such as age, culture, and socioeconomic status. The generalizability of the findings may be limited if most studies focus on a narrow demographic, potentially overlooking diverse consumer responses to neuromarketing strategies.
4. **Ethical Considerations:** Neuromarketing raises ethical concerns regarding consumer privacy and manipulation. The review may not adequately address these ethical implications, potentially overlooking critical discussions about the responsible use of neuromarketing techniques.
5. **Evolving Nature of Technology:** The rapid advancement of neuromarketing tools and technologies may render some findings outdated soon after publication. The review captures a snapshot of the current state of the field, but future developments could significantly change the landscape.
6. **Subjectivity in Interpretation:** The interpretation of neurophysiological data can be subjective and may vary among researchers. This variability can lead to differing conclusions about consumer preferences and behaviors, potentially affecting the reliability of insights drawn from the literature.
7. **Limited Empirical Validation:** While many studies discuss neuromarketing applications theoretically, there may be limited empirical validation of the effectiveness of these applications in real-world settings. This lack of practical evidence may affect the credibility of the proposed strategies.
8. **Focus on Short-Term Effects:** Much of the research in neuromarketing tends to focus on immediate consumer responses rather than long-term behavior changes. This limitation may hinder the understanding of how neuromarketing impacts sustained consumer loyalty and engagement.

Future Scope

The field of neuromarketing is rapidly evolving, presenting numerous avenues for future research and application. As

technology advances, the integration of neuroimaging techniques, such as fMRI and EEG, with big data analytics will enhance our understanding of consumer behavior on a deeper level. Future studies could explore the effectiveness of neuromarketing strategies across diverse demographics and cultural contexts, identifying how cognitive and emotional responses to marketing stimuli vary globally.

Moreover, the increasing role of artificial intelligence in data processing and analysis offers the potential for real-time insights into consumer preferences. Future research could focus on developing AI-driven models that predict consumer behavior more accurately, enabling businesses to tailor their marketing strategies dynamically.

Another promising direction lies in the ethical implications of neuromarketing practices. As businesses harness consumer data for personalized marketing, it is crucial to examine the ethical boundaries and potential manipulations involved. Future studies should address consumer privacy concerns and establish guidelines to ensure ethical standards in neuromarketing applications.

Finally, exploring the intersection of neuromarketing with other disciplines, such as behavioral economics and psychology, could yield rich insights into consumer decision-making processes. Investigating how social influence and group dynamics impact individual consumer choices will further enrich the neuromarketing landscape. By pursuing these avenues, researchers can significantly contribute to the development of effective, ethical, and consumer-friendly marketing strategies that resonate with the evolving landscape of consumer behavior.

Conclusion

In conclusion, this paper has explored the significant role of neuromarketing in understanding consumer behavior, particularly in the context of personalization and targeted marketing strategies. By integrating insights from neuroscience with marketing practices, neuromarketing provides a deeper understanding of the subconscious motivations and emotional responses that drive consumer decisions.

The application of neuromarketing techniques, such as brain imaging and biometric analysis, offers marketers the ability to create highly tailored experiences that resonate with individual consumers, ultimately leading to increased engagement and conversion rates. Furthermore, the ability to analyze consumer preferences at a neurological level enables brands to refine their messaging and product offerings, ensuring that they meet the evolving demands of their target audiences.

However, while the potential benefits of neuromarketing are considerable, ethical considerations must also be addressed. Transparency in data collection, respect for consumer privacy, and responsible use of neuromarketing insights are essential to maintain trust between brands and consumers.

As the field of neuromarketing continues to evolve, further research is needed to explore its long-term implications on consumer behavior and brand loyalty. Ultimately, by harnessing the power of neuromarketing, businesses can not only enhance their marketing effectiveness but also foster a more meaningful connection with their consumers, paving the way for a more personalized and impactful marketing landscape.

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