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Research Article

Neuro-Marketing: A Scientific Approach To Understand The Consumer Loyalty Towards Brands

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ABSTRACT

In today's competitive marketplace, cultivating and retaining consumer brand loyalty is a crucial aspect of any business. Neuromarketing is an approach of integrating neuroscience, psychology, and marketing, provides deeper intuitions of consumer behavior and decision-making processes, empowering companies to build stronger emotional connections with their customers. This study examines into the intricate relationship between emotions and consumer brand loyalty, employing a leading-edge neuromarketing approach to uncover the intuitive processes at play. This shows that there is significant impact of emotional appeals on consumer behavior and brand image. By utilizing neuron imaging techniques, such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) and Eye Tracking, this study seeks to uncover the neural mechanisms that lie beneath emotional responses of consumers to brands. This measure the consumer contention consumers reverse themselves, saying what they need, but doing what they feel. Nowdays marketing research has been oriented towards the components of consumers as: physical body, mind, heart and soul with the help of practices of Neuromarketing.

Keywords: Brand Loyalty, Consumer Behavior, Neuromarketing; Neuroimagin, Eye Tracking, EEG, FMRI, Consumer Behaviour, Marketing Research, Neuroscience,

Introduction

Neuromarketing is the study of how people's brains respond to advertisement and other brand-related communications by scientifically observing brainwave activity, eye tracking and skin response. The term "Neuromarketing" word first coined by Dutch marketing professor Ale Smidts in 2002. Neuromarketing is an innovative approach that develops intuitions from neuroscience and psychology to understand how consumers respond for a particular brand in market. Market research in understanding consumer behaviour is crucial, as consumers' habits and behaviors constantly grow over time due to unprecedented choices and preferences (Nevskaya & Albuquerque, 2019). Neuromarketing approach emphases on various brain process and functions, that affects cognitive, attentive, and emotive abilities to influence and determination of certain consumer preferences (Shaw & Bagozzi, 2018). One of the biggest questions in today's market is what motivates consumers to decide on one product instead of another or why consumers attract with a specific brand. So, there is a growing interest in understanding how brain response in the decision-making process of consumers. The interrelationship between neuroscience and marketing has become inevitable due to the constraints and shortcomings of traditional methods used in the study and observation of consumer behavior. An example of neuromarketing is Cadbury, which uses the color purple to capture, make the brand memorable and rapidly familiar to consumers. The packaging of crisps (lays packet) is another example that uses the auditory sense through the noise made by the packet is associated with the crunchy sound of the crisps. By using neuro techniques such as functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), eye tracking, and biometric measurements, neuromarketers can observe and study brain activity, physiological reactions, and behavioral patterns in actual.

Historical Background

The concept of neuromarketing appeared in the early 2000s, determined by advances in neuroscience and brain imaging technologies. Companies initiated to identify the potential of these tools to go beyond traditional market research methods, such as surveys and focus groups, by capturing real-time data on brain activity.

Theoretical Foundations of Neuro Marketing:

Understanding the Brain

The human brain processes vast amounts of information and plays a vital role in neuromarketing. Key areas involved include:

- **The Prefrontal Cortex**: Associated with self-control, decision making and planning, this area is crucial in evaluation of products and advertisements.
- **The Limbic System**: This area is central to emotion and memory, influencing consumer preferences and brand loyalty.
- **The Reward System**: Structures like the nucleus accumbens and the ventral tegmental area mediate pleasure and reward, which are critical for understanding the appeal of certain products.

Cognitive and Emotional Processing

Consumers process information through both cognitive and emotional paths. Neuron marketing seeks to understand how these pathways interact and influence buying behavior of consumers. Emotional responses often precede sensible thought, suggesting that effective marketing strategies should tap into emotional triggers to create lasting impressions.

Despite the effective use of neuroscience in marketing some critics argued that neuromarketing brings negative impressions to consumers, neuromarketing leads to influence of minds of consumers, later it impact their buying decisions. Cutomers personal information can be accessed and it leads to an issues of privacy and confidentiality, So there should be some ethical boundaries for marketers .

Objective of the study

- Educating the audience on the subject of neuromarketing.
- To understand the concept of Neuromarketing.
- To study the different techniques used in Neuromarketing.
- To study the impact of Neuromarketing on marketing contributions in present day.

LITERATURE REVIEW

(Montague et al., 2002; Knutson et al., 2007) Neuromarketing employs neuroscientific tools to decode the neural processes associated with emotional responses. Pioneering studies utilize neuroimaging techniques, such as fMRI and EEG, to map the brain's response to emotional stimuli. Understanding the neuropsychology of emotions provides a novel lens through which to investigate the neurological foundations of consumer brand loyalty.

(Genco et al. 2013), During the past decade, methods and insights from the field of neuroscience have received great interest and attention in the field of marketing and consumer research and a hybrid has emerged from the two: neuromarketing. Put in a very simplistic way, neuromarketing can be defined as any marketing or market research activity, which uses methods, techniques or insights from the field of neuroscience.

(Donoghue, 2015). Neuromarketing is an emerging area in marketing research that studies consumers' minds in response to marketing stimuli. The human brain is a well-developed network of one hundred billion neurons, and there is less research in the deep understanding of how the brain operates and how a brain's complex operation produces the highly specific human behavior .

(Spence, 2019) Even resolving the complex situations and application of neuroscience in day to day circumstances and situations in a market might not be feasible and cost advantageous from the commercial market perspective. Therefore it can come up as a concern that if neuromarketing has to compete with the traditional marketing strategies from the commercial market prospective, it should be more feasible by reducing the labor and overhead cost

(Alvino et al 2019). Consumer behavior is one of the most important factors in product selection and decision making of the consumers. Marketers want to gain new customer base and retain the existing customer baseby enhancing the product experience. Now the main concern can be whether it is possible to determine the responses and neural mechanisms in prior with the help of neuroscience. With the help of neuroscience application it might be possible to determine and analyze in advance that if a consumer has an individual preference regarding a specific brand then whether it can impact the brain activity during the product experience and tasting. Again there can be impact of external environment also in the product

experience and thus it can affect the cognition process and decision making of the consumer which can be dependent upon the product experience

(Meyerding & Mehlhose, 2020) Market research is the most important factor for any brand (week or strong); and without a propermarket research no brand can enter into the target segment. Application of neuroscience can add value to any brand, but the main concern is that whether the application of the neuroscience is feasible as compared to that ofthe traditional and conventional market research methods. Although there is a significant impact of neuroscience in the selection and decision making of consumer, butas compared to the conventional marketing research methods, it is way more expensive. By the application of neuroscience, it might be possible that marketers will get access to the hidden data about the customer's preference and choices, but it is not cost effective for many of the marketers.

(Kawala-Sterniuk et al.2021). A neuromarketing approach contributes to enhancing marketing research by studying the cognitive and affective aspects of consumers, using non-invasive brain-computer interfaces and tracking physiological responses.

Neuromarketing Tools and Techniques

Neuromarketing techniques use several tools to track the early reactions of consumers towards an advertisement, label or packing through the brain and body's response. Basically Neuromarketing tools measure the physiological reactions that advertisements bring about in an individual. The results from testing are used to decide pricing and to increase branding in ads, designs, packaging, and in overall product.

- **Functional Magnetic Resonance Imaging (fMRI):** This neuroimaging technique identifies and tracks blood flow in the brain. It is used to measure emotional reaction . It stands for Functional Magnetic Resonance Imaging , use to measure activity when consumer give reaction for a brand. An MRI scanner is used to measure the blood oxygen level, which can give an indication of increased brain activity in certain regions (Ariely, & Berns, 2010). This provides present time image of the brain and allows observation of brain activity in different parts during thinking processes.
- **Electroencephalogram (EEG)**: EEG stands for Electroencephalography, which means an electrical reproduction of brain activity (Postma, 2012). Electroencephalography is a process of brain scanning that records the electrical activity on the scalp produced by the brain. This test records electrical activity from the brain's neurons to track engagement levels. It records brain waves to study attention , emotion and memory related to brands . The principle behind EEG investigations is called the Frontal Asymmetry Theory.
- **Eye Tracking**: By tracing eye movements, you can assess how people process information about an advertisement or on a website. Eye-tracking (ET) equipment allows eye fixations to be measured by recording corneal reflections caused by infrared radiation.Eye tracking is where people are looking to see what grabs their attention and the speed of recognition. Eye trackers are used for research on product design and software design in the field of neuromarketing.
- **Biometrics**: In neuromarketing, biometrics refers to the use of physiological and behavioral reactions to understand consumers' subconscious responses to marketing stimuli. These measurements help marketers gain deeper insights into how consumers perceive and react to advertisements, products, and brandsThe measurement of skin temperature, heart rate, and breathing tracks the level of engagement and whether it is positive or negative.
- **The Galvanometer (GSR):** This is used to measure the temperature of the skin and its electrical conductance, which depends on the skin moisture level. Skin conductance is used to identify and measure psychological and physiological stimulation. GSR measurements have some limitations also , that they do not specify the valence of emotional reactions, only their intensity. In this we cannot know whether the reaction stored is a positive or negative one, both of which may result in a similar recording on the GSR.
- **Facial coding**: Tracking and identifying facial expressions for the emotional responses.

Neuromarketing tools and techniques are more useful than outdated marketing research due to the measurement of objective and intuitive responses from consumers. Old-style research tools and methods like investigations are typically only filled out by customers who feel particularly positive or negative about a product or service. Self-reported data, whether it is from test groups, interviews, or surveys is typically an immediate or early response to the product or service, whereas the neuromarketing tools track the before, during, and after the consumer has been exposed to triggers.

Neuromarketing vs. consumer neuroscience

Neuromarketing is the commercial presentation of neuroscience to create advanced marketing understandings for a better promotional activities for a product or services, whereas consumer neuroscience is the study of neurological, inexpensive concerns and psychological understanding of consumer behavior towards the different brand.

How is neuromarketing used today?

Neuromarketing techniques and tools influences advertisements, logos, and other forms of marketing . Here are a few of the common neuromarketing examples:

- **Headlines and effective packaging**: Attracting headlines like color theory, font, image, size, text and impressive quotes to stand out among the competition. Packaging should be stable with the brand, not contrary so far that consumers can't assume it belongs to that brand. For example, if Jio Cinema changed its colors for a commercial, then it can be assumed it is for any occasaion, holiday or event, and the change can be reasonable by maintaining constant fonts, sizes, and audio. Though, if Jio Cinema were to change identifiable elements such as audio and fonts, the commercial could hurt trust with consumers because it deviates from the signature branding.
- **Color psychology:** refers to a brand's usage of particular colors to improve consumer acknowledgment and recall. Color psychology is commonly used in advertisements or commercials where colors match the brand or product.
- **Loss aversion:** Sales techniques such as weekend sales or limited-time-only prices, festival offers persuade consumers to make a purchase based on scarcity or the fear of losing out on an available deal.
- **Audio and visual:** A current study showed that telling stories strategies in marketing are changing to audio-forward media such as podcasts, voice over videos or audiobooks to gain and sustain a person's interest more than planned movies or videos.
- **Decision fatigue/speed and efficiency:** In today's era Consumers want freely available and suitable products or services. A brand that creates strong identification of products and services makes the consumer's buying decisions easy. Recognition can be positive or negative dependent on the consumer's experience, but it does make decisions quicker. Appropriate sales promotions such as "buy five for the price of two" or buy one get one" help with decision making by justifying purchases or making the consumer feel like they're "winning."

Theories related to Neuromarketing and Brand Loyalty

Combination of Neuroscience and marketing makes Neuromarketing, it helps to understand consumers make buying decisions and grow brand loyalty. It uses techniques such as biometrics and brain imaging to study consumer responses/ recations to marketing motivators. Here are some insights and key theories of neuromarketing and brand loyalty:

1. **Emotional Branding:** Emotional branding emphases on making an emotional connection between the consumer and the brand. Neuromarketing study shows that emotions play a important role in brand loyalty. Consumers are more expected to be loyal to brands that invoke strong positive emotions.
2. **Brand Loyalty and reward system:** The brain's reward centre, particularly the motivation nucleus, is activated when consumers get ahead or experience rewards from their favorite brands. This activation emphasizes positive associations with the brand, promoting loyalty.
3. **Brand Recall and consumer Memory:** Neuromarketing research indicates that unforgettable experiences and repetitive exposure to a brand can boost brand evoke and loyalty. The hippocampus, a brain region involved in memory creation, plays a important role in this process.
4. **Trust and Brand Loyalty**: Trust in a brand is important for long-term brand loyalty. Neuromarketing study shows that trust stimulates the brain's oxytocin system, which is connected with social relationships and bonding.
5. **Brand Loyalty and Subliminal Advertising :** Subconscious messages, or motivators t can influence brand preferences and loyalty by affecting the subliminal mind.
6. **Neurological Basis of Brand Attachment:** Neuromarketing research suggest that this attachment is facilitated by brain areas involved in self-referential processing, such as the medial prefrontal cortex. Brand attachment is the emotional connection that links a consumer with a brand.

Applications of Neuromarketing

Neuromarketing is the use of neuroscience in marketing, it utilizes techniques from brain and other neurological sciences to recognize consumer behavior and develop marketing strategies. Neuron marketing has practical applications in different domain of marketimg, Some common applications are as follows:

- **Advertising:** Neuron marketing helps in determining which part of advertisement more engaging and memorable to consumer that connect them emotionally . Researches have shown that advertisements that activates strong emotional reactions tend to be more effective (Bolls et al., 2001).
- **Product Design:** By analyzing brain responses from neuro marketing help companies to design the products and packaging more appealing to catch consumer attention . For example, Reimann et al. (2010) demonstrated how appealing product design can influence consumer choice by triggering reward-related brain areas.
- **Branding:** By identifying how consumers perceive different brands in market on a neurological level aids companies in building strong branding strategies. This includes brand colors, logo design and overall brand messaging.Yoon et al. (2006) found that strong brands stimulate higher movement in brain area linked with positive emotions and self-relevance.
- **Consumer Experience Enhancement**: By observing how consumers reacts to different features of the shopping experience, companies can make more enjoyable and effective this shopping journey.

- **App Design and Website**: Neuromarketing can be used to increase digital understanding how users move around websites and apps, and what features optimize user engagement and satisfaction.
- **Pricing Strategies**: Neuromarketing can help to know how consumers act to different price ideas and pricing stratgies, by helping companies to set prices so that they gain maximum of sales while maintaining expected value.
- **Emotion Measurement**: Neuromarketing tools can measure emotional responses to different stimuli, which can be important for generating content that connect emotionally with the audience
- **Market Research**: Traditional market research methods can be improved with neuromarketing tools and techniques to increase deeper understandings into consumer preferences and decision-making processes.

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Brand loyalty and Neuromarketing have grew substantial interest in India, where companies tried neuroscience to recognize and influence consumers buying behavior.

Here are a few case studies that explain the application of neuromarketing in increasing brand loyalty of consumers in India:

Case Study 1: Tata Tea's "Jaago Re" Promotional campaign

Tata Tea is one of India's prominent tea brands, launched the "Jaago Re" (Wake Up) campaign to change the focus from merely selling tea to developing social awareness among consumers.

Neuromarketing Application (By Tata Tea)

1. **Emotion Measurement**: Tata Tea used neuromarketing tools such as EEG (electroencephalography) and facial coding to measure emotional reactions of consumers to their advertisements. Companies purpose was to ensure that the ads persuaded strong emotional responses, which are important for memory retaining and brand evoke.
2. **Eye Tracking**: Eye-tracking studies helped Tata Tea to understand that which part of their advertisements captured the maximum attention of consumers. This information was used to maximize pictorial elements to ensure important messages were effectively communicated.

Outcome:

- **Increased Engagement**: Tata Tea found that The "Jaago Re" campaign magnificently involved consumers on an emotional level and that is leading to a higher recall frequency.
- **Brand Loyalty**: Tata Tea raised a deeper connection with its consumers, enhancing brand loyalty by associating the brand with social awakening

Case Study 2: ITC's Yippee Noodles

Background:

ITC, a major multinational in India, came into in the instant noodles market that is already dominated by Maggi. To make a space for Yippee Noodles, ITC needed to recognize emotional triggers and consumer preferences .

Neuromarketing Application:

1. **For Product Development**: ITC used neuromarketing tehniques like fMRI (functional magnetic resonance imaging) to study brain responses for different packaging designs flavors, and textures, This helped ITC in emerging a product that not only tasted good but also connected emotionally with consumers.
2. **Ad Testing**: Eye-tracking and EEG were used to test several advertisements for Yippee Noodles. This helped ITC to improve their ads to confirm that they were emotionally appealing and unforgettable.

Outcome:

- **Consumer Preference**: Yippee Noodles saw a positive response in the market, with consumers appreciating the new flavors and packaging.
- **Brand Differentiation**: By leveraging neuromarketing insights, ITC was able to differentiate Yippee Noodles from competitors, fostering brand loyalty among new customers.

These case studies showed how Indian companies are progressively implementing neuromarketing tools to increase brand loyalty by understanding and persuading consumer behavior at a subconscious ans deeper level.

Despite so many benefits of Neuromarketing has some limitations also these are as follows:

- **Complexity of Human Behavior**: Consumer loyalty is affected by a numerous of factors like social, culture , economic and psychological, elements. Neuromarketing while offering valuable understandings, may oversimplify this complexity by focusing mainly on neurological reactions.
- **Short-Term Application**: Neuromarketing frequently measures instant neurological responses , which may not necessarily translate to long-term consumer loyalty. The connection between short-term brain activity and long-term brand loyalty remains an area needing further research.

- **Ethical Concerns**: Neuromarketing tools involve examining and studying brain activity, raising important ethical issues about consumer privacy and the use of possibly intrusive technology.
- **High Costs**: Expertise and the technology that is required for neuromarketing studies such as fMRI and EEG machines, are costly. This restrict the availability of these tools and techniques to larger organisations with considerable budgets.
- **Limited applicability**: Outcomes from neuromarketing studies are specific to the context of the study and the sample population. This limits the applicability of the results to wider consumer groups or different cultural surroundings.
- **Technological Limitations**: Present neuromarketing techniques may not capture all areas of consumer decision-making processes, particularly those involving intuitive features. Moreover, there is a risk of over-dependency on technology without thinking about other important marketing factors.
- **Understanding Challenges**: The data obtained from neuromarketing studies, mainly brain scans, can be challenging to interpret. Misinterpretation of the data could misguide marketing strategies that do not efficiently boost consumer loyalty.

Conclusion

Neuromarketing presents a substantial revolution in understanding consumer loyalty towards brands by providing visions into the subliminal drivers of consumer behavior. Incorporation of neuroscience into marketing strategies has the prospective to enhance how brands can engage with consumers, leading to more imperessive and targeted marketing efforts.

The use of neuromarketing is not without its drawbacks. Ethical concerns , the complication of interpreting neurological data and high cost are challenges that need to be looked . Also, the emphasis on short-range neurological responses may not completely adressed the long-term features of consumer loyalty. In today's time it is important for marketers and advertisers to maintain neuromarketing vision with a inclusive understanding of the social and psychological factors that impact consumer behavior .

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