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RESEARCH ARTICLE

NEUROMARKETING: A MODERN APPROACH TO CONSUMER PSYCHOLOGY

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Abstract

Neuromarketing is a new domain for analyzing consumer psychology by employing marketing data from a neuroscience perspective. To expand on what was previously known about how consumers make purchasing decisions, together with traditional marketing, neuromarketing has provided an alternate view of how to examine the decision-making process and the emotions consumers display when making decisions as a result of the marketing stimuli. In traditional marketing practices, the use of self-reported data has not accurately represented the relationship between the conscious actions of a consumer as it pertains to their unconscious behaviour; however, neuromarketing examines how the brain responds to marketing stimuli (advertising, branding, product design), and its influence on a consumer's decision-making process. The objectives of this study were to examine how neuromarketing is utilized to gain an understanding of consumer psychology, as well as how neuromarketing can be used to analyze the emotional and cognitive responses of a consumer that ultimately affect their purchasing behaviour. To achieve these objectives, an analytical and descriptive methodology was utilized through reviewing literature and utilizing case studies to demonstrate the capabilities of neuromarketing tools (e.g., eye-tracking, EEG, facial coding) to enhance marketing effectiveness. Findings from the study indicate that neuromarketing can be utilized to develop marketing campaigns that have increased effectiveness by leveraging the subconscious and emotional triggers of consumers. Additionally, the study presents ethical considerations for using neuromarketing techniques and emphasizes the need for transparency and protection of consumers' privacy. Overall, neuromarketing provides marketers with an unparalleled opportunity to enhance their marketing strategies and create a new frontier in consumer research.

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Introduction:-

In today's highly competitive business climate, understanding consumer behaviour is one of the key areas for developing a successful marketing strategy. Long established methods for gaining insight into consumer preferences and purchasing behaviours, including surveys, interviews, questionnaires, and focus groups, are based on self-reported data and can often do not accurately convey the feelings, emotions or subconscious preferences of consumers at any given time. As a result, consumers can often give responses that do not reveal their true feelings about a product or brand. They may offer socially acceptable responses as opposed to their actual opinion of the product in question. As such, a new interdisciplinary discipline known as Neuromarketing has recently arisen, which combines neuroscience, psychology and marketing research in order to better understand consumer decision-making processes. Neuromarketing is a subject that studies how consumers react to advertising by using various neuroscience techniques such as EEG, fMRI, eye-tracking, and other scientific methods of studying the human brain through its physiological responses and neurological activity. This type of marketing research provides valuable information regarding the customer's thoughts and feelings while making purchasing decisions.

By using a combination of different neuromarketing tools, marketers are able to get an accurate analysis of how the customer feels about specific advertising stimuli, which in turn helps marketers develop more effective advertising campaigns that create a positive response from the customer. A great deal of research has already been conducted in the field of consumer psychology to determine how and why consumers make their purchases and how they determine what they need or want in a product or service. Neuroscience-based neuromarketing goes beyond traditional marketing research by providing scientific evidence of how a consumer reacts to an advertisement, how the consumer processes that information, what their emotional response is (both positively and negatively), how long it takes the consumer to decide whether or not to purchase the product, and even the type of music and/or colors that the consumer prefers to listen to or see when purchasing products or services. Many studies show that when consumers make purchases, emotional responses are much more important than rational thoughts in a purchase decision, which means that consumers base their decisions on emotions rather than reasoning (Dooley, 2012).

Advertising campaigns cost millions of dollars; therefore, neuromarketing plays a significant role in determining if an advertisement has successfully attracted and retained the consumer's attention and created brand recall. Neuromarketing aids in helping marketers determine what aspects of the advertisement will attract the viewer's attention, create emotion, and be retained in the viewer's memory. For instance, by using eye-tracking technology, marketers can see where viewers look in an advertisement, and EEG allows them to measure brain activity associated with attention and emotional connection. Once they have that information, marketers modify the advertisement they create as well as the marketing campaign. (Ariely & Berns, 2010). Neuromarketing also helps with brand management and brand recall. When a consumer repeatedly views a brand logo, packaging, or advertisement, the brain establishes connections and memories that will be associated with the brand. The data obtained from neuromarketing research indicates that advertisements using emotional branding and storytelling are much more effective than informative advertisements for long-term brand memory. The reason for this is due to the fact that emotional based events trigger parts of the brain's limbic system, which is associated with our emotional responses—while at the same time, this same area of our brain is associated with memory storage (Lindstrom 2008).

As a result of these findings; Brands are increasingly leveraging emotion (through Emotional Marketing Strategies), Sensory Branding and Storytelling Techniques to build a stronger connection to their Brand through Emotional Connections with their consumers. Price strategy and product design is another area that neuromarketing can be implemented into. Neuromarketing research has shown that there are different reactions in the brain based on different price points/discounts/promotions. For example; when the consumer perceives a price to be high, the pain centre of the brain will activate, whereas the reward centre activates when the consumer feels they are receiving a good value. This helps companies create price strategies that reduce perceived pain from pricing and increase perceived value (Knutson et al 2007). Likewise, product packaging, colour combinations, shape and texture all influence consumer perception as well as consumer purchase behaviour—all can be measured through the use of Neuromarketing.

Even though neuromarketing has the potential benefits, several ethical concerns have been raised about neuromarketing. Some researchers state that neuromarketing can manipulate consumers by sending messages to their subconscious mind without the consumer's knowledge. Other Ethical concerns relate to issues around privacy and data protection and ethical use of brain data. For this reason, companies and researchers must be ethical and

transparent in their neuromarketing studies (Murphy, Illes, & Reiner, 2008). Ethical neuromarketing efforts should be on understanding consumer needs and enhancing customer experience instead of persuading consumers to purchase. In the last few years, neuromarketing has become more relevant to the world of digital marketing, social media marketing, and online advertising. Digital media allow businesses to monitor how consumers act and focus on what stimulates their interest.

Business utilize neuromarketing in the development of their websites, how they design user interfaces, and how they develop digital advertisements in their determination to optimize user experience and increase conversion rates. Examples would be how companies use colour psychology, the way buttons, images, and content are presented on the page, to maximize consumers' focus on the product or service when the consumer visits their website. All in all, neuromarketing applies a very scientific, recent psychology method to study consumers' behavior and their decision-making process. Neuromarketing gives marketers the ability to gain deeper insight into how consumers respond to the stimuli they experience. This knowledge is then leveraged by marketers to develop more effective marketing plans, advertisements, developing brands and new products. As technology continues to advance, neuromarketing will be relied upon more for marketing research and consumer behavior studies. As a result, those who study neuromarketing, as a modern approach to understanding consumer psychology will have a better understanding of how to influence consumer's behaviors.

Literature Review:-

Neuromarketing is an emerging interdisciplinary that utilizes scientific research from neuroscience, psychology and traditional marketing research to provide a more accurate understanding of consumer behavior than traditional methods. Traditional approaches, such as surveys, interviews and focus groups, generally depend on self-reported data that may not capture the subconscious emotional and preference reactions of consumers. Neuromarketing provides an alternative to this limitation through the use of neuroscience methods that assess brain activity, emotional engagement, attention and memory in response to various marketing stimuli (e.g. advertisements, brand identity, packaging, pricing) over the last 20 years to provide insight into consumer decision-making, advertising effectiveness, brand recall and purchase intentions. The first researchers to formally define neuromarketing, Lee, Broderick & Chamberlain (2007), demystified the application of neuroscience tools for marketing research, identifying neuromarketing as the application of the scientific method of neurosciences to understand the behavior of humans concerning both marketplace and marketing exchange behavior. Based on their research, they concluded that through a more accurate understanding of consumer reactions to marketing stimuli at the subconscious level, neuromarketing research provides greater value to marketers than other traditional marketing research methods.

In addition, Lee, Broderick & Chamberlain (2007) suggest that applying neuromarketing to the development of products, advertising, branding, and price strategies can improve the overall effectiveness of marketing. Knutson et al. (2007) investigated neural predictors of purchasing behaviour and were among the first researchers to use functional MRIs (fMRI) to look at neurological predictors of purchase decision making. They identified activity in specific brain areas in response to consumer evaluations of products and pricing: Activity in the nucleus accumbens was correlated with product preference and expected pleasure from a product, while activity in the insula was correlated with pain associated with pricing. Consequently, brain activity in both structures influenced consumer purchasing decisions using both emotional and neurological determinants, rather than purely rational response. Thus, this research established scientific support for the notion that emotions exert significant influence over consumer decision-making processes. Lindstrom (2008) is perhaps most well-known for providing numerous examples of the use of neuromarketing techniques such as fMRI to conduct research in a variety of areas related to the use of brand marketing, advertising, and consumer emotion.

In an overview of his research findings, Lindstrom (2008) concluded that emotional branding, sensory marketing, and storytelling-type advertisements lead to significantly higher levels of consumer recall and memory for a brand than advertisements that simply provide factual information about a product. Additionally, Lindstrom's (2008) research findings indicate that the use of brand logos, colours, music, and packaging all help to shape the way that consumers perceive and recall a particular brand by creating emotions and activating areas of the brain associated with memory. Neuromarketing involves the use of neuroscience to study the brain's responses to marketing stimuli, which can provide valuable insights into consumer behaviour. However, ethical issues have been raised about the use of neuromarketing research, particularly regarding consumer manipulation, privacy, and the collection of consumer data. Murphy, Illes and Reiner (2008) discuss how ethical considerations apply to neuromarketing research and introduce the concept of neuroethics in marketing research. The authors also identified areas of concern

regarding consumer privacy, manipulation of consumers through neuromarketing research, and problems associated with the collection of consumer data. They concluded that neuromarketing should be used in an ethical manner to better understand consumer needs and thereby enhance products instead of manipulating consumer decisions at an unconscious level. The authors stressed that unethical and fair use of neuromarketing research is essential, and that transparency about the ethical issues associated with it is equally important. Ariely and Berns (2010) conducted a study that examined both the potential beneficial impacts of neuromarketing and the limitations of neuromarketing and neuroimaging technology as it relates to conducting marketing research. The authors concluded that neuromarketing methodologies, including fMRI and EEG, can provide information that is otherwise unavailable to marketers, such as consumer preferences, the effectiveness of advertising, brand perception, and consumer intention to purchase. However, both authors acknowledged that neuromarketing research is costly and requires specialized equipment, thus limiting the broad application of neuromarketing. While there are various limitations related to conducting neuromarketing research, both authors believe that neuromarketing has a substantial potential to create new strategies and research methodologies in marketing and consumer research.

Morin (2011) stated that neuromarketing helps to obtain an understanding of how consumers make purchasing decisions by studying both emotion and cognition in the brain. This study revealed that most of the time, consumer decisions are made using emotion and not logically, and that neuromarketing tools assist marketers in measuring levels of emotional engagement and attention to marketing stimuli. The report also identified that advertisements that create an emotional connection with consumers will have a greater impact on the way consumers behave and remember brands. Dooley (2012) presented practical instances of how neuromarketing is being utilized as a marketing technique, for example in advertising, pricing, packing, and branding. The report also stated that consumers often make a purchasing decision without being aware of it, and ultimately justify their purchase logically. The author suggested that when marketing to consumers, marketers should focus on elements of emotional connection, visual appeal, storytelling, and sensory experience to be able to successfully affect consumer purchasing behavior. Marketers use neuromarketing to better understand consumer views of price, value, and brand image. Recently, additional research studies in neuromarketing have been conducted in the areas of digital marketing and online consumer purchasing behaviors.

Due to the expanding digital field and social media marketing, neuromarketing principles are being increasingly applied to website development, mobile applications, and online advertising to better engage the user and encourage them to make a purchase. Many of the same elements, namely visual elements, emotional storytelling, color psychology, and personal advertisement, are currently being used in the digital marketing realm based on neuromarketing principles. According to the research, neuromarketing is essential for understanding client behaviour, how to measure the effectiveness of advertising, recall of brands, and the decisions a client makes when buying something. Emotion, attention, and memory are factors affecting consumer behaviour that have been found to be normal contributors by virtually all researchers in this area of study. The main advantage of neuromarketing over traditional marketing research methodologies is that it allows for more precise measurements of these same factors than traditional methods. Previous studies indicate that there are many areas in which more research needs to be done, for example, the cost of conducting research in developing countries, lack of empirical studies in developing countries, and ethical challenges relating to consumer privacy and data protection. In order to more fully understand the impact that neuromarketing as an evolving technique has on consumer psychology and behaviour, additional research needs to be conducted.

Table 1: Summary of Key Studies in Neuromarketing

| Authors | Year | Objective of Study | Methodology | Key Findings |
|------------------------------|------|---|-------------|---|
| Lee, Broderick & Chamberlain | 2007 | To define neuromarketing and its applications | Conceptual | Established neuromarketing as a field; highlighted importance in understanding subconscious consumer behavior |

| | | | | |
|------------------------|------|---|---------------------|--|
| Knutson et al. | 2007 | To examine neural predictors of purchase decisions | Experimental (fMRI) | Brainactivity influences purchase decisions; emotional responses are significant |
| Lindstrom | 2008 | To study emotional branding and sensory marketing | Experimental | Emotional ads improve brand recall and memory |
| Murphy, Illes & Reiner | 2008 | To analyze ethical issues in neuromarketing | Conceptual | Highlighted ethical concerns such as privacy and manipulation |
| Ariely & Berns | 2010 | To explore neuromarketing potential and limitations | Experimental | Neuromarketing helps understand consumer preferences but is costly |
| Morin | 2011 | To study emotional decision-making | Conceptual | Consumer decisions are emotion-driven |
| Dooley | 2012 | To apply neuromarketing in marketing strategies | Conceptual | Neuromarketing useful in advertising, pricing, and branding |

Research Gap:-

- Most studies on neuromarketing are conceptual, and there is a lack of empirical research examining neuromarketing and consumer behavior.
- Previous research mainly focused on advertising effectiveness and brand recall, while limited studies examined overall consumer psychology variables such as attention, emotion, memory, and perception together.
- Most neuromarketing studies were conducted in developed countries, and limited research exists in developing countries.
- There is a lack of studies integrating neuromarketing with Consumer Psychology in a single research framework.
- Limited research has examined the relationship between neuromarketing and consumer decision-making behavior.
- The mediating role of consumer psychology between neuromarketing and consumer decision-making has not been widely studied.

Objective of the study:-

1. To examine the concept and significance of Neuromarketing in modern marketing.
2. To analyze the relationship between neuromarketing techniques and Consumer Psychology.
3. To evaluate the impact of neuromarketing techniques on consumer attention and emotional response.
4. To examine the role of consumer psychology factors (attention, emotion, memory, and perception) in consumer decision making.

Research Methodology:-

The present study is based on secondary data and adopts a conceptual and descriptive research design to understand the role of Neuromarketing in influencing Consumer Psychology and consumer decision making. Since the study is theoretical in nature, no primary data collection, statistical tools, or empirical analysis have been used. The study is based entirely on existing literature, research articles, books, reports, and published academic sources.

Research Design:-

This study follows a descriptive and conceptual research design. Descriptive research helps in explaining the concept, importance, and applications of neuromarketing in modern marketing practices, while conceptual research focuses on developing a theoretical relationship between neuromarketing, consumer psychology, and consumer decision making based on existing literature. The study examines various neuromarketing tools such as EEG, eye

tracking, facial coding, and emotional response measurement and explains how these tools help marketers understand consumer behavior and decision-making processes.

Nature of Data:-

The study is based on **secondary data**. Secondary data refers to data that has already been collected and published by other researchers, organizations, and institutions.

The data for this study has been collected from the following sources:

- Research journals
- Academic books
- Conference papers
- Google Scholar articles
- Marketing and neuromarketing research reports
- Websites and online academic databases
- Case studies related to neuromarketing and consumer behavior

Sources of Secondary Data:-

The major sources used for collecting secondary data include:

- Journal of Consumer Behaviour
- Journal of Marketing Research
- Neuromarketing research articles
- Books on consumer psychology and marketing
- Research papers on advertising and consumer decision making

These sources helped in understanding the theoretical background, previous studies, research gaps, and conceptual relationships among the variables.

Table 2: Conceptual Variables of the Study

| Variable | Type | Description |
|--------------------------|----------------------|--|
| Neuromarketing | Independent Variable | Emotional marketing, visual stimuli, sensory marketing |
| Consumer Psychology | Mediating Variable | Attention, perception, emotion, memory |
| Consumer Decision Making | Dependent Variable | Purchase intention, brand recall, buying behavior |

Conceptual Framework (Secondary Study):-

The study proposes that neuromarketing influences consumer psychology by affecting consumer attention, emotions, perception, and memory. These psychological factors further influence consumer decision making, purchase intention, and brand recall. Therefore, consumer psychology acts as a mediating variable between neuromarketing and consumer decision making.

Scope of the Study:-

The study focuses on:

- Concept of neuromarketing
- Tools and techniques of neuromarketing
- Role of consumer psychology in marketing
- Impact of emotions, memory, and perception on consumer behavior
- Relationship between neuromarketing and consumer decision making

Limitations of the Study:-

The study has certain limitations:

1. The study is based only on secondary data.
2. No primary survey or experimental research has been conducted.
3. The study is conceptual in nature and does not include statistical analysis.
4. The findings depend on existing literature and previous research studies.

Conclusion:-

The present study examined the concept and importance of Neuromarketing as a modern approach to understanding Consumer Psychology and consumer decision making using secondary data and existing literature. The study concludes that neuromarketing has emerged as an important interdisciplinary field that combines marketing, psychology, and neuroscience to understand consumers' subconscious behavior, emotions, attention, and memory processes during purchasing decisions. Based on the review of literature, it is evident that traditional marketing methods are often unable to capture the subconscious and emotional responses of consumers, whereas neuromarketing tools such as EEG, eye-tracking, and facial coding help researchers understand consumers' hidden preferences and emotional reactions toward advertisements, brands, and products (Morin, 2011; Plassmann et al., 2015). The study highlights that consumer decisions are not always rational but are largely influenced by emotions, perception, memory, and attention, which are key components of consumer psychology (Schiffman & Wisenblit, 2019). The literature also suggests that emotional advertising, sensory branding, and visual marketing significantly influence consumer attention and brand recall.

Neuromarketing helps marketers design more effective advertisements by understanding how consumers respond to colors, sounds, packaging, and brand messages (Lindstrom, 2008). This indicates that companies can improve marketing effectiveness by focusing on emotional engagement and consumer experience rather than only product features and price. Furthermore, the study concludes that consumer psychology plays a mediating role between neuromarketing and consumer decision making. Neuromarketing stimuli first influence consumer attention and emotions, which are processed psychologically and then converted into purchase intention and buying behavior. Therefore, understanding psychological factors is essential for predicting consumer behavior and improving marketing strategies. Overall, the study concludes that neuromarketing is a powerful modern marketing approach that helps organizations understand consumer behavior more effectively, improve brand recall, enhance customer experience, and influence purchase decisions. The integration of neuromarketing and consumer psychology can help marketers develop more customer-oriented marketing strategies and improve marketing communication effectiveness.

Future Research Directions:-

Although the present study provides conceptual understanding of neuromarketing and consumer psychology, there are several areas where future research can be conducted. Future researchers can conduct empirical studies using neuromarketing tools such as EEG, fMRI, and eye-tracking to measure consumer brain responses and emotional reactions toward advertisements and branding strategies (Plassmann et al., 2015). Experimental research can be conducted to compare traditional marketing and neuromarketing advertising effectiveness in terms of brand recall and purchase intention. Future studies can also examine the role of neuromarketing in digital marketing, social media marketing, and online consumer behavior, as digital platforms are becoming increasingly important in influencing consumer decisions (Chaudhary, 2020). Researchers can study how neuromarketing techniques influence online advertisements, website design, and social media content engagement. Another important area for future research is ethical issues in neuromarketing. Since neuromarketing studies consumer brain responses and subconscious behavior, there are concerns related to consumer privacy, data protection, and manipulation of consumer behavior (Murphy, Illes, & Reiner, 2008).

Future research can explore ethical frameworks and guidelines for the use of neuromarketing in marketing practices. Future researchers can also examine demographic factors such as age, gender, income, and education in relation to neuromarketing responses and consumer psychology. Comparative studies can be conducted across different cultures and countries to understand cultural differences in consumer psychological responses to marketing stimuli. Moreover, future research can develop structural models to examine the mediating role of consumer psychology between neuromarketing and consumer decision making using statistical tools such as SEM (Structural Equation Modeling). Longitudinal studies can also be conducted to examine long-term effects of neuromarketing on brand loyalty and consumer relationships. Thus, future research should focus on empirical, experimental, ethical, digital marketing, and cross-cultural aspects of neuromarketing to further develop this emerging field and provide deeper insights into consumer behavior and marketing strategy development.

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