



Neuromarketing; Its Significance in the Marketing World



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Abstract: *Neuromarketing allows marketers to profoundly engage with consumers' latent cognitive processing processes to elicit the desired response. Marketing's more complicated phenomenon is pricking the brain's touch spots to accelerate customer response. To determine how neurons in the human mind work in accordance with marketing principles, this conceptual paper aims to answer three questions: the significance of neuromarketing in the marketing world; the impact of neuromarketing on consumer buying behaviour; and the assessment of neuromarketing with conventional marketing techniques considering previous research. This study reveals the systematic literature review. According to neuro-marketing literature, marketers need automated tools to understand human cognitive processes and build customized market offerings for their target clientele. Because customers are ignorant of their goals, automatic response devices and methodologies can help investigate the neurons of the mind responsible for buying actions in consumer purchasing behaviour. Neuroscience and marketing collaborated to create these automated research tools to study human emotions that influence purchases.*

Key Words: Neuro-marketing, Consumer Behaviour, Ethical Concerns

Introduction

Businesses in the present competitive spheres try to dig out all the technicalities involved in understating the consumer's black box (mind); Deliberate actions of customers are powered by their unconscious cognitive thought processes (Rawnaque et al., 2020). Advancements in the marketing field have paved the way for the emergence of new techniques which help in understanding the buying behaviour of consumers through the use of assessing neurons in brains cells (Duque-Hurtado, Samboni-Rodriguez, Castro-Garcia, Montoya-Restrepo, & Montoya-

Restrepo, 2020). As reported by Nilashi et al. (2020) neuromarketing is a non-intrusive brain-computer interface technological implementation; has arisen as a transdisciplinary gateway between neurology and marketing that has transformed the paradigm of marketing studies. With shifting demands in marketing; firms try to amend their market offerings in accord with the wants and desires of their target market. Complexities lie in assessing consumer behaviour without quantitative and qualitative techniques for analysing their demand level (Alsharif, Salleh, & Baharun, 2021b). similarly,

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Firms' entrance into new industries direly needs an effective promotional campaign other than conventional marketing tactics (Alsharif, Salleh, & Baharun, [2021a](#)). in light of the preceding discussions; it is assessed that competitive firms need extraordinary neuron-based research that can assist them in positioning their brands in a more sophisticated cognitive-based promotional campaign.

Neuromarketing is a technique that is capable of anticipating consumer buying choices by recording their unconscious psychological and emotional reactions (Aldayel, Ykhlef, & Al-Nafjan, [2020](#)). In addition, neuromarketing has surpassed typical marketing techniques; employing brain functions to record strategies to immediately assess the brain's reaction to promotional cues. As described by Moya, García-Madariaga, and Blasco ([2020](#)) the use of neuroimaging techniques as compared to traditional approaches brought revolutionary changes in the marketing world by exploring the unseen emotional acts behind human actions. Zaltman and Kosslyn ([2000](#)) coined the concept of neuromarketing as a new notion that proposed the interconnection between neuro-science and marketing in the late 1990s. An Atlanta-based system; a leader in production and business management software introduced a neuromarketing unit in 2001 which has instigated all the stakeholder's interest in the use of neurons studies in marketing (Casado-Aranda, Sánchez-Fernández, & Bastidas-Manzano, [2022](#)). Therefore, neuromarketing refers to the multidisciplinary field of marketing that employs advanced technology in determining an individual's inner-subconscious responses to market offerings and brand names (Mehlhose, [2022](#)).

According to the study conducted by Casado-Aranda, Sánchez-Fernández, Bigne, and Smidts ([2023](#)), neuromarketing approaches have gained momentum in terms of their accuracy, efficiency and reliability of outcomes which cannot be obtained by traditional marketing research methods. Similarly, Headset ([2022](#)) revealed neuroimaging techniques as an authentic approach which allows marketers and brand managers to comprehensively use the collected data in strategic decision-making of organizational product development, branding, physical layout and other promotional campaigns which need knowledge about consumer buying

behaviour. Neuromarketing helps in predicting the rationale behind the unconscious settings in the consumer mind which is composed of neuroscience and marketing disciplines; yields a comprehensive overview of the cognitive thought process of consumers (Weiner et al., [2023](#)). The emerging trends of neuro-marketing fill the gap between consumer behaviour neuroscience concepts. The notion was controversial when it was presented first in 2001(Casado-Aranda, Sánchez-Fernández, & Viedma-del-Jesús, [2022](#)). However, it has gained an exponential rise in terms of its validity and acceptance from its beneficiaries on a global basis.

Old techniques of promotional practices have failed to obtain competitive advantage owing to the abundant resilience of consumers; neuroscience as a cutting-edge tool guides in immediately assessing consumer minds without actively indulging in communicating with them (Merkley, [2023](#)). The application of Neuro-marketing techniques unlike traditional marketing provides insight to understand consumer preferences before commercialising product offerings in the actual market settings (Kong et al., [2023](#)). Likewise, complexities lie in identifying the nature of human beings can be overcome by inventing neuro-marketing techniques which have made it easier to accurately grasp the composite of human inner feelings (Al Fauzi & Riyanto, [2022](#)). In accordance with the study conducted by Watanuki and Akama ([2022](#)), businesses break the clutters of the competitive domain by employing brain mechanical device tools that can uplift their sales and revenues in the long run. Therefore, the aim of the research is to investigate Neuro-marketing techniques as an emerging research tool which has gained significance in intense competitive wars between companies for understating the unconscious actions of the customers. The linkage between Neuro-marketing approaches and consumer buying behaviour is also discussed on the basis of previous research papers along with a comprehensive overview of the reliability and accuracy of Neuro-marketing research tools and equipment for understanding consumer behaviour. This research explores the ethical concerns of neuromarketing approaches along with their application in boosting business revenues.

An Overview of the Problem

Because of variances in perception and overall approach to life, human nature is complicated and difficult to anticipate (Khurana et al., 2021). As reported by Cherubino et al. (2019) consumer purchasing behaviour is directly influenced by a variety of factors that influence their choices and preferences. Similarly, In both contrived and uncontrived contexts, the human mind controls the factors that have an impact on consumption patterns (Levallois, Smidts, & Wouters, 2021). Most businesses fail due to their incapacity to evaluate the inner thought processes of their customers. According to A. A. B. Mansor and Isa (2018), about 80% of a company's products fail in the early stages due to the firm's incapacity to grasp its consumers' subconscious minds. A thorough understanding of customer purchasing behaviour will enable business ventures to make smart business decisions, resulting in healthy cash flows for the company entity (Spence, 2020). In addition, neuro-marketing is tied to nodes of the consumer's unconscious mind which explains the consumer's preferences, emotions, motivations, and prediction of their behavioural outcomes (Goga et al., 2022). In the view of forgoing arguments, it is evaluated that consumer inner thought prediction needs technologically advanced mechanical devices that can assist in understanding the cognitive-perceptual mechanism shaping their purchase decisions.

Customer is given the privilege of being king in marketing famous books of Kotler (1991) who is always right; without understating the general and specific behaviour of ultimate customers companies cannot generate revenues and market share (Hemais & Rodrigues, 2023). Companies are in dire need to follow practices which help in understanding the conscious and unconscious operations in the minds of their customers (Kusumaningrum, Windyarti, & Pradini, 2023). In light of the preceding arguments, neuro-marketing is a relatively new notion in marketing research that is gaining heightened vogue over traditional research techniques which observe consumers' conscious and unconscious thoughts and acts (Levallois et al., 2021). Research methodologies of neuro-marketing lead to effective segmentation approaches because consumers' likes and dislikes are assessed by automatic research techniques of brain imaging (Naim, 2023). Likewise, the neuromarketing

techniques familiarize marketers with the general behaviour of their targeted group of customers in which customization can be achieved with rare efforts (Strieder, 2022). The ethical problems have generated serious concerns in the neuromarketing realm over the last decade; prompting a series of ethical debates not only in the community but also in other related scientific bodies, media, and the press (Alsharif, Salleh, Baharun, Abuhassna, & Alsharif, 2022). In addition, neuromarketing manipulates the consumer's mind by assessing their inner-private opinion and feelings that serve as a "purchase button" in the consumer's mind for generating quick responses (Bansal, Bansal, Bansal, Kumar, & Kumar, 2023). Firms' cash flows multiplied by billions of dollars in quickly grasping the brain science of their target group of customers that allows them to disseminate more superior and lucrative services (Alsharif et al., 2023). However, researchers believe that neuromarketing may endanger the confidentiality of consumers by evaluating the cognitive mechanism of their brains (Royo-Vela & Varga, 2022).

Research Questions

A systematic review of the available literature is based on reviewing the research work done by scholars and researchers and these questions were answered on the basis of 50 research papers from the last five years within the domain of neuromarketing as an emerging phenomenon. Research questions clarify the scenario of research and its outcomes in light of work done on the topic under study. This systematic literature review will answer the following questions.

- Does the concept of Neuro-marketing have gained significance in the marketing world?
- Does the Neuro-marketing approach have an impact on consumer buying behaviour?
- Do Neuro-marketing techniques have gained significance over traditional marketing research methods?

These research questions are responded to on the basis of previously available literature from the field of clinical psychology, neuroscience, and marketing.

Significance of Neuromarketing in the Marketing World

Marketers dream of reading the mind of their target group of customers along with exploring their “black box” for inventing something new out of their changing behaviour (Akbar & Ahmad, 2022). Neuro-marketing is a qualitative interpretivism approach to carrying out consumer behaviour research with the application of neurology in the field of marketing. Since the previous two decades; neuroscience strategies for marketing have opened up multiple avenues for scholars and researchers (Strieder, 2022). Businesses heavily rely on the commercial use of neuromarketing approaches for delivering system packages of solutions in alignment with their customer's brain functions (Naim, 2023). As revealed by Hula (2022), the recent advancements in market customization paved the way for understanding factors from a multi-disciplinary point of view to gain insight into consumer decision-making criteria. Furthermore, the consumer behaviour traditional tools of research helps in understanding the conscious aspects of the consumer mind while the advent of neuro-marketing techniques takes into account the unconscious neural thought processes by using neuro-imaging tools and techniques (Siddique, Shamim, Nawaz, & Abid, 2023). Brain science and its formations have invented techniques for gaining insight into neurons' structure and functioning through brain imaging (Goncalves, Luther, & Hayes, 2022).

Neuro-imaging techniques help in exploring the perceptual processes in consumers' unconscious reflex actions toward marketing stimuli and campaigns (Duque-Hurtado et al., 2020). Furthermore, It reveals the facts of how the human mind works when they encounter promotional stimuli of specific brands, logos, slogans, designs, or jingles (Rawnaque et al., 2020). In a similar nature study, Nilashi et al. (2020) revealed that Neuro marketing techniques allow us to read the human mind in terms of motivation levels, feelings, emotions, likes, dislikes, and expectations by creating a linkage between brain structure, performance, and behaviour. Likewise, neuro-marketing is an important phenomenon in marketing that needs attention in the marketing and research field as rare work has been carried out in emerging countries because of expensive mechanical

devices employed for assessing the human brain science (Golnar-Nik, Farashi, & Safari, 2019). The main aim of the research is to examine the importance of the Neuro-marketing field in marketing and consumer buying behaviour along with the comparison of tools and techniques used in the Neuro-marketing field with traditional marketing research approaches by a systematic review of available literature in the field of Neuro-marketing. Neuro-marketing is gaining momentum in advanced market settings where consumers' brain needs an examination of their brand preferences (Moya et al., 2020).

A. A. Mansor and Isa (2020) investigated the concept of Neuro marketing as a significant tool that helps in examining the consumer black box through the use of advanced neuroscience techniques (Golnar-Nik et al., 2019); human cognition assists in understanding the sophisticated neural mechanisms in order to grasp their emotions, thought processes, memory, interpretations, comparisons of objects, evaluative criteria, and decision-making approaches (Bočková, Škrabánková, & Hanák, 2021). All of these cognitive processes disclose marketing tactics by strategically integrating products, brands, and services that result in a value exchange in terms of customer pleasure, loyalty, and long-term gratifying relationships with customers (Baños-González, Baraybar-Fernández, & Rajas-Fernández, 2020). According to Mashrur et al. (2022), Neuro marketing is a distinct field and interconnection of perception mechanisms that measures brain activities and analysis of emotions and psychological processes in the human cortical scalp. In the domain of its significance; Constantinescu et al. (2019) neuromarketing is a technique that refers to the application of neuroscience methodologies for studying consumer behaviour in relation to marketing trends.

Neuromarketing tools and strategies are gaining prominence in the future due to their precision in investigating the human mind (Hsu & Chen, 2020). As discussed by Gurgu, Gurgu, and Tonis (2020) marketers should comprehend the inner thoughts and mysteries of their unconscious acts in the brain that affect their purchasing judgements and behaviours. Neuroscience tools are desperately needed by product designers and advertising firms to understand how customers analyse the substance of advertisements (Cardoso

et al., [2022](#)). Previous studies on Neuro-marketing techniques and their importance in marketing are answering the study's initial research question. Marketing is the study of people's thoughts via the creation of long-term gratifying connections with important clients (Akbar, Mordhah, & Rafiq, [2021](#)). Perceptual processes in the mind regulate human behaviours (Akbar, Rafiq, Uddin, & Bilal, [2021](#)) which are difficult to anticipate and explain. Thus, in accordance with the study conducted by Juárez-Varón, Tur-Viñes, Rabasa-Dolado, and Polotskaya ([2020](#)), the neuro-marketing area has enabled businesses to read their client's conscious and unconscious brains. Furthermore, Marketers can tailor their services to their clients' choices and preferences in congruence with the results of Neuro-marketing techniques (Russo et al., [2022](#)).

Impact of Neuro-Marketing on Consumer Buying Behavior

According to Oikonomou, Georgiadis, Kalaganis, Nikolopoulos, and Kompatsiaris ([2023](#)) a company's promotional campaigns, rational and aggressive advertising, customised product offerings, and branding strategies need to reveal the unseen aspects of consumers' perceptions and mental processes. Consumer behaviour knotted with neurology science tries to uncover deep-rooted psychological factors that are hidden and unknown to even consumers themselves, but have a significant impact on their intentions and final purchase decisions (Halkiopoulou, Antonopoulou, Gkintoni, & Aroutzidis, [2022](#)). Consumers are frequently ignorant of their own requirements and desires, which may be met by developing specialised market products tailored to the specific needs and wants of the target customers (Nazarova & Lazizovich, [2019](#)). In this scenario, the notion of Neuromarketing and techniques employed for assessing the human brain science proved to be the ideal solution. Similarly, Neuro marketing proves to be the perfect method of collecting hidden and unseen aspects of the brain and thought processes (Amin et al., [2020](#)). As discussed by Alam Kazmi, Aqil, and Raza ([2019](#)); the rationale of neuromarketing lies in scrutinizing the nexus between marketing stimuli and their impact on consumer's brains. Moreover, Understanding neuro marketing requires pre-knowledge about human body language, eye movements, eye tracking techniques,

interpretation of facial expressions, heart rate, and changes in body temperature, pulse rate and other changes that take place in consumers as a result of exposure to marketing stimuli (Casas-Frausto, Yail Márquez, Gutiérrez, & Sergio Magdaleno-Palencia, [2021](#)).

The relationship between Neuro marketing devices and consumer buying behaviour is previously investigated by renowned researchers with a significant and positive relationship between the variants of marketing and brain science (Goswami & Deshmukh, [2022](#)). YÜCEL and ŞİMŞEK ([2019](#)) discussed the neuro-marketing device EEG (electroencephalography), and Eye-tracking, the results of which were found significant and positively associated with the garnishing of crackers in terms of its appearance, shape, size and toppings. In a similar nature of research; Balconi and Sansone ([2021](#)) explained the usage of EEG (electroencephalography), the device in understanding the strong connection between advertising stimuli and brain thought processes the results of which proved that advertising persuasiveness has a greater influence on the consumer mind. Consumers mind catches stimuli in advertising which are more provoking and pronouncing in terms of its attractiveness. Likewise, Tirandazi, Bamakan, and Toghroljerdi ([2022](#)) investigated and analyzed data retrieved from EEG (electroencephalography) and eye-tracking techniques, results of the outcomes clearly indicated that consumers are unable to explain their inner self and thought processes accurately which need automatic devices to dig out the inner psyche, feelings and emotions of consumers which play important role in purchase decisions. Furthermore, Boz and Koç ([2022](#)) studied the importance of perception in decision-making with the use of EEG (electroencephalography), a device where light effects were observed in the food industry and conscious and unconscious effects of light were recorded, the results proved that light is an important stimulus which can significantly increase the sales volume of a firm. Previous research on marketing stimuli utilising Neuro-marketing approaches demonstrated that the first stage in analysing consumer buying behaviour is to read consumers' brains in order to obtain complete control of their intents and purchase decisions. Exploring their inner psychology may give marketers an accurate and solid foundation

for offering products and services based on the preferences of their target market.

Comparison of Neuro Marketing Techniques with Traditional Marketing Research Techniques

Comparatively Neuro-marketing techniques equipped with neuro-marketing research are more accurate and reliable predictors of consumer behaviour (Baños-González et al., 2020). As stated by Gill and Singh (2022) Neurology approaches for understanding human behaviour are more suitable that can be employed in creating a strategic fit between an organization's capabilities and resources. Similarly, firms utilise neuromarketing tactics to promote their branded goods and to solve a variety of marketing problems (Boz & Koç, 2022). An accurate brain prediction for better business has been the focus of brain science researchers. A previous study has looked into neuro-marketing in relation to packaging, price, and brand identity, as well as other brain-stimulating elements that might impact customer behaviour in purchase choices (Martinez-Levy et al., 2022). Likewise, Neuro-marketing has been recognised as a branch of neuroscience that incorporates tools and approaches for analysing consumer criteria on which consumers assess alternatives among the set of accessible options in terms of marketing tactics and capabilities (Biswas et al., 2022). In the glare of preceding ideas, it is evaluated that neuromarketing approaches results are more accurate, and quick in terms of generating desirable responses in consumers.

The neuroscientific approach integrates two aspects of analysis, the first approach is a neuro-imaging approach which leads to an analysis of individual internal recording of neural brain activities, the tools and techniques used for neuro-imaging are electroencephalography, magnetoencephalography, and functional magnetic resonance imaging (Tirandazi et al., 2022). As discussed by Gill and Singh (2022) recording activities outside the brain is called non-neuroimaging which consists of nervous system activities that are observable physical activities of the brain such as electrocardiography (heart activity), eye tracking (eye movement), facial electromyography (facial muscle movement), and skin conductance (sweat). In the consumer's mind, conscious and unconscious thinking

processes operate separately yet concurrently, focusing on the two systems in the human mind, their structure and operation (Caratù, Cherubino, & Mattiacci, 2018). In accordant with research conducted by Tirandazi et al. (2022) brain is the product of two systems: one that is automatic and quick with little or no mental pressure from neurons of the mind without sensory control, which is referred to as cognitive unconscious acts, and the other that is based on quick responses employing associative learning in the unconscious mind.

The automated system's logic is to preserve and improve the individual's vision of reality and the portrayal of everyday daily transactions as they relate to conditions (Oikonomou et al., 2023). The second system relies on conscious mental efforts based on concentration and pre-planned choices which refer to task-relevant cognitive-based neuron functioning being more in control of consumers; which are more termed as deliberate and action-oriented (Shukla, 2019). These are more logical and go linear with conscious settings of mind. System one is based on unconscious thought processes which give suggestions to the conscious thought processes in the form of intuitions and predictions; these are converted into values and beliefs which blend voluntary and involuntary actions in a coordinated way (Avenidaño Castro, Luna Pereira, & Rueda Vera, 2021). Conscious thought processes are the pathways to the subconscious mind because repetitive conscious acts of consumers lead to habits which rest in the subconscious portion of consumers' minds. The conscious mind and unconscious mind differ on the basis of the attention factor which explains that conscious thought involves attention while unconscious acts are without attention (Morin & Renvoisé, 2018).

The conscious mind is responsible for the analysis and organisation of actions and plans, which is employed in the appraisal of different courses of action, whereas the unconscious mind is responsible for perceiving numerous pieces of information in the mind through the sensory-perceptual process (Goker & Dursun, 2019). As further described by Adeola, Evans, Ndubuisi Edeh, and Adisa (2022), the interaction of these two brain systems causes conflicts in the consumer's thoughts. businesses can capture customers' attention by incorporating both

conscious and unconscious reflexes in marketing strategies for producing desirable responses with immediate results. The battle between the conscious and unconscious minds confuses customers about what they feel and what they think they should feel (Alsharif et al., 2023). Moreover, Unconscious responses cannot be retrieved by traditional research methodologies such as surveys and questionnaires (Kaheh, Ramirez, Wong, & George, 2021); as consumers cannot realize their own intentions even through deep interviewing and observation, researchers have relied on neuromarketing techniques for analysis of unconscious parts of consumer mind (Khurana et al., 2021).

When consumers are exposed to marketing communication about the company's products, pricing, promotions, and advertising campaigns, they generate their own meaning by combining it with their mental setup and personal experiences (Semenov, 2022). As reported by (Kong et al., 2023) Meeting clients with marketing signals, which are processes below the subliminal awareness level, leaves imprints in the unconscious mind that might impact consumer purchasing decisions. A previous study on Neuro-marketing methodologies and their accurate and reliable results have demonstrated that standard marketing research techniques cannot give a complete x-ray of human motives and perceptions underlying purchase decisions (Naim, 2023). Similarly, Consumer purchasing behaviour must be investigated to uncover the underlying motivations and drives behind bought behaviours, which is attainable with the application of Neuro-marketing devices and processes in marketing (Duque-Hurtado et al., 2020). Traditional research methods provide information about external physiological conscious acts of consumers while unconscious thought processing in the mind is fully ignored in these scenarios which requires the blend of these two research approaches (Weiner et al., 2023).

Conclusions

Following the norms of cognition, the conscious state is defined as the consumer's unconscious mind's engagement in the decision-making process. The current conceptual paper relied on the past five years' 60 papers in the field of neuromarketing with the basic aim of answering the following questions; Does the concept of

Neuro-marketing have gained significance in the marketing world? Does the Neuro-marketing approach have an impact on consumer buying behaviour? Do Neuro-marketing techniques have gained significance over traditional marketing research methods? These research questions were responded to on the basis of previously available literature from the field of clinical psychology, neuroscience, and marketing. The first objective was achieved in light of preceding research studies that revealed ample concerns regarding the significance of neuromarketing in the marketing world. Based on the systematic review of available literature, the ties of which were strongly connected to the importance of neuromarketing, its application in consumer buying behaviour and the comparison of advanced mechanical devices with traditional marketing research approaches leads to the emergence of Neuro-marketing concept as a blockbuster in marketing research field by deeply examining the brain cells of their ultimate target group of customers.

The second objective was attached to the impact of neuromarketing on consumer buying behaviour. Consumer purchase decisions are primarily the result of a reaction to an external marketing stimulus that is coupled with certain events for activating their motivation levels in the purchasing process. The consumer's moods, emotions, preferences, and motivation are all linked to internal signals. Sensory organs detect external signals based on their perceptual-cognitive processes. The important phenomenon of consumer buying behaviour is to understand what is beyond the level of conscious awareness, which can be addressed by neuropsychological approaches that produce better results in the processing of marketing stimuli in consumers' black boxes. Consumers can not always give shape and meaning to what they think, perceive, proceed and analyse in their minds which leads marketers and brand managers to the conclusion that subconscious responses have a greater influence on consumer perception and their ultimate purchase decisions. In light of the foregoing discussions, it is analysed that the notion of neuromarketing has a considerable impact on the buying behaviour of customers.

The third objective revealed the significance of neuromarketing tools and techniques as more powerful instruments in generating desirable

responses than conventional marketing tactics. As Previous researchers revealed the importance of Neuro marketing and its connection with consumer buying behaviour along with sophisticated techniques used in assessing the feelings and emotions of consumers. Neuro-marketing approaches may be used by marketing, brand, and advertising managers, as well as policymakers, to uncover the underlying motivations behind customer purchase decisions.

Marketing and brand managers may improve their market offers by incorporating marketing stimuli to attract customers. Advertising companies may make a higher profit by tailoring their persuasive advertising campaigns and communications to elicit customers' unconscious neurons in their minds and stimulate buy behaviours. Neuro-marketing strategies are costly, but they are dependable and accurate in terms of results and outcomes.

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