



# THE ROLE OF NEUROMARKETING IN DECODING BRAIN STIMULI AND CONSUMER BEHAVIOR

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**Abstract:** This study focuses on the field of neuromarketing and its relationship with consumer behaviour. In a context where advances in neuroimaging and technology have allowed a detailed study of neuronal activity, neuromarketing emerges as a discipline that fuses brain science with marketing strategies. This new approach has revolutionized the understanding of sensory stimuli by interconnecting the five senses, emotions and consumer decisions. The research focuses on the application of neuromarketing techniques that help to understand how certain marketing stimuli can influence consumer behaviour and their purchasing decision-making process. In addition, the concept of "applied organizational neuroscience" is addressed, highlighting a paradigm shift in the traditional marketing approach towards a deeper insight of the consumer mental processes. Through an analytical and documentary research, this study analyses the fundamental principles of neuromarketing, sensory marketing and consumer behaviour. It explores how brain processes influence consumer perception, decision-making, and emotional responses to develop the most effective marketing strategies. By a better understanding of those processes, this study provides key elements to stand out in an increasingly competitive and demanding market. The objective is to investigate the influence of neuromarketing on consumer purchasing decisions and to explore consumers' attitudes towards neuromarketing and its impact on purchasing decisions.

**Keywords:** Neuromarketing, consumer behaviour, marketing strategies, purchase intentions

## Introduction

Currently, we are in a marketing landscape where the understanding of consumer behavior has significantly evolved, especially with the emergence of Marketing 4.0 and the focus on neuromarketing on purchase intentions. These concepts have transformed the way brands connect with their audience, emphasizing emotions, memories, and sensory stimulation to influence purchasing decisions. As we know memory and remembering is a natural characteristic of humans, which can occur both voluntarily and involuntarily. Therefore, it is crucial for brands to understand how the consumer's brain has adapted to this evolution to evoke feelings or emotions that differentiate them from the competition (Hirschman & Lindstrom, 2003).

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Consumer behavior has undergone a significant transformation in recent years, driven by the technological revolution and the emergence of digital marketing. The modern consumer is more informed, connected, and demanding, seeking personalized and authentic experiences (Zaltman, 2004). This evolution has forced companies to rethink their marketing strategies, moving away from traditional marketing toward the advent of Marketing 4.0, a new model focused on customer experience and value creation.

Neuromarketing, by combining neuroscience with marketing, offers a unique perspective on the cognitive processes underlying consumer behavior. Through advanced techniques such as functional magnetic resonance imaging (fMRI) and electroencephalogram (EEG), marketing specialists can investigate how the brain responds to advertising stimuli, product designs, and brand experiences. This research provides a deeper understanding of what truly motivates purchasing decisions, enabling companies to adjust their strategies to connect more effectively with their target audiences.

## Literature Review

One of the first steps in this research was to understand the concept of this emerging discipline that combines neuroscience with marketing to gain a better insight into how consumers make purchasing decisions. Among the various definitions available, the one provided by the father of marketing, Philip Kotler, stands out. He defines neuromarketing as a brain measurement technique used to study in detail how consumers respond to stimuli, employing methods such as magnetic resonance imaging, electroencephalograms, and brain mapping, among others (Kotler & Armstrong, 2013). However, it was Gerald Zaltman who, in the 1990s, merged the terms and knowledge of neuroscience with marketing. The concept of neuromarketing focuses on studying how the brain responds to various marketing stimuli, enabling companies to develop more effective and personalized strategies. It employs advanced neuroimaging technologies, such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), to observe and analyze brain activity in response to these stimuli. The primary goal is to identify neurological patterns that can predict purchasing behaviors and enhance the effectiveness of marketing strategies. The use of these techniques provides valuable insights into the subconscious processes that influence customers' purchasing decisions.

The main objective of neuromarketing is to unravel the brain mechanisms underlying consumer decisions, allowing companies to adjust their advertising campaigns, product designs, and brand experiences to optimize their impact. This approach offers a unique perspective that goes beyond traditional market research techniques, providing a deeper and more precise understanding of what truly motivates consumers. Currently, three types of neuromarketing can be identified and classified based on the human senses that mediate the connection between the presented stimulus and the consumer (Redacción Nebulosa Digital, 2019). Table 1 illustrates this classification:

**Table 1**

### *Types of Neuromarketing*

Types of Neuromarketing	Description	Examples
Visual Neuromarketing	It focuses on how we perceive our surroundings through sight. It uses words,	Use of expressions such as "free," "sale," or "special offer." Prices ending



	images, and videos to capture the consumer's attention.	in .99 instead of whole numbers. Striking images and videos.
<b>Auditory Neuromarketing</b>	It is based on what we perceive through hearing. It uses music and sounds to influence purchasing decisions.	Music in shopping malls, advertising jingles, specific sounds associated with brands.
<b>Kinesthetic Neuromarketing</b>	It focuses on what we perceive through touch, smell, and taste. Although less commonly used, it is important in some sectors.	Product tastings in gastronomy, massages and body treatments, use of fragrances in perfumery and cosmetics.

Source: Developed by the authors based on Gill & Singh, 2020

This table demonstrates how neuromarketing uses different senses to influence consumer behavior, making advertising campaigns more effective by appealing to various sensory experiences. Now that we have a clearer understanding of the concept and the types of neuromarketing, we revisit the information provided by Professor Gerald Zaltman, director of the Mind Institute at Harvard University, who asserts that 95% of customer purchase decisions are unconscious (Zaltman, 2004). Of course, this is a data that is difficult to fully verify, and studies are still being conducted to determine what percentage of our decisions are truly unconscious or emotional.

In the field of neuroscience studies, the triune brain theory proposed by Paul MacLean in the 1960s has had a significant impact on understanding the functioning of the human brain. This theory suggests that our brain is composed of three main structures, each with its own evolutionary history and specific functions: the reptilian brain, the limbic system, and the neocortex (MacLean, 1990). MacLean's model has provided a useful framework for understanding the complexity of the human brain and how different regions work together to generate behaviors. This theory, also known as the theory of the three brains, has undoubtedly been a key starting point in understanding that there are differentiated structures within our brain that function in distinct ways. This theory can be summarized as following:

- **Emphasis on brain evolution:** The theory highlights the idea that the human brain has evolved over millions of years, with each brain structure adding new capabilities to the existing ones.
- **Differentiation of brain functions:** MacLean assigned specific functions to each of the three brain structures, helping to understand how different regions of the brain contribute to behaviors such as survival, emotions, and complex thinking.
- **Relationship between the brain and behavior:** The triune brain theory has been used to explain a wide range of human behaviors, from basic emotional responses to complex decision-making.

Despite its contributions, Adrián Triglia, a psychologist and editorial director of *Psicología y Mente*, explains in an article that the triune brain theory has received criticism for its simplicity and lack of precision (Triglia, 2016). Some of the most significant limitations include:

- **Simplistic view of evolution:** The theory proposes a linear progression of brain evolution, ignoring the complexity and interactions between different brain regions.



- Oversimplified brain functions: The functions assigned to each brain structure are overly general and fail to reflect the true complexity of brain functioning.
- Lack of empirical evidence: The theory relies primarily on observations and speculations, with limited solid empirical evidence to support its claims.

The central nervous system (CNS) plays a crucial role in neuromarketing, as it is the processing center for all sensory and emotional responses. By studying how the CNS reacts to different marketing stimuli, researchers can identify which elements provoke the most favorable reactions from consumers. This knowledge allows brands to design more effective advertising campaigns and products that deeply resonate with their audiences. In this context, the triune brain theory proposed by Paul MacLean offers a valuable tool for understanding how the different brain structures influence purchasing decisions.

**Neocortex:** The neocortex, responsible for higher cognitive functions, plays a crucial role in information processing and rational decision-making. Neuromarketing strategies targeting the neocortex focus on:

- Clear and transparent communication: Presenting accurate and relevant information about the product or service, highlighting its features and benefits objectively.
- Logical and reasonable arguments: Using data, statistics, and expert testimonials to support claims about the product or service.
- Focus on utility and value: Emphasizing how the product or service can improve the consumer's life by fulfilling their needs and desires.

**Limbic System:** The limbic system, the emotional center of the brain, is highly responsive to stimuli that evoke strong emotions. Neuromarketing strategies targeting the limbic system focus on:

- Evoking positive emotions: Using images, music, and narratives that generate emotions such as joy, nostalgia, inspiration, or humor.
- Creating an emotional connection: Telling stories that resonate with the audience's values, aspirations, and fears.
- Harnessing the power of association: Associating the product or service with positive experiences, influential individuals, or desirable lifestyles.

**Reptilian Brain:** The reptilian brain, responsible for basic survival functions, is sensitive to stimuli that generate urgency or scarcity. Neuromarketing strategies targeting the reptilian brain focus on:

- Creating a sense of urgency: Using limited-time offers, exclusive discounts, or limited editions to prompt immediate purchases.
- Triggering fear of missing out (FOMO): Highlighting the benefits of acquiring the product or service now, before it is gone or the opportunity is lost.
- Emphasizing exclusivity: Highlighting unique features of the product or service that differentiate it from competitors and make it more appealing.



The most effective neuromarketing strategies are not based on appealing to a single brain structure but rather on creating harmony that involves all three: the neocortex, limbic system, and reptilian brain. By understanding how each of these structures influences consumer behavior, companies can develop strategies that connect with both the mind and heart of their target audience, driving more favorable purchasing decisions.

By using neuromarketing, brands can create memorable experiences that emotionally resonate with consumers such as the use of specific scents in stores can make customers feel more comfortable and willing to make purchases. Positive sensory experiences can strengthen customer loyalty, as consumers tend to remember and prefer brands that offer pleasant and meaningful experiences. Neuromarketing provides precise data on how different stimuli affect the consumer's brain, enabling companies to design more targeted and effective campaigns, thereby optimizing their marketing return on investment. It helps for a better market segmentation by identifying behavioral patterns and specific preferences, allowing for personalized marketing strategies tailored to different consumer groups (Alsharif et.al, 2023).

During the development of this research, we identified three concepts frequently mentioned by various authors, which are interconnected and essential for the success of neuromarketing and sensory marketing in influencing consumer behavior: **emotions, persuasion, and memory**.

- **Emotions** play a crucial role in consumer decision-making, as rich and positive sensory experiences can trigger emotional responses that strongly influence brand preference and loyalty.
- **Persuasion** refers to the ability of these techniques to subtly and effectively influence consumer attitudes and behaviors by using sensory stimuli to guide purchasing decisions without the consumer feeling coerced.
- **Memory** is essential, as memorable sensory experiences are stored in long-term memory, predisposing consumers to be more loyal to the same brand in the future.

By integrating these three elements, neuromarketing strategies not only capture the consumer's attention but also foster lasting emotional connections and sustained loyalty (Halkiopoulous et.al, 2022). The use of memories in digital marketing can become an extremely effective tool. For years, marketers have sought the "magic formula" to reach consumers and have discovered that emotions are a powerful resource for connecting with their audience. Positive emotions, in particular, can be evoked through memories.

Furthermore it has been shown that aligning emotions with a sales strategy is often successful. If pleasant memories from the audience are also associated with a product or service, both revenue and customer loyalty are likely to increase. Evoking positive memories and cherished symbols from the past generates a sense of well-being. Even with busy schedules, significant responsibilities, or problems, positive memories always bring a smile, increasing receptivity to a brand's messages. Moreover, when a person feels something or cares about something, they are much more likely to act. Successfully moving a consumer to such an extent is akin to making a pre-sale. In today's context, where digital media can feel impersonal, creating a connection with the audience through memories and emotions is a powerful stimulus. Associating brand messages with positive references from the 70s, 80s, or 90s humanizes the brand, establishing meaningful connections between the past and the present.



Although memory-based marketing strategies have evident benefits, they also carry risks. Companies that rush to employ these tactics without considering the current context may risk irrelevance or misunderstanding. The key is to create an emotional hook using memories while also offering something novel, an ingenious presentation of the past and present. For example, the success of *Pokémon Go* lies in its ability to connect a beloved story with an innovative augmented reality application (Redacción Seigoo, 2020). Playing the game provides many with happiness and the opportunity to discover something novel and stimulating. Successful marketing campaigns require effort and authenticity, as they can fail without these elements. It is crucial to identify special moments for each generation and connect with modern culture and social media trends. Memory-based marketing is effective when campaigns are timely, relevant, and authentic, striking a chord with consumers and earning their loyalty. Neuromarketing is grounded in understanding the perceptual process, as customer perceptions significantly influence their behaviors. By leveraging neuroscience, neuromarketing adapts products, services, messages, and packaging to the reality perceived by customers, making campaigns more effective.

Perception is an active process by which we select, organize, and interpret sensory information to build a coherent understanding of the world around us. This information originates from both external stimuli (what we see, hear, smell, taste, or touch) and internal factors (genetic predispositions, motivations, and prior experiences). External stimuli are captured by the senses, generating a response known as sensation. This sensation, combined with internal stimuli, results in perception, which is the product of the interaction between internal and external inputs, forming personal ideas about objects, situations, or people. This process creates a new subjective reality for the individual (Cueva, 2002).

Perception is one of the key pillars in effective neuromarketing strategies. Renowned marketing expert Jack Trout highlights its importance by stating, "Perception is reality; do not confuse it with the facts" (Trout & Peralba, 2005). This assertion emphasizes that what consumers perceive about brands, products, and services constitutes the true reality, not necessarily what the company believes it to be. According to Dr. Néstor Braidot, perception not only shapes people's worldview but also their behavior and learning, underscoring its importance for businesses (Braidot, 2005). Analyzing the perceptual process allows for a better understanding of how customers receive stimuli when interacting with products, services, packaging, or brands. Neuroscience helps validate the effectiveness of marketing elements. Examples of this include research conducted by companies such as Hyundai, Google, Disney, Frito-Lay, and Microsoft (Baptista et al., 2010). Stimuli generate sensations through sensory organs, making their study fundamental in analyzing the perceptual process. The transition from traditional to sensory marketing represents an evolution toward more sophisticated and effective strategies aimed at creating comprehensive and meaningful experiences for consumers. By integrating stimulation of all five senses into marketing strategies, companies not only capture their customers' attention but also build deeper and longer-lasting relationships (Braidot, 2009).

These advancements, supported by neuroscience and technology, redefine how brands communicate and interact with their audience. Integrating neuromarketing and sensory marketing with consumer behavior and the marketing mix enables the development of more effective strategies, strengthening emotional connections and long-term loyalty. The implementation of neuromarketing must be ethical and transparent to avoid making consumers feel manipulated. Companies should be transparent about the use of these techniques and respect consumer privacy. They must also obtain informed consent for the





collection of neurological data. The main focus must be on improving the consumer experience, not on increasing sales. Last but not the least, they must set boundaries on data usage to prevent misuse or overreach (Thomas et.al, 2017). To ensure consumers do not feel manipulated, companies should adopt a balanced approach that respects consumer autonomy by creating authentic experiences aligned with consumer values. Neuromarketing tools are effective for influencing consumer behavior, but their application must be ethical and transparent. These techniques should focus on enhancing the consumer experience while respecting autonomy to avoid feelings of manipulation or intrusion. By creating authentic value, companies can strengthen and prolong customer relationships.

Effective strategies require understanding how consumer profiles have evolved over time. Social, technological, and economic influences have significantly shaped these profiles, with each generation demonstrating unique characteristics and consumption behaviors as shown in Table 2.

**Table 2**

Consumer Preferences by Generations

Generation	Birth Years	Key Values	Preferences
Baby Boomers	1946-1964	Quality, brand relationships	Direct communication, durable products
Generation X	1965-1980	Pragmatism, convenience, practicality	Recommendations from friends and family, emerging tech adaptation
Generation Y (Millennials)	1981-1996	Authenticity, experiences	Brands sharing their values, social media engagement
Generation Z	1997-2012	Immediacy, personalization, sustainability	Interactive experiences, technology immersion

Source: Developed by the authors based Fogel, 2024

Each generation has distinct expectations and consumption preferences, requiring tailored strategies to connect effectively with each group.

### Marketing Professionals' Dilemma in Neuromarketing Applications

Neuromarketing, a subfield at the intersection of neuroscience and marketing, has garnered significant attention for its ability to provide deeper insights into consumer behavior. Despite its potential, marketing professionals face several critical challenges when considering its adoption. Key concerns include:

- **Return on Investment (ROI):** Marketers question whether the financial outlay required for neuromarketing research and tools is justified by the insights and results obtained (Morin, 2011).
- **Tool Effectiveness:** Determining the most reliable and actionable tools within a broad spectrum of neuromarketing technologies is an ongoing challenge (Plassmann et al., 2015).
- **Implementation Strategies:** Professionals often struggle to integrate neuromarketing findings into their campaigns effectively, balancing scientific rigor with practical applicability (Venkatraman et al., 2015).



Several methodologies in neuromarketing research illustrate its diverse applications while highlighting the challenges marketers face in leveraging these tools effectively. These techniques include:

1. **Graphical Line Evaluation:** This method enables the comparative assessment of design options for digital tools, helping marketers identify graphical elements that establish an emotional connection with users. Importantly, it ensures these elements do not hinder overall usability, a critical factor in digital marketing success (Kenning & Plassmann, 2005).
2. **Landing Page or Microsite Evaluation:** By analyzing user behavior during free navigation on these digital platforms, neuromarketing tools identify areas that attract attention, evoke emotional responses, and present usability challenges. This approach aids in optimizing digital design to enhance engagement and minimize friction in user interactions (Ariely & Berns, 2010).
3. **Usability Studies:** Neuromarketing complements traditional usability testing by incorporating biometric and neurophysiological measures. This method evaluates digital elements—such as websites, apps, or services—based on users' performance of predefined tasks, providing richer insights into user satisfaction and task efficiency (Hartmann, 2017).
4. **Brand Building Assessments:** Pre- and post-exposure tests measure shifts in consumer perceptions of a brand following interaction with specific digital elements. These assessments reveal how effectively campaigns influence brand identity and emotional resonance, aligning marketing strategies with consumer expectations (Plassmann et al., 2012).

Neuromarketing offers marketers innovative tools to understand consumer preferences and behavior. While challenges remain, such as justifying investments and integrating findings, the insights derived from neuromarketing studies can inform strategies that align more closely with consumer needs. As the field continues to evolve, the adoption of these techniques is likely to grow, enabling marketers to design more effective, user-centered campaigns.

### Neuromarketing and Its Role in Marketing Mix (4Ps)

The marketing mix, also known as the 4Ps (Product, Price, Place, and Promotion), integrates seamlessly into the study of neuromarketing. Each component of the mix can be optimized using insights gained through neuromarketing to create more effective and consumer-centered strategies. To captivate consumers today, companies must focus on an emotional marketing mix that resonates with the emotions and aspirations of their audience. This involves designing products that not only meet practical needs but also evoke positive emotions through aesthetics and sensory experiences. Regarding price, strategies should consider perceived value and consumer emotions. Distribution should maximize accessibility and convenience, creating a pleasant shopping experience. Finally, promotion should leverage sensory and emotional stimuli to capture attention and foster consumer loyalty. By adopting this holistic approach to the emotional marketing mix, companies can create irresistible products and experiences that not only meet consumer needs but also win their hearts (Kamal & Malhan, 2021). Companies that adopt these techniques can identify the key factor that allows them to differentiate themselves from the competition, and that first step begins in the mind (Trout et al., 2009).





The relationship between knowledge of brain hemispheres and the marketing mix, as well as its application in neuromarketing, is fundamental. The study of brain hemispheres is highly significant in neuromarketing, as it enables a better understanding of how different types of stimuli are processed and how to more effectively influence consumer behavior. The next section explains the relationship of each element of the marketing mix: product, price, place, and promotion.

### **Product**

Understanding hemispheric specialization facilitates the creation of products that appeal to different thinking styles.

- **Technological Products:** For consumers with a left-hemisphere dominance, products that emphasize logic, functionality, and technical features are more appealing. Precise specifications and performance testing are critical.
- **Creative and Entertainment Products:** For consumers with a right-hemisphere dominance, products that promote creativity, imagination, and emotion are more attractive. Innovation, appealing design, and inspiring narratives are fundamental (Rawnaque et. al, 2020).

### **Price**

The perception of price can be strategically influenced by understanding brain hemispheres:

- **Price Sensitivity:** To reduce price sensitivity, use images and concepts that appeal to the right hemisphere, which is associated with emotional values such as friendship, beauty, and love. These elements can divert attention away from the rational calculations of the left hemisphere.
- **Highlighting Low Prices:** If the goal is to emphasize low prices as an advantage, messages should be clear, direct, and logical so that the left hemisphere can process them analytically. This approach is effective in supermarket ads and other establishments emphasizing discounts (Chark, 2018).

### **Place**

Distribution and the design of points of sale can be optimized using knowledge of brain hemispheres:

- **Store Design:** Environments that stimulate the right hemisphere can trigger impulsive purchases. This is achieved through attractive ambiance, appropriate music, and a visually appealing product layout.
- **Online Strategy:** In e-commerce, website design should combine striking visual elements with logical navigation. Features that appeal to both emotion and ease of use can engage both the right and left hemispheres.

### **Promotion**

Promotional strategies can be tailored to effectively impact the brain hemispheres:

- **Emotional Advertising:** Ads emphasizing emotional aspects and using impactful visual techniques, such as those by Benetton, leverage the differences between hemispheres. They first engage the right hemisphere, preventing the rational attitude of the left hemisphere from intervening.
- **Rational Advertising:** For campaigns where price is the main attraction, clear and precise messages should be used to allow the left hemisphere to process them analytically.



- **Auditory Media:** In radio, the use of metaphors and an appealing musical background activates the right hemisphere, creating a stronger emotional resonance with the listener.

The transition from traditional to neuromarketing represents an evolution toward more sophisticated and effective strategies, aimed at creating comprehensive and meaningful experiences for consumers. By integrating the stimulation of all five senses into marketing strategies, companies not only capture their customers' attention but also build deeper and more enduring relationships (Braidot, 2009).

These advancements, supported by neuroscience and technology, are redefining how brands communicate and interact with their audience. Integrating neuromarketing with consumer behavior and the marketing mix allows companies to develop more effective strategies, strengthening emotional connections and fostering long-term loyalty (Ismajli et.al, 2022).

### Research Methodology

The design of this research was based on a qualitative methodology with experts interviews. The interview questions are shown in Appendix 1. The in-depth with experts in consumer behavior and neuromarketing, who can provide valuable and up-to-date insights to enhance the content of this research helped in shaping and confirming the theories. n-depth interviews are a qualitative research method that enables researchers to explore consumer perceptions, emotions, and decision-making processes on a deeper level. These attributes make them particularly valuable for neuromarketing research, as they allow for the examination of complex psychological and emotional mechanisms that underpin consumer behavior.

In-depth interviews provide a unique opportunity to tap into the specialized knowledge and experience of individuals who are deeply familiar with neuromarketing's theoretical and practical dimensions. Experts can provide insights that are not readily available in the literature, helping to contextualize and update existing frameworks (Bogner, Littig, & Menz, 2009). This is particularly valuable in neuromarketing, where new tools and methodologies are continually emerging. Neuromarketing involves complex interdisciplinary concepts, spanning neuroscience, psychology, and marketing. In-depth interviews with experts allow researchers to explore these intricate topics in detail. Experts can articulate the nuances of neuromarketing applications, such as interpreting physiological data or addressing ethical concerns, thus enriching the depth of the article (Flick, 2014). Including insights from established professionals in the field lends credibility and authority to the article. Expert opinions, when supported by academic references, can validate the researcher's arguments and provide a strong foundation for the study's claims (Meuser & Nagel, 2009). This is especially important in emerging fields like neuromarketing, where credibility and trust are vital. In-depth expert interviews complement other data collection methods by providing interpretative insights that can clarify or expand quantitative findings. For instance, while neuroimaging might show consumer responses to advertisements, expert commentary can explain the implications of these findings for marketing strategies. This triangulation enhances the article's comprehensiveness and reliability (Creswell & Poth, 2018). Experts are often uniquely positioned to discuss ethical and practical implications in neuromarketing, such as data privacy, consumer consent, or potential misuse of psychological data. By integrating these perspectives, the article can address critical questions about the field's societal impact, aligning with broader ethical research standards (Kvale & Brinkmann, 2015).



Five professionals from the marketing field were interviewed through. For data protection, the experts name are excluded. The experts profile are as following:

- Female – Marketing Director
- Female – Operations Manager
- Male – University Professor in Marketing
- Male – University Professor in Marketing

**Age range:** 30 to 45 years

**Marketing experience:** 12 to 23 years

**Industries:** Vary from mobile applications, fashion, e-commerce, banking, to higher education

**Roles:** From Marketing Directors to General Managers and University Professors

## Results

This section will present a detailed analysis of the data collected from the sample, followed by its interpretation to draft the final results. The study is based on five responses obtained.

Neuromarketing strategies are widely regarded as essential for fostering an emotional connection with consumers, a sentiment unanimously agreed upon by respondents. A key aspect of neuromarketing is its distinction from traditional marketing approaches, as it focuses specifically on understanding emotional and brain responses to stimuli. To maximize its effectiveness, respondents emphasized the importance of establishing clear and personalized objectives, as well as identifying and addressing customer pain points.

The implementation of neuromarketing strategies should prioritize simplicity and speed, avoiding the pitfalls of overanalysis. Sensory strategies, in particular, play a vital role in transforming ordinary transactions into memorable experiences. However, the success of neuromarketing efforts must be underpinned by high-quality products and services to ensure sustained consumer trust and loyalty.

Practical applications of neuromarketing, such as the use of EEG, galvanic skin response (GSR), and eye-tracking technologies, have proven effective in optimizing advertising campaigns. These tools have demonstrated significant improvements in emotional response and visual attention to advertisements, enhancing their impact and resonance with target audiences.

In highly saturated markets, neuromarketing and sensory marketing have become indispensable for differentiating brands. By leveraging advanced technology, companies can enhance the precision and effectiveness of their strategies, ensuring a competitive edge in capturing and retaining consumer attention.

The interview analysis reveals a clear correlation on the importance and effectiveness of neuromarketing in modern marketing strategies. These tools not only enable a better understanding of consumers' emotional and cerebral reactions but also facilitate the creation of memorable and multisensory experiences that strengthen the emotional connection with the brand. To maximize their impact, it is essential for brands to establish clear objectives, personalize their campaigns, and support their strategies with high-quality products and services.



Interviews with marketing professionals revealed a broad consensus on the importance of neuromarketing as an essential tool for modern marketing strategies. The experts highlighted the following aspects:

- **Emotional connection with consumers:** These strategies enable brands to connect with consumers on an emotional level, creating lasting and meaningful experiences.
- **Understanding brain responses:** Neuromarketing focuses on understanding emotional and brain reactions to various stimuli, providing valuable insights for developing effective strategies.
- **Memorable experiences:** Neuromarketing seeks to create memorable experiences through the senses, positively influencing consumers' perception and purchasing decisions.

The interviewed professionals also provided recommendations for the effective implementation of these strategies. It is crucial to establish clear and tailored goals when implementing these strategies, considering the specific characteristics and needs of the target audience. Furthermore, understanding and addressing specific customer pain points is vital to offering innovative and effective solutions. Lastly, simplicity and promptness in implementation are recommended, especially for small and medium-sized enterprises, avoiding excessive perfectionism. Future research is recommended to further explore the practical application of neuromarketing and across various sectors and markets. Additionally, it is important to consider developing tools and methodologies that facilitate the implementation of these strategies for small and medium-sized enterprises. Neuromarketing offers a promising future for marketing, allowing companies to connect with consumers on a deeper level and create memorable shopping experiences that foster loyalty and long-term success. The use of neuromarketing techniques can enhance the effectiveness of marketing strategies by identifying the factors influencing purchasing decisions at a neurological level. The testimonies and examples provided confirm that neuromarketing is effective in better understanding consumers and improving marketing strategies.

## Conclusions

This research has focused on exploring and understanding neuromarketing strategies, as well as its impact on consumer behavior. Through comprehensive research, including a robust theoretical framework several significant conclusions have been drawn. The practical goal of this study was to provide companies with tools and knowledge to implement these techniques to enhance profitability. Firstly, it has been confirmed that neuromarketing is essential in modern marketing strategies. The professionals interviewed agreed that these techniques enable brands to connect emotionally with consumers in a deep and lasting way. Neuromarketing, centered on emotional and brain responses to various stimuli improve the consumer experience.

Additionally, it has been identified that neuromarketing significantly contributes to the success of marketing campaigns by providing a deeper understanding of consumers' subconscious motivations. Examples presented in the interviews demonstrate how optimizing advertising campaigns through neuromarketing tools can enhance emotional responses and visual attention, thereby increasing the effectiveness of marketing strategies.



Finally, in an increasingly saturated and competitive market, neuromarketing strategies have become indispensable for differentiating a brand from its competitors. Access to advanced technologies allows for precise measurement and analysis of consumers' emotional and sensory responses, enhancing the effectiveness of strategies and creating unique and memorable experiences that foster customer loyalty.

It is important to note the limitations encountered during this work. The lack of specialized equipment, such as eye tracking or EEG, hindered the development of more detailed neuromarketing experiments.

These limitations highlight the need for adequate technological resources to deepen the study of consumer behavior.

In conclusion, this study reaffirms the importance neuromarketing into contemporary marketing strategies. By understanding and applying this concept, brands can provide more enriching shopping experiences, strengthen emotional connections with their consumers, and stand out in a highly competitive market environment. With these tools, companies can not only improve their profitability but also build customer loyalty through unique and memorable shopping experiences.

### Conflict of interests

The authors declare no conflict of interest.

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## Appendix 1. In-depth interview questions

Your collaboration in completing this data will help us to better contextualize your answers and better understand your perspective as a professional in the area. Your answers will be treated confidentially and used for academic research purposes only.

Personal information:

- Name:
- Occupation:
- Age:
- Studies:
- Years of experience in the Marketing Area:
- Company or Institution you work for:

Your answers will be treated confidentially and used for academic research purposes only.

Let's begin the interview.

QUESTIONS:

1. From your perspective, what advice and recommendations would you offer to companies looking to implement neuromarketing strategies in their marketing campaigns?
2. How do consumers perceive sensory stimuli, such as aromas, sounds and colours, in their shopping experience? Can you identify any specific examples where you have observed a significant influence of these stimuli on consumer behaviour?
4. In your experience, do you think that the study of neuromarketing can help to better understand consumers' subconscious motivations and thus improve their marketing strategies? Can you provide any concrete examples of how neuromarketing has contributed to the success of a marketing campaign or strategy?
5. Considering the technological advances and the increasing competition in the market, do you think neuromarketing is an essential aspect of a brand's marketing strategy today? Why/why not?