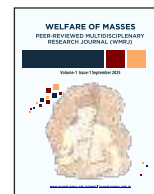




Welfare of Masses: Peer-Reviewed Multidisciplinary Research Journal (WMRJ)

Journal Website - www.journal.mmcc.edu.in/wmrj



Neuromarketing in the Age of Metaverse and Virtual Reality

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ARTICLE INFO

Article history:

Received 26 June 2025

Received in revised form
7 July 2025

Accepted 12 August 2025

Keywords:

Neuromarketing, Consumer
Behavior

ABSTRACT

This paper investigates the world of neuromarketing, exposing how major brands use neuroscience-based methods to manipulate consumer behaviour and emotion subconsciously. The story starts with Marie, who identifies as a "liberated woman," but doesn't realise that many of her choices, from skin cream to credit companies are made as a result of marketing strategies methodically built to trigger emotional response. These marketing methods tap into the subconscious brain, using technologies based on neuroscience such as eye tracking, electromyography and MRI brain scans to assess and manipulate consumer reaction. It will demonstrate how companies assess subtle emotional response using facial muscle movement or brain activity putting them in a position to optimise packaging, advertisements, product design and atmosphere including scent.

INTRODUCTION

The report extends beyond fast food, highlighting other sectors such as banking and transportation using neuromarketing to increase sales by influencing the "reptilian brain," the primal part of the brain that governs decision-making based on subconscious fears and desires. Ethical concerns arise over the covert nature of these methods and the manipulation of vulnerable groups, especially children. French law strictly limits the use of brain imaging for marketing purposes, yet evidence shows companies circumvent these rules in other countries. Interviews with neuromarketing experts, marketing executives, and critics underscore the tension between commercial success and consumer autonomy.

Ultimately, the video warns about the growing sophistication and secrecy of neuromarketing and challenges viewers to consider whether consumers can truly make free choices when their brains are targeted without their knowledge.

Literature Review

Neuromarketing emerged as a "sub-discipline" of neuroscience and marketing psychology to gain more insight into how consumer decisions are made. Foundational articles by Smidts (2002) and Morin (2011) were clear that consumers are often unable to describe their preferences in ways that extend beyond the workings of the genuine/preferred article they might be asked to compare against alternatives. Neuroscience, through the use of tools such as fMRI, has been able to show that, when consumers engage with brands, not only does a brain region associated with emotion become

activated, but the neural representation of reward in the participant's brain lights up as well—often before the participant even detected a preferred choice.

Several studies of individual brands, such as the New Coke case study, showed that emotional branding could be very powerful. New Coke was rated as a better product than Coke in taste tests yet ultimately failed because of consumer emotional attachment to the old brand. McClure et al. (2004) later confirmed that the emotive response of brand loyalty in the brain was superseding that of the sensory investigation of the preferred alternative.

Research Methodology

The research design for this project is qualitative and utilizes an approach relying on either literature synthesis or documentary analysis. The sources of data for this study are, in general terms:

Academic research papers related to neuromarketing and consumer neuroscience documentaries and visual ethnographies related to corporate neuromarketing Interviews with neuromarketing experts and critics, located in publicly available video documentaries. Regulatory documentation and case laws from France, the U.S., and other labs.

While this research does not include primary empirical data collection, it analyses and interprets secondary sources that have already been validated and contributes to thematic composition. The methodology takes account of the interpretivist paradigm in media and communication research.

Neuromarketing exploits subconscious brain regions to influence decisions:

Modern marketing goes beyond traditional advertising by tapping directly into the brain's reward and emotional centres. By measuring subtle physiological responses (e.g., muscle activity via electromyography or brain blood flow with fMRI), companies gain insights into unconscious reactions, allowing them to tailor marketing stimuli that trigger positive emotions and increase the likelihood of purchase without the consumer's awareness.

Eye-tracking uncovers hidden drivers of consumer attention and impulse buying:

The use of eye-tracking glasses in experimental stores highlights how consumers visually interact with products and packaging. This technology reveals that consumers often make snap decisions based on visual cues they barely notice, demonstrating how product placement, colour, and design are deliberately engineered to capture subconscious attention and prompt impulse buys.

McDonald's marketing strategy is a case study in lifelong brand loyalty cultivation:

Starting from early childhood, McDonald's targets children by incorporating toys into meals and creating memorable characters like Ronald McDonald. These tactics embed brand recognition and preference at a young age, which neuroscientific studies confirm shapes taste perception and emotional attachment to the brand. The company's use of neuromarketing techniques, such as scent diffusion and brain-imaging studies, further illustrates the sophisticated and covert means used to sustain consumer loyalty.

Scent marketing influences emotional responses and purchasing behaviour:

The video reveals that McDonald's and other companies experiment with artificial fragrances diffused subtly in their stores to evoke positive emotional reactions, which can increase sales by up to 7%. This method bypasses rational thought by directly stimulating the olfactory cortex and limbic system, areas linked to pleasure and memory, highlighting a sensory manipulation that consumers rarely realize.

Children's vulnerability to neuromarketing raises significant ethical concerns:

The marketing of toys and branded meals to children exploits their developmental inability to critically assess advertising, effectively conditioning them into lifelong consumers. Legal actions and bans on toys in meals by some cities underscore growing societal awareness of this issue, but the video shows that companies continue to use these tactics covertly or in regions with less regulation.

The "reptilian brain" drives most buying decisions, not the rational mind:

According to neuromarketing experts, the brain's primal

part—the reptilian brain—is the actual decision-maker in purchasing behaviour, reacting to fear and pain avoidance. The rational brain mainly justifies decisions after the fact. Understanding and targeting this part of the brain enables marketers to design strategies that bypass conscious resistance and stimulate purchasing impulses.

Legal and ethical boundaries around neuromarketing are blurred and contested:

In France, brain imaging for marketing is legally restricted to medical or scientific use, but companies have tested neuromarketing methods abroad. Corporate denials clash with documented evidence from academic researchers and marketing firms. The secretive nature of neuromarketing, combined with its powerful influence, raises critical questions about consumer autonomy, informed consent, and the role of regulation in protecting vulnerable populations.

Neuromarketing represents a profound evolution in the commercial manipulation of consumers. Unlike traditional marketing, which relies on conscious persuasion through messages and advertisements, neuromarketing delves into the subconscious brain regions where emotions and primal desires govern behaviour. By employing cutting-edge technologies such as MRI scans and electromyography, marketers quantify emotional responses with remarkable precision, enabling them to craft products, packaging, and even store environments that trigger specific neurological reactions.

The case of McDonald's is particularly instructive. The company's strategy targets children to secure brand loyalty early, with toys and engaging characters designed not just to entertain but to imprint the brand on young minds. Neuroscience confirms that this branding affects taste perception and emotional responses, making children prefer McDonald's products even when identical alternatives are offered. This early conditioning creates a lifetime customer base, raising ethical concerns about exploiting a vulnerable demographic.

Moreover, the use of scent marketing exemplifies how sensory manipulation can influence buying behaviour without conscious awareness. By diffusing subtle fragrances associated with positive emotions or memories, companies increase customer engagement and sales. This form of manipulation is powerful because the olfactory system is directly connected to the limbic system, bypassing rational decision-making processes.

The reptilian brain's role in decision-making further explains why neuromarketing is so effective. It governs instinctual responses to pain, fear, and reward and operates largely outside conscious control. Marketers who understand this can craft messages and experiences that appeal to these primal instincts, creating strong purchase motivations that consumers find difficult to resist or rationalize away.

Neuromarketing blurs the line between persuasion and manipulation, often without consumers' knowledge or consent. The covert nature of these techniques, combined with their deployment on children, raises questions about fairness, autonomy, and the responsibility of corporations. Legal

frameworks, such as those in France, restrict some practices, but enforcement and transparency remain challenges.

Furthermore, the paper highlights the tension between corporate interests and public accountability. While companies publicly deny using neuromarketing, evidence from neuroscientists and leaked documents suggests otherwise. This secrecy prevents informed consumer choice and impedes regulatory oversight.

Conclusion:

While it can enhance marketing effectiveness, it also poses profound ethical dilemmas about manipulation, autonomy, and the protection of vulnerable populations especially children. As this technology advances, public awareness, legal frameworks, and ethical standards must evolve to ensure that consumer rights are respected in the face of increasingly sophisticated marketing tactics.

It begins by highlighting a study where background music in a wine store swayed customers' wine choice, despite their denial of any influence. The discussion then delves into the famous New Coke failure, illustrating how strong emotional connections to a brand can override rational taste preferences. Neuroscience studies reveal that brand perception activates emotional and memory centres in the brain, shaping preferences beyond mere sensory input. This insight leads to the emergence of neuromarketing, a field combining neuroscience and marketing to better understand and leverage unconscious decision drivers. Examples from Google, Amazon, and energy consumption campaigns demonstrate how minor changes—like link colour, website speed, or emoticons—can dramatically affect consumer behaviour and business outcomes. The video also addresses common misconceptions about neuromarketing, emphasizing that it is not about mind-reading or brain scans but about understanding emotional influences on decision-making. Finally, it underscores the power of subtle cues, using a humorous example of a fly etched in airport urinals to reduce spillage by 80%, illustrating how small, science-driven interventions can create significant positive changes in behaviour and outcomes.

Unconscious sensory cues shape buying behaviour: The wine store music study reveals that shoppers' choices are swayed by ambient sounds without their conscious awareness. This shows that consumer decisions are not purely rational but are influenced by subtle environmental factors. Marketers can harness such cues to guide purchasing behaviour effectively.

The closing stories about energy conservation and airport urinals illustrate that neuromarketing principles extend beyond retail and advertising. They can positively influence social behaviours, sustainability efforts, and public health. By understanding how small, unconscious nudges work, policymakers and businesses can design interventions that improve lives and environments without heavy-handed mandates.

Consumer decisions are far more influenced by unconscious emotions, subtle environmental cues, and social factors than we realize. The failure of New Coke, the success stories from Google and Amazon, and behavioural nudges in energy

consumption and public hygiene all illustrate the profound power of neuromarketing insights. By embracing this science-backed approach, marketers and decision-makers can better connect with consumers, optimize experiences, and create meaningful change through small but effective interventions. Recognizing and respecting the unconscious drivers of choice empowers us to make wiser decisions and design better products and services, ultimately benefiting society at large.

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