



## Biological Aspects in Consumer Behaviour

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**ABSTRACT:** Understanding consumer behaviour is crucial for developing effective marketing strategies. Traditionally, this understanding has been grounded in psychological and socio-cultural factors. However, recent research highlights the significant role of biological constructs in shaping consumer preferences and decisions. This article explores three primary biological constructs influencing consumer behaviour: genetic predispositions, neurobiological processes, and physiological responses. Genetic predispositions impact individual preferences and behaviours, with studies showing strong heritable influences on activities such as mobile phone usage and consumer preferences. Neurobiological processes, explored through techniques like fMRI, provide insights into how the brain processes marketing stimuli, leading to more targeted marketing strategies. Physiological responses, such as variations in heart rate and pupil dilation, reveal subconscious consumer reactions, enabling marketers to gauge emotional impact more accurately. Integrating these biological constructs into marketing strategies offers a holistic understanding of consumer behaviour, enhancing the effectiveness of marketing efforts and driving consumer decision-making.

**Keywords:** Consumer behaviour, biology, genetic predispositions, neurobiological influences and personalised responses.

### INTRODUCTION

Consumer behaviour, traditionally is viewed through the lenses of psychology and sociology, has seen an emerging interest in the biological foundations that reinforce the decision-making processes (Bakshi, 2012). This intersection between biology and consumer behaviour explores how genetic, neurobiological and physiological factors contribute to the way consumers perceive, interact with and respond to different marketing stimuli (Griskevicius & Kenrick 2013). For instance, neuroimaging techniques such as Functional magnetic resonance imaging (fMRI) have provided insights into how certain advertisements activate specific areas of the brain associated with pleasure and reward, influencing subsequent purchasing decisions. Study by Chang *et al.*, (2016) report that fMRI results suggest that advertising featuring celebrities is linked to increased activation in brain regions involved in memory retrieval, indicating how consumers recall the advertisement and are impacted by the celebrity's appeal. In contrast, advertisements without celebrities appear to activate areas of the brain associated with self-reflection and the execution of executive functions (Hubert, 2010; Harris, 2018).

The study of the biological aspects of consumer behaviour represents a flourishing research area that bridges biology with economic decision-making (Kenning *et al.*, 2007; Saad, 2007; Edunuri Santhoshi *et al.*, 2022). This interdisciplinary approach focuses on how biological factors—such as genetic predispositions, neurobiological processes and physiological responses—influence consumer actions and preferences. By employing advanced techniques like functional magnetic resonance imaging (fMRI) to observe brain activity, researchers can identify which areas of the brain are activated during different stages of the purchasing process (Reimann, *et al.*, 2011). Similarly, genetic analysis helps to understand how inherited traits might affect behaviours like product choice and brand loyalty. This deeper insight allows marketers to tailor their strategies more effectively by aligning them with the innate tendencies and subconscious processes of consumers, potentially leading to more effective marketing strategies and product designs that resonate on a more personal and instinctual level with consumers.

### **Primary biological constructs influencing consumer behaviour**

There are three primary constructs influencing consumer behaviour. They are genetic predisposition, neurobiological processes and psychological response.

**Genetic Predispositions.** Genetic predispositions, which are inherent genetic factors, may influence individual preferences or behaviour such as specific tastes or reactions to marketing, impacting consumer choices and brand loyalty. Research into the integration of behavioural genetics with consumer behaviour, especially concerning technology use like mobile phones—which are globally ubiquitous—highlights a significant gap. A study focusing on Australian teenage twins analysed self-reported mobile phone usage alongside intelligence and personality traits. The findings revealed that genetic factors significantly influence the frequency of activities like voice calling and texting. Heritability estimates were 0.60 and 0.34 for voice calls and 0.53 and 0.50 for texting across two different samples, indicating that environmental factors such as family background and socio-economic status have a lesser impact. Also, the study found negative genetic correlations between communication frequency and intelligence and positive correlations with extraversion, challenging the traditional view that consumer behaviour is primarily shaped by cultural, media and environmental influences (Miller *et al.*, 2012).

Extending beyond environmental and psychological frameworks, much of the research in consumer behaviour has historically ignored the genetic underpinnings that guide consumer decision-making processes. Addressing this gap, Simonson and Sela (2010) conducted a ground-breaking study using a twin design to explore the genetic bases of consumer judgments and choices. Their findings show strong heritable influences on various consumer preferences, including compromise decisions, sure gains and utilitarian choices, which starkly contrast with non-heritable factors such as judgment heuristics and discounting behaviour. This research significantly advances our understanding by demonstrating that genetic factors are intricately linked to specific consumer behaviours, countering the long-held belief that consumer choices are predominantly driven by cultural and environmental factors.

**Neurobiological Processes.** Neurobiological processes refer to how the brain's structure and function influence the processing of marketing stimuli. Techniques such as functional Magnetic Resonance Imaging (fMRI) are instrumental in identifying how brain areas responsible for emotions, memory and decision-making respond to various advertising forms. The emerging field of neuroeconomics integrates neuroscience with economics to investigate economic behaviour. A specialised branch, consumer neuroscience—also known as neuromarketing—applies these neurological insights to marketing challenges. This approach uses advanced neurological techniques to delve into consumer decision-making processes, metaphorically described as exploring the "black box" of human

cognition. While still nascent, consumer neuroscience aims to complement traditional consumer research by providing a deeper understanding of behaviour (Hubert & Kenning 2008).

Neurobiological processes are crucial for grasping consumer behaviour, offering insights into decision-making and responses to marketing stimuli. With advancing technology, researchers utilise sophisticated neuroscientific tools to observe and analyse brain activity related to sensory perceptions and decision-making in real-world scenarios. Methods include measuring cerebral electrical activity, hemodynamic responses, eye movements and psychometric evaluations to uncover the emotional and cognitive dynamics influencing consumer choices. These neuroscientific approaches have deepened our understanding of brain region activation in response to marketing stimuli, equipping marketers and researchers with valuable information on which elements effectively engage attention, evoke emotional responses and influence purchasing decisions. This integration of neuroscience and consumer research, commonly referred to as neuromarketing, leverages biological bases of behaviour to develop marketing strategies that better align with the subconscious preferences and biases of consumers (Cherubino *et al.*, 2019).

**Physiological Responses.** Physiological responses play a crucial role in understanding consumer behaviour, particularly in how individuals react to marketing stimuli. These responses are involuntary and occur automatically in the body, providing valuable insights into consumer reactions that might not be explicitly expressed. Examples of such physiological responses include variations in heart rate, sweating and pupil dilation. These reactions can occur when a consumer is exposed to different aspects of marketing, such as an advertisement, a product display or even the overall shopping environment (Vila-López & Küster-Boluda 2019).

The significance of these physiological responses lies in their ability to reveal the underlying emotions and engagement levels of consumers. For instance, an increase in heart rate or pupil dilation may indicate excitement or interest, whereas increased sweating could signify nervousness or stress. Understanding these responses can help marketers gauge the emotional impact of their campaigns and strategies. By measuring such physiological indicators, companies can gain deeper insights into the aspects of their marketing that effectively capture attention and evoke emotional responses, thereby influencing decision-making and purchasing behaviour (Chamberlain & Broderick 2007). The analysis of these involuntary responses allows marketers to make more informed decisions about how to structure their marketing messages and products. It provides a layer of understanding that goes beyond traditional methods of consumer feedback, such as surveys or focus groups, which rely on self-reporting and may not always capture unconscious or pre-conscious reactions. As a result, integrating physiological data into consumer analysis can lead to more effective marketing strategies that are finely tuned

to elicit the desired emotional and physical responses, ultimately driving consumer behaviour and enhancing purchasing decisions (Money & Agius 2009).

## DISCUSSION

As identified by Shaw & Bagozzi (2018) neurobiological processes offer deep insights into how consumers process and respond to marketing stimuli. Using techniques like fMRI, marketers can study brain activity to understand which types of advertisements elicit strong emotional and cognitive responses. This information can guide the creation of marketing content that triggers desired reactions. For example, if research shows that visual stimuli with specific colours or imagery activate areas of the brain associated with pleasure and memory, marketers can incorporate these elements into their advertisements. Also, understanding the neurological basis for decision-making can help in designing messages that appeal to both rational and emotional aspects of consumer behaviour.

Measuring physiological responses such as heart rate, pupil dilation, and sweating provides real-time insights into consumer reactions (Alvino *et al.*, 2020). Marketers can use this data to refine their strategies dynamically. For instance, by conducting biometric studies where participants are exposed to different marketing materials, companies can identify which ads provoke the strongest positive physiological responses. This real-time feedback can help marketers tweak their campaigns to maximize emotional impact and engagement. Moreover, physiological data can be used to optimize the timing and placement of advertisements, ensuring they reach consumers at moments when they are most receptive.

Combining genetic, neurobiological, and physiological insights enables the formulation of holistic marketing strategies. For example, a campaign could be designed to target genetically predisposed preferences while using neurobiological data to craft emotionally engaging messages and physiological feedback to optimize ad delivery. This multi-faceted approach ensures that marketing efforts are aligned with the subconscious drivers of consumer behaviour, leading to more effective and resonant campaigns. Companies can develop comprehensive customer profiles that include genetic predispositions, neurobiological triggers, and physiological responses to predict and influence consumer behaviour more accurately.

## CONCLUSIONS

Integrating genetic predispositions, neurobiological processes, and physiological responses into the study of consumer behaviour represents a significant advancement in the field. These biological constructs provide a deeper and more nuanced understanding of consumer behaviour, challenging traditional views that primarily emphasize cultural and environmental factors. By considering genetic influences, marketers can better predict and influence consumer preferences and decisions. Neurobiological insights reveal the cognitive and emotional mechanisms underlying decision-making, allowing for more precise and effective

marketing strategies. Physiological responses offer real-time data on consumer reactions, capturing subconscious and involuntary reactions that traditional feedback methods might miss. This comprehensive approach enables marketers to align their strategies more closely with the subconscious drivers of consumer behaviour, ultimately enhancing brand loyalty and driving sales. Leveraging these biological insights will lead to more effective and targeted marketing efforts, providing a competitive edge in understanding and influencing consumer behaviour.

## FUTURE SCOPE

The exploration of biological constructs in consumer behaviour opens numerous avenues for future research. One significant area is the integration of genetic studies with broader consumer demographics and diverse cultural backgrounds to understand how genetic predispositions influence consumer behaviour globally. Expanding the research to include different age groups and social strata can provide a more comprehensive picture of the genetic factors at play. Additionally, advancements in neuroimaging and other neurobiological techniques offer the potential for more detailed mapping of brain activities in response to varied marketing stimuli. Future studies could investigate the long-term effects of repeated exposure to specific types of advertising on brain structure and function. Another promising direction is the examination of physiological responses in real-world settings, utilizing wearable technology to gather continuous data on consumer reactions to marketing stimuli in natural environments. Moreover, interdisciplinary research combining behavioural genetics, neuroeconomics, and consumer neuroscience could yield deeper insights into how these biological factors interact with each other and with traditional socio-cultural influences. This holistic approach can lead to the development of more sophisticated models predicting consumer behaviour, ultimately refining marketing strategies and enhancing their effectiveness.

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