

Looking at Consumer Behavior and Decision-Making from the Point of View of Neuromarketing

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ABSTRACT

Business revolves around marketing, and marketing's principal function is to disseminate the company's offerings to consumers. However, the failure of some marketing strategies can be traced back to the designers' disregard for buyers' underlying mental processes at the time of purchase. This is due to the fact that when customers spend money, their conscious mind focuses on the known object, but they have no idea why they are doing it. Since just around 10% of the brain is responsible for making decisions, most of the money marketers spend goes to waste. This paper's goals are to summarize the existing research on Neuromarketing as it relates to consumer behavior. In this work, we examine research on consumer habits that follows the guidelines of Neuromarketing. Marketers need a reliable approach to deduce consumers' true motivations before making any claims about their products. Neuromarketing is a cutting-edge technique for researching how marketing influences consumers' decisions without them even realizing it. Using neuromarketing, businesses will gain insight into their customers' habits that was previously unavailable. Consumers' actions and choices can be verified, reshaped, and enhanced through the use of neuromarketing.

KEYWORDS: Consumer Behavior, Decision Making, Neuromarketing and Subconscious

1. Introduction

Consumer behavior plays a pivotal role in the field of marketing and serves as a fundamental element in the development and implementation of marketing strategies. The significance of the relationship between consumer behavior and marketing strategy lies in the fact that the efficacy of marketing strategies is contingent upon a comprehensive comprehension of consumer behavior. The examination of consumer behavior involves the observation of individuals as they engage in the various stages of the purchasing decision-making process, starting from the initial search for information and culminating in the actual purchase. It also includes customers' reflections on purchases made, with the goal of providing useful information to businesses as they work to better satisfy customers' wants and needs (Alzoubi, 2022). All marketing choices are based on forecasts of consumer behavior, which is an inherently uncertain process due to the dynamic nature of the client base. A wide range of disciplines, from anthropology and sociology to psychology and, more recently, neuroscience, have drawn on studies of consumer behavior to better understand how people react to diverse marketing messages.

Hence, it is imperative to examine the conduct of consumers. A primary focal point inside the field of consumer behavior revolves around the examination of how consumers formulate, modify, and execute their decision-making approaches (Song et al., 2021). Understanding consumer behavior is crucial for achieving success in business (Han, 2021). It involves gaining insights into customers’ decision-making processes and using this knowledge as a determinant of success. In recent decades, numerous scholars, including Sabbir & Taufique (2021), have characterized consumer behavior as the examination of individuals or collectives and the cognitive, affective, and behavioral mechanisms they employ to choose, acquire, utilize, and discard goods or services in order to fulfill their needs and desires. In order to enhance their marketing strategies, organizations can achieve more success by comprehending customer behavior in the decision-making process. This understanding enables companies to effectively implement various tactics, including product development, product design, advertising, and other initiatives, which are aimed at attracting and engaging customers.

2. Literature Review

The cognitive process of decision making is considered to be a fundamental aspect of human behavior (Burton et al., 2019). An important aspect of consumer behavior pertains to the development, adaptation, and utilization of decision-making techniques by consumers (Song et al., 2021). Hence, comprehending the decision-making process of customers can enhance the efficacy of marketing methods employed by organizations, including but not limited to product creation, product design, advertising, and various other initiatives aimed at attracting consumers. According to Wattanacharoensil & La-ornual (2019), the concept of consumers’ decision making pertains to the cognitive processes involved in the evaluation and selection of one among multiple available actions. In order to gain a deeper understanding of customers’ decision-making processes, it is imperative for researchers and marketers to delve into the core of human cognition, which resides within the brain (Bender, 2019).

The investigation of consumers' decision-making processes has garnered significant attention from researchers over an extended period of time. Numerous studies have been conducted to explore this subject matter. Table 2.1 presents a comprehensive overview of the discipline of decision making across several domains, as documented by Peighambari, Sattari, Kordestani, and Oghazi (2016).

Table 2.1: Article Type in the Field of Decision Making

Topic category	Number of articles	%
Internal		
Attitude	14	11.5
s	5	2.9
Attributi	36	0.9
on	11	1.3
Belief-expectancy	16	2.3
modelsCognitive	29	1.0
Information	12	0.8
processing	10	1.4
Involvement	17	1.3
Learning	16	12.0

Life style	15	1.0
Motivation	1	3.3
Perception	12	2.5
Personality	42	
Physiological	31	
Values/beliefs		
Purchase Process		
Brand	78	6.2
awareness/loyalty	74	5.9
Choice	46	3.7
Evaluation	41	3.3
Post-purchase	60	4.8
Purchase decision process	36	2.9
Search for information		
External		
Communications	57	4.5
Consumers	18	1.5
socialization	32	2.6
Culture	32	2.6
Demographics	7	0.6
Family decision	24	2.0
process	13	1.1
Group influences	16	0.3
Innovators/innovations	49	3.9
Opinion	22	1.8
leaders	7	0.6
Persuasion	10	0.8
Segmentation		
Situation		
Social stratification		
Miscellaneous		
Consumerism	17	1.4
General	6	0.5
Models	41	3.4
Preference	22	1.8
Public	11	0.9
policy	16	0.3
Store patronage		

Source: Peighambari et al. (2016)

According to research published in five prestigious international journals (the Journal of Advertising, the Journal of Advertising Research, the Journal of Consumers Research, the Journal of Marketing, and the Journal of Marketing Research), articles exploring the factors that influence consumers' purchasing decisions focus primarily on one concept: "Perception." Subsequently, Attitudes emerged as the second most frequently studied topic, comprising 11.5% of the articles. Lastly, Brand awareness and loyalty constituted the third most prevalent subject, encompassing 6.2% of the articles. However, the domain of cognitive studies exhibits a dearth of scholarly attention in the leading five worldwide journals within this discipline. These factors will enhance the appeal and contribute to the advancement of research in the field of consumer decision making from a cognitive standpoint. Hence, it is imperative to acknowledge the cognitive processes underlying customers' decision-making behavior, specifically those occurring at the subconscious level.

3. DECISION MAKING FROM A COGNITIVE PERSPECTIVE

The cognitive process of decision making is considered to be a fundamental aspect of human behavior (Burton et al., 2019). According to Vadillo et al., (2021), the term "cognitive" refers to the subconscious mental processes that occur in customers' thoughts, operating outside their conscious awareness. Cognitive processes play a crucial role in assessing the interplay between the brain and the mind (Hawes & Ansari, 2020). Research by Sofi et al., (2020) and Meinert & Krämer, (2022) lend credence to the idea that consumer decision-making is a cognitive process. Researchers and businesses who want to learn more about consumers' decision-making processes must focus on the brain's central processing region. Many unconscious mental operations are responsible for this occurrence Mikkelsen et al., (2020). Therefore, the human brain is the site of the primary subconscious processes.

The process of decision-making involves the initial formation of decisions within the subconscious mind, which then become accessible to the conscious mind. It is widely acknowledged that the subconscious mind possesses a greater degree of influence and potency compared to the conscious mind. According to Weinberger (2020), the conscious mind is responsible for predicting behavior that is short-term in nature and has a restricted temporal and contextual scope. In contrast, the subconscious mind operates beyond the constraints of time and evaluates both spontaneous actions and those with long-term implications.

The majority of businesses and consumers concur that purchasing decisions frequently hinge upon factors such as pricing, brand trust, and recommendations from acquaintances and relatives. However, according to consumer study conducted by Luoma & Martela (2020), it has been found that consumers' decision-making processes originate from a more profound level, namely the subconscious level. In the majority of instances, companies tend to identify consumer awareness predominantly, while paying limited attention to consumer subconscious cognition. It is imperative for companies to possess a comprehensive understanding of consumers' behavior as it enables the identification and anticipation of consumer purchasing patterns within the marketplace. For several decades, companies have relied on conventional marketing tools, including self-report surveys, experiments, and focus groups, to comprehend consumer behavior and the factors influencing their purchasing decisions. These methods have been employed to analyze consumer responses, draw inferences about their behavior, and inform marketing strategies aimed at enhancing brand development. Primarily, the corporation tends to focus on understanding the conscious cognitive processes of consumers, while paying limited attention to their subconscious cognitive processes. When consumers make purchasing decisions, their conscious mind tends to focus on familiar

items, although they may lack awareness of the underlying reasons for their spending behavior. The subconscious mind is known to have a significant influence in this context. The foundation that underlies consumers' decision-making processes is primarily rooted in their subconscious thoughts.

Researchers and marketers can address these issues by gauging consumers' unconscious responses to marketing stimuli (Michael et al., 2019; Ozkara & Bagozzi, 2021). Since consumers' decisions are typically made at the subconscious level (De Luca & Botelho, 2019; Zollo, 2020), deciphering their minds can be challenging for marketers. Often referred to as the "black box," a customer's subconscious mind plays a pivotal role in that person's final purchasing choice. Bender (2019) claims that roughly 95% of decision making is performed automatically in the background. As a result, it is possible to learn what influences customers' decisions at the deepest level of their consciousness. For one thing, knowing how consumers' minds work allows one to pinpoint the external triggers that will prompt the desired purchasing behavior. Vadillo et al., (2021) argues that in order to minimize product failures, increase customer loyalty, and optimize revenues, managers must get an understanding of both conscious and subconscious processes. According to Singh et al., (2020), empirical evidence supports the significance of the subconscious mind in influencing customers' behavioral preferences throughout decision-making processes. However, a significant number of firms neglect to assess the subconscious realm as conventional marketing strategies primarily focus on measuring conscious reflections rather than subconscious factors. The most effective method for assessing the subconscious mind is through the utilization of the neuromarketing strategy, as suggested by Nilashi et al., (2020). This phenomenon is evident in the scientific community, where a significant number of researchers are focused on studying and analyzing the impact of emotions on consumer behavior at a subconscious level.

Kageyama et al., (2019) research shows that measuring customers' unconscious thoughts is difficult with traditional research techniques. This is mostly because survey and observation methods predominate in the field of behavioral sciences. Despite this, many businesses fail to evaluate the subconscious because they stick to tried-and-true marketing strategies that focus on the conscious mind. It has been common practice to use conventional research methods in order to accurately identify customer behavior and improve comprehension of behavioral patterns. Nevertheless, a significant drawback of the conventional market research instrument lies in its reliance on consumers to provide candid feedback, without taking into account their subconscious responses. Understanding the subconscious response of consumers is of significant importance, as a failure to do so by marketers can result in financial setbacks.

The most effective method for assessing the subconscious mind is through the utilization of the neuromarketing methodology (Nilashi et al., 2020). This phenomenon is evident in the scientific community, as a significant number of researchers are engaged in studying and analyzing the impact of emotions on consumer behavior at the subconscious level (Bočková et al., 2021). Neuroscientific methodologies have been recognized for their capacity to enhance comprehension of subconscious factors that impact human behavior, specifically in relation to behaviors that are viewed as risky (Iloka & Onyeke, 2020).

4. PERSPECTIVES ON DECISION MAKING FROM THE FIELD OF NEUROMARKETING

According to Nilashi et al., (2020), neuromarketing employs cutting-edge brain scanning techniques to get insights into the cognitive processes underlying consumer buying behavior. Table 2.7 provides a

comprehensive overview of the existing body of knowledge pertaining to the relationship between neuromarketing and decision making.

Table 2: Research on the effects of neuromarketing on consumer choice

Author		Objective	Results
Isiaho & Yona, (2021)	Choices between diverse products, fMRI	Can neural correlates be identified to assess the appeal of a product?	The utilization of products as symbols of affluence and social standing is associated with increased neural activity in brain regions responsible for processing rewards.
Konuk, (2021)	Choosing between different brands and products and how you feel about the taste of them, fMRI	To what extent does brand information impact the perception of flavor in sensory comparable products?	The ingestion of a soft drink activates different locations depending on the brand information provided to the test subject. When consumers perceive the beverage as their preferred brand, regions associated with reward are stimulated.
Sari, (2023)	Choice among various labels, fMRI	Is there a neural basis for using brand knowledge as a decision-making framework, and if so, what are the implications?	In instances where trustworthiness is uncertain, the presence of brand information exerts a significant impact on the process of decision-making, leading to increased appeal in domains such as decision-based incentives.
Khenfer & Cuny, (2020)	Choice between various service brand names, fMRI	To what extent do information asymmetries impact the brain mechanisms underlying the favorite brand effect?	Specifically, when faced with ambiguous choices, individuals tend to exhibit a preference for a certain brand, which then triggers the activation of brain regions associated with the incorporation of incentives into the decision-making process.

Isiaho & Yona, (2021) conducted a study wherein twelve people were examined using functional magnetic resonance imaging (fMRI) while seeing photos of different car types. The findings of this study indicate that sports cars were perceived as significantly more appealing compared to modest cars and limos. These findings provide evidence that objects that serve as symbols of wealth and prestige elicit increased neural activity in brain regions associated with reward processing. The application of neuromarketing was also observed in a well-known study conducted by Garczarek-Bak et al. (2021), which examined how brand information can alter the perception of flavor in products that are very identical. In this study, the authors focused on the similarities in structure between Coke and Pepsi, both of which exhibit strong behavioral preferences among consumers. Nasirpouri Shadbad & Biros, (2021) did a study wherein they posited that in order to exhibit adaptable behavior, individuals must assess the importance of various environmental

inputs. Their findings indicated that the medial prefrontal cortex also plays a crucial role in the process of decision-making. Nilashi et al. (2020) assert that scholars employ brain imaging techniques to elucidate the underlying reasons and mechanisms behind consumers' responses to stimuli, as well as to identify the specific brain regions that drive their behavioral tendencies.

Based on prior research, there exists a possibility of uncovering the subconscious mechanisms that influence consumers' decision-making processes. This exploration has the potential to unveil concealed insights into consumer behavior that cannot be accessed through conventional marketing approaches (Hawes & Ansari, 2020; Nilashi et al., 2020). According to Lou, (2021), the conventional view of consumers as entirely rational beings has been challenged. This is because emotions, subconscious thoughts, and automatic processes are now recognized as significant factors in shaping consumer behavior. This understanding is rooted in the perception of a brand, as highlighted by Sweiss et al., (2021). Therefore, disregarding emotions will result in an inadequate comprehension of consumer behavior.

5. CONCLUSION

This paper provides a comprehensive overview of the field of semantics in relation to the study of customer behavior within the context of neuromarketing. Neuromarketing has the capacity to illustrate the direct influence of emotional stimuli on consumer cognition, hence demonstrating the purported impact of such stimuli on information acquisition. Traditional marketing research principles are based on consumer knowledge, encompassing rationality, economic logic, and compatibility. It also measures the consumers' propensity and motivation to disclose their innermost thoughts and activities. Companies need to reduce their reliance on traditional marketing tactics if they want to acquire reliable consumer feedback. Marketers need to successfully interact with the customer's subconscious mind in order to gain accurate product ratings. As a result, neuromarketing should be used. Neuromarketing is a field that uses a wide range of methods to analyze and extrapolate from customers' emotional and mental reactions to advertising. Neuromarketing shows promise in showing the coexistence of emotion and rationality, which is crucial for capturing the emotional components that drive client wishes or actions. In conclusion, the breadth of neuromarketing in Malaysia is quite narrow, calling for more research into the topic from a larger pool of experts.

REFERENCES

1. Alzoubi, H. (2022). Does BLE technology contribute towards improving marketing strategies, customers' satisfaction and loyalty? The role of open innovation. *International Journal of Data and Network Science*, 6(2), 449–460. <http://m.growingscience.com/beta/ijds/5238-does-ble-technology-contribute-towards-improving-marketing-strategies-customers-satisfaction-and-loyalty-the-role-of-open-innovation.html>
2. Bender, A. (2019). The Role of Culture and Evolution for Human Cognition. *Topics in Cognitive Science*, 12(4). <https://doi.org/10.1111/tops.12449>
3. Bočková, K., Škrabánková, J., & Hanák, M. (2021). Theory and Practice of Neuromarketing: Analyzing Human Behavior in Relation to Markets. *Emerging Science Journal*, 5(1), 44–56. <https://doi.org/10.28991/esj-2021-01256>
4. Burton, J. W., Stein, M., & Jensen, T. B. (2019). A systematic review of algorithm aversion in augmented decision making. *Journal of Behavioral Decision Making*, 33(2). <https://doi.org/10.1002/bdm.2155>

5. De Luca, R., & Botelho, D. (2019). The unconscious perception of smells as a driver of consumer responses: a framework integrating the emotion-cognition approach to scent marketing. *AMS Review*, *11*(1-2). <https://doi.org/10.1007/s13162-019-00154-8>
6. Garczarek-Bąk, U., Szymkowiak, A., Gaczek, P., & Disterheft, A. (2021). A comparative analysis of neuromarketing methods for brand purchasing predictions among young adults. *Journal of Brand Management*, *28*(2), 171–185. <https://doi.org/10.1057/s41262-020-00221-7>
7. Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: a review of theories, concepts, and latest research. *Journal of Sustainable Tourism*, *29*(7), 1–22. <https://doi.org/10.1080/09669582.2021.1903019>
8. Hawes, Z., & Ansari, D. (2020). What explains the relationship between spatial and mathematical skills? A review of evidence from brain and behavior. *Psychonomic Bulletin & Review*, *27*(3), 465–482. <https://doi.org/10.3758/s13423-019-01694-7>
9. Isiaho, J., & Yona, L. (2021). The Effect of Market Power on Bank Spread in a Diversified Product Portfolio: The Case of Commercial Banks in Kenya. *Journal of Economics and Sustainable Development*, *12*(14), 109. <https://iiste.org/Journals/index.php/JEDS/article/view/56849>
10. Kageyama, T., Kawata, S., Kawashima, R., & Sugiura, M. (2019). Performance and Material-Dependent Holistic Representation of Unconscious Thought: A Functional Magnetic Resonance Imaging Study. *Frontiers in Human Neuroscience*, *13*. <https://doi.org/10.3389/fnhum.2019.00418>
11. Khenfer, J., & Cuny, C. (2020). Brand preference in the face of control loss and service failure: The role of the sound of brands. *Journal of Retailing and Consumer Services*, *55*, 102132. <https://doi.org/10.1016/j.jretconser.2020.102132>
12. Konuk, F. A. (2021). The moderating impact of taste award on the interplay between perceived taste, perceived quality and brand trust. *Journal of Retailing and Consumer Services*, *63*, 102698. <https://doi.org/10.1016/j.jretconser.2021.102698>
13. Lou, C. (2021). Social Media Influencers and Followers: Theorization of a Trans-Parasocial Relation and Explication of Its Implications for Influencer Advertising. *Journal of Advertising*, *51*(1), 1–18. <https://doi.org/10.1080/00913367.2021.1880345>
14. Luoma, J., & Martela, F. (2020). A dual-processing view of three cognitive strategies in strategic decision making: Intuition, analytic reasoning, and reframing. *Long Range Planning*, *54*(3), 102065. <https://doi.org/10.1016/j.lrp.2020.102065>
15. Meinert, J., & Krämer, N. C. (2022). How the expertise heuristic accelerates decision-making and credibility judgments in social media by means of effort reduction. *PLOS ONE*, *17*(3), e0264428. <https://doi.org/10.1371/journal.pone.0264428>
16. Michael, I., Ramsay, T., Stephens, M., & Kotsi, F. (2019). A study of unconscious emotional and cognitive responses to tourism images using a neuroscience method. *Journal of Islamic Marketing*, *10*(2), 543–564. <https://doi.org/10.1108/jima-09-2017-0098>
17. Mikkelsen, E. N., Gray, B., & Petersen, A. (2020). Unconscious Processes of Organizing: Intergroup Conflict in Mental Health Care. *Journal of Management Studies*, *57*(7). <https://doi.org/10.1111/joms.12611>
18. Nasirpouri Shadbad, F., & Biros, D. (2021). Understanding Employee Information Security Policy Compliance from Role Theory Perspective. *Journal of Computer Information Systems*, *61*(6), 1–10. <https://doi.org/10.1080/08874417.2020.1845584>

19. Nilashi, M., Yadegaridehkordi, E., Samad, S., Mardani, A., Ahani, A., Aljojo, N., Razali, N. S., & Tajuddin, T. (2020). Decision to Adopt Neuromarketing Techniques for Sustainable Product Marketing: A Fuzzy Decision-Making Approach. *Symmetry*, 12(2), 305. <https://doi.org/10.3390/sym12020305>
20. Ozkara, B. Y., & Bagozzi, R. (2021). The use of event related potentials brain methods in the study of Conscious and unconscious consumer decision making processes. *Journal of Retailing and Consumer Services*, 58, 102202. <https://doi.org/10.1016/j.jretconser.2020.102202>
21. Sabbir, Md. M., & Taufique, K. M. R. (2021). Sustainable employee green behavior in the workplace: Integrating cognitive and non-cognitive factors in corporate environmental policy. *Business Strategy and the Environment*, 31(1), 110–128. <https://doi.org/10.1002/bse.2877>
22. Sari, A. R. (2023). The Impact of Good Governance on the Quality of Public Management Decision Making. *Journal of Contemporary Administration and Management (ADMAN)*, 1(2), 39–46. <https://doi.org/10.61100/adman.v1i2.21>
23. Singh, S., Mondal, S., Singh, L. B., Sahoo, K. K., & Das, S. (2020). An Empirical Evidence Study of Consumer Perception and Socioeconomic Profiles for Digital Stores in Vietnam. *Sustainability*, 12(5), 1716. <https://doi.org/10.3390/su12051716>
24. Sofi, S. A., Mir, F. A., & Baba, M. M. (2020). Cognition and affect in consumer decision making: conceptualization and validation of added constructs in modified instrument. *Future Business Journal*, 6(1). <https://doi.org/10.1186/s43093-020-00036-7>
25. Song, H., Ruan, W. J., & Jeon, Y. J. J. (2021). An integrated approach to the purchase decision making process of food-delivery apps: Focusing on the TAM and AIDA models. *International Journal of Hospitality Management*, 95(1), 102943. <https://doi.org/10.1016/j.ijhm.2021.102943>
26. Sweiss, N., Obeidat, Z. M., Al-Dweeri, R. M., Mohammad Khalaf Ahmad, A., M. Obeidat, A., & Alshurideh, M. (2021). The moderating role of perceived company effort in mitigating customer misconduct within Online Brand Communities (OBC). *Journal of Marketing Communications*, 26(6), 1–24. <https://doi.org/10.1080/13527266.2021.1931942>
27. Vadillo, M. A., Malejka, S., Lee, D. Y. H., Dienes, Z., & Shanks, D. R. (2021). Raising awareness about measurement error in research on unconscious mental processes. *Psychonomic Bulletin & Review*, 29(1), (21-43). <https://doi.org/10.3758/s13423-021-01923-y>
28. Wattanacharoensil, W., & La-ornual, D. (2019). A systematic review of cognitive biases in tourist decisions. *Tourism Management*, 75, 353–369. <https://doi.org/10.1016/j.tourman.2019.06.006>
29. Zollo, L. (2020). The Consumers' Emotional Dog Learns to Persuade Its Rational Tail: Toward a Social Intuitionist Framework of Ethical Consumption. *Journal of Business Ethics*, 168(2). <https://doi.org/10.1007/s10551-019-04420-4>