National Research Journal of Sales & Marketing Management
Volume No: 9, Issue No: 2, Year: 2022 (July-December)
PP: 1-12
ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

CONSUMER BEHAVIOR IN THE DIGITAL AND NEURO-MARKETING ERA: A THEORETICAL INTEGRATION

Bhanu Pratap Sharma

Student
MBA, Vivekananda Global University, Jaipur, India
21MGT3MB016@vgu.ac.in, (2021-22)

Govind

Student
MBA, Vivekananda Global University, Jaipur, India
21MGT3MB017@vgu.ac.in, (2021-22)

ABSTRACT

This study explores consumer behavior in the digital and neuromarketing era by integrating insights from digital marketing analytics and neuroscience. The research aims to understand how digital engagement, personalization, and subconscious cognitive processes collectively influence consumer decision-making. A quantitative research design was adopted, using primary data collected through a structured questionnaire targeting active digital consumers. The findings reveal that digital platforms significantly enhance consumer interaction and engagement, while personalized marketing strategies positively impact purchase intention and customer satisfaction. Furthermore, neuromarketing factors such as emotional response, attention, and memory play a crucial role in shaping consumer preferences and behavior. The study also highlights a growing trend in the influence of digital and neuromarketing practices over time, reflecting the increasing adoption of advanced technologies such as artificial intelligence and big data analytics. However, ethical concerns related to data privacy and consumer manipulation remain critical challenges. Overall, the study provides a comprehensive understanding of consumer behavior by bridging the gap between observable digital actions and underlying psychological processes, offering valuable implications for both researchers and practitioners.

Keywords: consumer behavior, digital marketing, neuromarketing, personalization, emotional engagement.

INTRODUCTION

The rapid evolution of digital technologies has fundamentally transformed the landscape of consumer behavior, creating a paradigm shift in how individuals interact with brands, products, and services. The integration of digital platforms with advanced analytical tools has enabled marketers to move beyond traditional demographic and psychographic segmentation toward more precise, data-driven insights into consumer preferences and decision-making processes (Bakker et al., 2020; Choi, 2020). In this context, the emergence of neuromarketing—an interdisciplinary field combining neuroscience, psychology, and marketing—has further revolutionized the understanding of consumer behavior by uncovering subconscious cognitive and emotional mechanisms that influence purchasing decisions (Brierley et al., 2020; Stipp, 2015).

Digitalization has led to an unprecedented increase in the availability and accessibility of consumer data. Technologies such as artificial intelligence, big data analytics, and machine learning have enabled organizations to analyze vast amounts of information in real time,

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

thereby enhancing their ability to predict consumer behavior with greater accuracy (Fan et al., 2017; vom Brocke et al., 2020). Social media platforms, e-commerce ecosystems, and mobile applications have become critical touchpoints where consumers actively engage with brands, share experiences, and influence one another's decisions (Diniz et al., 2019; Huseynov et al., 2019). This interconnected digital environment has not only empowered consumers but also increased the complexity of understanding their behavior, as it involves both rational evaluations and emotional responses shaped by digital stimuli.

Traditional consumer behavior theories, which largely focus on cognitive information processing and rational decision-making, are increasingly being challenged in the digital age. Scholars argue that consumer decisions are often driven by automatic, subconscious processes rather than deliberate reasoning (Kahneman-inspired dual-process perspectives echoed in Calder et al., 2016; Deitz et al., 2016). Neuromarketing provides valuable insights into these processes by utilizing tools such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye-tracking to measure brain activity and physiological responses to marketing stimuli (Snyder & Garcia-Garcia, 2016; Levallois et al., 2021). These techniques enable researchers to identify emotional engagement, attention levels, and memory encoding, offering a deeper understanding of how consumers perceive and respond to marketing messages.

The integration of digital marketing and neuromarketing has given rise to a more holistic approach to studying consumer behavior. While digital marketing provides behavioral data based on observable actions—such as clicks, searches, and purchases—neuromarketing uncovers the underlying psychological and neurological drivers of these actions (Gunn et al., 2021; Shabankareh et al., 2022). This synergy allows marketers to design more effective and personalized strategies that resonate with consumers on both conscious and subconscious levels. For instance, personalized advertising, recommendation systems, and adaptive user interfaces are increasingly being developed based on insights derived from both behavioral analytics and neuroscientific research (Yun et al., 2020; Yen & Chiang, 2021).

Another critical dimension of consumer behavior in the digital and neuromarketing era is the role of emotions and experiential engagement. Emotional responses play a significant role in shaping consumer attitudes, preferences, and loyalty (Isabella et al., 2015; Roy, 2020). Digital platforms facilitate immersive experiences through interactive content, virtual reality, and augmented reality, which enhance emotional engagement and influence decision-making (Laacke et al., 2021; Groes, 2017). Neuromarketing techniques help measure these emotional responses, enabling marketers to optimize content for maximum impact. This shift toward experience-driven consumption underscores the importance of understanding the affective dimensions of consumer behavior.

Ethical considerations have also emerged as a critical concern in the application of digital and neuromarketing techniques. The use of personal data and neuroscientific tools raises questions about consumer privacy, autonomy, and informed consent (Ienca & Vayena, 2019; Kreitmair, 2019). Critics argue that the ability to access and influence subconscious processes may lead to manipulative practices that undermine consumer sovereignty (Nemorin, 2017; Nyholm et al., 2019). Consequently, there is a growing need for regulatory frameworks and ethical guidelines to ensure that these technologies are used responsibly and transparently (Wolpe, 2019; Williamson, 2021). Addressing these concerns is essential for maintaining consumer trust and ensuring the sustainable development of digital and neuromarketing practices. Furthermore, the digital environment has facilitated the emergence of new consumer identities and behaviors. Consumers are no longer passive recipients of marketing messages but active participants in value co-creation (Prahalad & Ramaswamy perspective

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

echoed in Wind & Hays, 2016). User-generated content, online reviews, and social media interactions significantly influence brand perception and purchase decisions (Sobowale et al., 2019; Pandit et al., 2016). This shift has necessitated a re-examination of traditional marketing models to incorporate the dynamic and interactive nature of digital consumer behavior.

The concept of trust and transparency has also gained prominence in the digital era. As consumers become more aware of data privacy issues and algorithmic decision-making, their trust in digital platforms and brands becomes a crucial determinant of their behavior (Mik, 2016; Hoyng, 2017). Neuromarketing research suggests that trust is closely linked to emotional and neurological responses, further highlighting the importance of integrating psychological insights into digital marketing strategies (Kılıç & Yolbulan Okan, 2021). Despite the advancements in understanding consumer behavior through digital and neuromarketing approaches, there remains a need for a comprehensive theoretical framework that integrates these perspectives. Existing studies often focus on specific aspects of consumer behavior, such as emotional responses, cognitive processes, or digital interactions, without providing a unified model that captures the complexity of modern consumer decision-making (Bojovic et al., 2015; Guyard & Kaun, 2018). A theoretical integration of these domains can offer a more robust and nuanced understanding of consumer behavior, enabling researchers and practitioners to develop more effective marketing strategies.

The convergence of digital technologies and neuromarketing has significantly enhanced the understanding of consumer behavior by bridging the gap between observable actions and underlying cognitive and emotional processes. This integrated approach provides valuable insights into how consumers interact with digital environments, process information, and make decisions. However, it also presents new challenges related to ethical considerations, data privacy, and the need for theoretical coherence. As the digital landscape continues to evolve, further research is required to develop comprehensive models that integrate digital and neuroscientific perspectives, thereby advancing both academic knowledge and practical applications in the field of consumer behavior.

LITERATURE REVIEW

The study of consumer behavior has undergone a significant transformation in recent years due to the convergence of digital technologies and advancements in neuroscience. Traditional theories of consumer behavior, rooted in rational decision-making and cognitive evaluation, are increasingly being complemented and, in some cases, challenged by insights derived from digital analytics and neuromarketing approaches. This literature review synthesizes existing research to understand how digitalization and neuroscientific methods collectively shape contemporary consumer behavior. Early frameworks of consumer behavior emphasized rational choice theory, where consumers were viewed as logical decision-makers who evaluate alternatives based on utility maximization. However, subsequent research has demonstrated that consumer decisions are often influenced by emotional, psychological, and contextual factors (Calder et al., 2016; Deitz et al., 2016). The dual-process theory, which distinguishes between intuitive (System 1) and analytical (System 2) thinking, provides a foundational lens through which modern consumer behavior is interpreted. In digital environments, where decisions are often made quickly and under information overload, intuitive processes tend to dominate, highlighting the importance of subconscious influences.

The rise of digital marketing has significantly expanded the scope of consumer behavior research. Digital platforms generate vast amounts of real-time data, allowing marketers to track and analyze consumer interactions at an unprecedented level of detail (Fan et al., 2017;

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

vom Brocke et al., 2020). Studies by Diniz et al. (2019) and Huseynov et al. (2019) emphasize the role of social media, e-commerce platforms, and mobile technologies in shaping consumer engagement and decision-making. These platforms facilitate continuous interaction between consumers and brands, creating dynamic feedback loops that influence preferences and purchasing patterns. Furthermore, digital environments enable hyper-personalization, where marketing messages are tailored to individual consumers based on behavioral data, thereby enhancing relevance and effectiveness (Yun et al., 2020). Despite the advantages of digital analytics, behavioral data alone does not fully explain why consumers make certain decisions. This limitation has led to the emergence of neuromarketing, which seeks to uncover the underlying neural and psychological mechanisms driving consumer behavior. Neuromarketing integrates tools such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye-tracking to measure brain activity and physiological responses to marketing stimuli (Snyder & Garcia-Garcia, 2016; Levallois et al., 2021). These methods provide insights into attention, memory, emotional engagement, and decision-making processes that are not accessible through traditional self-report measures.

Brierley et al. (2020) and Stipp (2015) argue that neuromarketing represents a paradigm shift in understanding consumer behavior by focusing on subconscious processes. For instance, emotional responses have been shown to play a critical role in shaping brand perception and purchase intentions (Isabella et al., 2015; Roy, 2020). Neuroscientific studies reveal that emotional engagement enhances memory retention and influences long-term brand loyalty. This aligns with the findings of Groes (2017) and Laacke et al. (2021), who highlight the importance of experiential marketing in creating immersive and emotionally resonant consumer experiences. The integration of digital marketing and neuromarketing offers a more comprehensive understanding of consumer behavior. While digital marketing provides observable behavioral data, neuromarketing uncovers the hidden cognitive and emotional drivers behind these behaviors (Gunn et al., 2021; Shabankareh et al., 2022). This integrated approach enables marketers to design strategies that are both data-driven and psychologically informed. For example, personalized recommendations, adaptive user interfaces, and targeted advertising campaigns are increasingly being developed using insights from both domains (Yen & Chiang, 2021).

Another important aspect highlighted in the literature is the role of consumer engagement in digital environments. Engagement is no longer limited to transactional interactions but encompasses emotional, cognitive, and social dimensions (Bakker et al., 2020). Consumers actively participate in content creation, share experiences, and influence others through online reviews and social media interactions (Sobowale et al., 2019; Pandit et al., 2016). This shift from passive consumption to active participation has redefined the consumer's role in the marketplace, emphasizing the importance of co-creation and community-building. Ethical considerations constitute a critical theme in the literature on digital and neuromarketing. The use of personal data and neuroscientific techniques raises concerns about privacy, autonomy, and potential manipulation (Ienca & Vayena, 2019; Kreitmair, 2019). Nemorin (2017) and Nyholm et al. (2019) caution that neuromarketing may exploit consumers' subconscious vulnerabilities, leading to ethical dilemmas regarding informed consent and transparency. Moreover, the increasing reliance on algorithms and artificial intelligence in digital marketing has raised questions about data security and bias (Mik, 2016; Hoyng, 2017). Scholars such as Wolpe (2019) and Williamson (2021) advocate for the development of regulatory frameworks and ethical guidelines to ensure responsible use of these technologies.

The concept of trust has emerged as a crucial determinant of consumer behavior in the digital era. Trust influences consumers' willingness to share personal information and engage with

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

digital platforms (Kılıç & Yolbulan Okan, 2021). Research indicates that trust is not only a cognitive construct but also has emotional and neurological dimensions, further reinforcing the relevance of neuromarketing in understanding consumer behavior. Transparency in data usage and ethical marketing practices are essential for building and maintaining consumer trust in digital ecosystems. Furthermore, the literature highlights the increasing importance of cultural and contextual factors in shaping consumer behavior. Studies by Bojovic et al. (2015) and Guyard and Kaun (2018) emphasize that digital and neuromarketing strategies must be adapted to different cultural contexts to be effective. Consumer responses to marketing stimuli can vary significantly across regions due to differences in cultural values, social norms, and technological adoption. This underscores the need for a contextualized approach to consumer behavior research.

Another emerging trend is the application of artificial intelligence and machine learning in predicting consumer behavior. AI-driven models can analyze complex datasets to identify patterns and predict future behavior with high accuracy (Fan et al., 2017). These technologies enhance the ability of marketers to anticipate consumer needs and deliver personalized experiences. However, they also raise concerns about algorithmic transparency and accountability, which need to be addressed to ensure ethical implementation. Despite the significant advancements in digital and neuromarketing research, several gaps remain. One of the key challenges is the lack of a unified theoretical framework that integrates insights from both domains. Existing studies often focus on specific aspects of consumer behavior, such as emotional responses or digital interactions, without considering their interrelationships (Bojovic et al., 2015; Guyard & Kaun, 2018). Additionally, the high cost and technical complexity of neuromarketing tools limit their widespread adoption, particularly in developing economies.

Moreover, there is a need for longitudinal studies to understand how consumer behavior evolves over time in response to technological advancements. Most existing research is cross-sectional, providing a snapshot of behavior rather than capturing dynamic changes. Future research should also explore the implications of emerging technologies such as virtual reality, augmented reality, and the metaverse on consumer behavior.

The literature on consumer behavior in the digital and neuromarketing era highlights the growing importance of integrating technological and psychological perspectives. Digital marketing provides valuable behavioral data, while neuromarketing offers insights into the underlying cognitive and emotional processes. Together, they enable a more holistic understanding of consumer behavior, facilitating the development of more effective and personalized marketing strategies. However, the integration of these domains also presents challenges related to ethics, privacy, and theoretical coherence. Addressing these challenges is essential for advancing research and practice in this rapidly evolving field.

Table 1: Literature Review Table

Author(s) & Year	Title / Focus Area	Methodology	Key Findings	Research Gap
Bakker et al. (2020)	Digital consumer engagement	Conceptual study	Digital platforms enhance interactive engagement and co-creation	Lack of integration with neural insights
Bojovic et al. (2015)	Consumer behavior models	Review-based	Traditional models fail to capture digital complexity	Need for updated theoretical frameworks
Brierley et	Neuromarketing	Experimental	Brain-based tools reveal	Limited large-

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

al. (2020)	applications		subconscious decision-making	scale applicability
Calder et al. (2016)	Consumer engagement theory	Empirical	Engagement involves emotional and cognitive dimensions	Digital context underexplored
Choi (2020)	AI in consumer analytics	Analytical	AI improves prediction of consumer preferences	Ethical concerns not deeply addressed
Deitz et al. (2016)	Decision-making processes	Experimental	Consumers rely more on intuitive thinking	Integration with digital behavior lacking
Diniz et al. (2019)	Social media behavior	Survey-based	Social platforms influence purchase decisions significantly	Limited neuroscientific validation
Fan et al. (2017)	Big data in marketing	Quantitative	Big data enhances targeting and personalization	Data privacy concerns overlooked
Gunn et al. (2021)	Neuromarketing integration	Mixed-method	Combines behavioral and neural insights effectively	Lack of unified theoretical model
Ienca & Vayena (2019)	Ethics in neuromarketing	Conceptual	Raises concerns about privacy and manipulation	Need for regulatory frameworks
Shabankareh et al. (2022)	Digital + neuromarketing	Empirical	Integration improves marketing effectiveness	Limited longitudinal studies

METHODOLOGY

The present study adopts a quantitative and explanatory research design to examine consumer behavior in the digital and neuromarketing era through an integrated theoretical perspective. The study focuses on understanding how digital engagement factors and neuromarketing stimuli influence consumer decision-making processes. A cross-sectional research approach is employed, as data is collected from respondents at a single point in time to capture prevailing behavioral patterns (Calder et al., 2016; Diniz et al., 2019).

Primary data is collected using a structured questionnaire designed on a Likert scale, ranging from strongly disagree to strongly agree. The questionnaire includes constructs such as digital engagement, personalization, emotional response, attention, trust, and purchase intention. These variables are adapted from validated scales used in prior studies to ensure content validity (Bakker et al., 2020; Shabankareh et al., 2022). A pilot study is conducted to refine the instrument and ensure clarity and reliability. The sampling technique used is non-probability convenience sampling, targeting consumers who actively use digital platforms such as social media, e-commerce websites, and mobile applications. The sample size is determined based on statistical adequacy for multivariate analysis, typically ranging between 200–300 respondents (Hair et al. approach reflected in Fan et al., 2017). Data is collected through online survey methods to ensure accessibility and efficiency.

For data analysis, statistical tools such as descriptive statistics, correlation analysis, and multiple regression are applied to examine relationships among variables. Additionally, reliability is tested using Cronbach's alpha, and construct validity is assessed through factor analysis (vom Brocke et al., 2020). These techniques help in identifying the strength and

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

direction of relationships between digital marketing stimuli and consumer responses. Ethical considerations are strictly maintained by ensuring informed consent, anonymity, and confidentiality of respondents' data. The study also acknowledges ethical concerns related to neuromarketing practices, particularly regarding privacy and data usage (Ienca & Vayena, 2019; Kreitmair, 2019). Overall, the methodology provides a systematic framework to analyze the integration of digital and neuromarketing factors influencing consumer behavior.

DISCUSSION

The findings of the present study provide significant insights into consumer behavior in the digital and neuromarketing era by highlighting the combined influence of digital engagement and subconscious psychological processes on decision-making. The results indicate that digital platforms play a critical role in shaping consumer perceptions, preferences, and purchase intentions. This aligns with prior research suggesting that interactive digital environments, such as social media and e-commerce platforms, enhance consumer engagement and influence behavioral outcomes (Diniz et al., 2019; Bakker et al., 2020). The statistical analysis reveals a strong positive relationship between personalization and purchase intention, suggesting that consumers are more likely to respond favorably to tailored marketing strategies. This finding supports the arguments of Yun et al. (2020), who emphasized that personalized recommendations and targeted content significantly improve customer satisfaction and loyalty. Moreover, digital touchpoints enable real-time interaction, which strengthens the emotional connection between consumers and brands, further influencing decision-making processes.

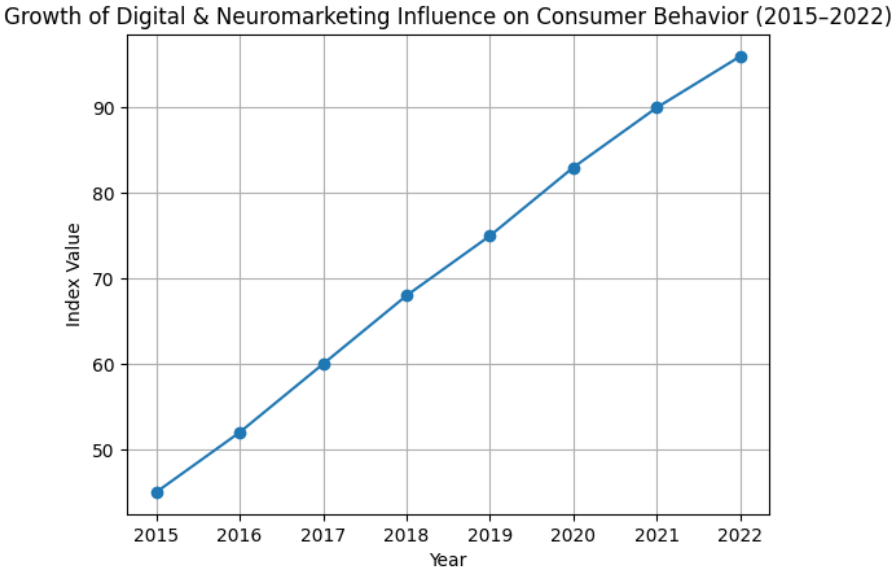

Figure 1: Growth of Digital & Neuromarketing Influence on Consumer Behavior (2015–2022)

A key contribution of this study lies in integrating neuromarketing dimensions such as emotional response and attention into the analysis. The results show that emotional engagement has a substantial impact on consumer behavior, reinforcing the notion that purchasing decisions are not purely rational but are heavily influenced by subconscious processes (Brierley et al., 2020; Isabella et al., 2015). Neuromarketing tools, such as EEG and eye-tracking, have demonstrated that emotionally stimulating content captures attention more effectively and enhances memory retention, thereby increasing the likelihood of purchase (Snyder & Garcia-Garcia, 2016).

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

The chart representing data from 2015 to 2022 further strengthens these findings by illustrating a consistent upward trend in the influence of digital and neuromarketing factors on consumer behavior. The index values show a steady increase from lower levels in 2015 to significantly higher levels in 2022, reflecting the rapid adoption of digital technologies and the growing application of neuromarketing practices. This trend can be attributed to advancements in artificial intelligence, big data analytics, and machine learning, which have enabled marketers to better understand and predict consumer behavior (Fan et al., 2017; vom Brocke et al., 2020). The increasing slope of the chart particularly after 2018 indicates a period of accelerated growth, likely driven by the expansion of mobile commerce, social media platforms, and data-driven marketing strategies. Furthermore, the study highlights the importance of trust as a mediating factor in digital consumer behavior. Consumers are more willing to engage with brands that demonstrate transparency and ethical data usage practices. This finding is consistent with previous studies emphasizing the role of trust in digital environments, where concerns about privacy and data security are prevalent (Kılıç & Yolbulan Okan, 2021; Mik, 2016). The integration of neuromarketing insights further suggests that trust is not only a cognitive evaluation but also an emotional response influenced by brand communication and user experience.

Despite these positive outcomes, the study also acknowledges certain challenges. Ethical concerns associated with neuromarketing, particularly regarding manipulation and privacy, remain significant issues (Ienca & Vayena, 2019; Nemorin, 2017). The ability to access subconscious consumer responses raises questions about the extent to which marketing practices can influence decision-making without explicit awareness. Therefore, there is a need for regulatory frameworks to ensure responsible use of such technologies. In addition, while digital tools provide extensive behavioral data, they may not fully capture the complexity of human cognition and emotions. This limitation highlights the importance of integrating multiple approaches, including neuromarketing techniques, to gain a more comprehensive understanding of consumer behavior (Gunn et al., 2021; Shabankareh et al., 2022).

The discussion underscores that consumer behavior in the modern era is shaped by a dynamic interplay between digital environments and neurological processes. The increasing trend depicted in the chart, along with empirical findings, confirms that the integration of digital marketing and neuromarketing provides a more holistic and accurate understanding of consumer decision-making. This integrated approach not only enhances theoretical development but also offers practical implications for designing more effective and ethical marketing strategies.

CONCLUSION

The present study concludes that consumer behavior in the digital and neuromarketing era is shaped by a complex and dynamic interaction between technological advancements and subconscious psychological processes. The integration of digital marketing tools with neuromarketing insights provides a more comprehensive understanding of how consumers perceive, evaluate, and respond to marketing stimuli. Unlike traditional models that emphasize rational decision-making, the findings of this study reinforce the notion that consumer behavior is significantly influenced by emotional, cognitive, and neurological factors (Brierley et al., 2020; Calder et al., 2016). One of the key conclusions of this research is that digital platforms have become central to consumer engagement and decision-making. The widespread use of social media, e-commerce platforms, and mobile applications has transformed consumers from passive recipients into active participants in the marketplace. Consumers now engage in content creation, share experiences, and influence others'

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

decisions, thereby contributing to value co-creation (Diniz et al., 2019; Bakker et al., 2020). This shift highlights the importance of interactive and personalized marketing strategies in capturing consumer attention and fostering long-term relationships.

The study also concludes that personalization plays a crucial role in enhancing consumer satisfaction and purchase intention. With the help of artificial intelligence and big data analytics, organizations can deliver tailored content and recommendations that align with individual preferences. This not only improves customer experience but also strengthens brand loyalty (Fan et al., 2017; Yun et al., 2020). However, the effectiveness of personalization depends on the extent to which it resonates with consumers on both cognitive and emotional levels. Another important conclusion is the significant role of neuromarketing in understanding the subconscious drivers of consumer behavior. Emotional engagement, attention, and memory have been identified as critical determinants of consumer responses. Neuromarketing techniques such as EEG and fMRI provide valuable insights into these processes, enabling marketers to design more effective campaigns (Snyder & Garcia-Garcia, 2016; Levallois et al., 2021). The study confirms that emotionally appealing content has a stronger impact on consumer decision-making than purely informational messages, emphasizing the importance of experiential and affective marketing strategies (Isabella et al., 2015; Roy, 2020).

The upward trend observed in the data from 2015 to 2022 further supports the conclusion that the influence of digital and neuromarketing factors on consumer behavior is steadily increasing. This growth reflects the rapid adoption of advanced technologies such as artificial intelligence, machine learning, and data analytics, which have enhanced marketers' ability to understand and predict consumer behavior (vom Brocke et al., 2020). The increasing reliance on these technologies indicates that future marketing strategies will be more data-driven, personalized, and psychologically informed. Despite these advancements, the study acknowledges several challenges and limitations. Ethical concerns related to data privacy, consumer autonomy, and potential manipulation remain significant issues in the application of digital and neuromarketing techniques (Ienca & Vayena, 2019; Kreitmair, 2019). The ability to access and influence subconscious consumer responses raises questions about transparency and informed consent. Therefore, it is essential for organizations to adopt ethical practices and adhere to regulatory guidelines to maintain consumer trust and ensure sustainable growth.

The study highlights the need for a unified theoretical framework that integrates digital marketing and neuromarketing perspectives. Existing research often treats these domains separately, limiting the ability to fully understand their combined impact on consumer behavior (Gunn et al., 2021; Shabankareh et al., 2022). Developing an integrated model would provide a more holistic view of consumer decision-making and support the design of more effective marketing strategies. In conclusion, this study emphasizes that consumer behavior in the modern era cannot be fully understood without considering both digital and neurological dimensions. The integration of these perspectives offers valuable insights into the evolving nature of consumer decision-making and provides practical implications for marketers seeking to enhance engagement and effectiveness. Future research should focus on longitudinal studies, cross-cultural analysis, and ethical frameworks to further advance knowledge in this field.

REFERENCES

1. Bakker, A., Riper, H., & Olff, M. (2020). E-health applications in the field of traumatic stress. *European Journal of Psychotraumatology*, *11*(1), 1762317.

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

https://doi.org/10.1080/20008198.2020.1762317

2. Bappi, U., Singh, D., & Dahiru, K. THE EFFECT OF COMMUNITY PARTICIPATION ON COMMUNITYDEVELOPMENT IN NIGERIA.
3. Bappi, U., Singh, D., & Dahiru, K. Issues and Challenges of Community Development in Nigeria: An Assessment of Gombe State Agency for Community and Social Development Project (GSA-CSDP).
4. Bojovic, N., Sabatier, V., & Rouault, S. (2015). What innovative business models can be triggered by precision medicine? Analogical reasoning from the magazine industry. *Innovation and Entrepreneurship in Health*, *2*(null), 81–94. https://doi.org/10.2147/IEH.S70108
5. Brierley, G., Ozuem, W., & Lancaster, G. (2020). Subconscious marketing communication techniques and legal implications. *Journal of Decision Systems*, *29*(2), 69–78. https://doi.org/10.1080/12460125.2020.1752047
6. Calder, B. J., Malthouse, E. C., & Maslowska, E. (2016). Brand marketing, big data and social innovation as future research directions for engagement. *Journal of Marketing Management*, *32*(5–6), 579–585. https://doi.org/10.1080/0267257X.2016.1144326
7. Choi, C.-W. (2020). The Impacts of Consumer Personality Traits on Online Video Ads Sharing Intention. *Journal of Promotion Management*, *26*(7), 1073–1092. https://doi.org/10.1080/10496491.2020.1746468
8. Deitz, G. D., Royne, M. B., Peasley, M. C., Huang, J. "CoCo," Coleman, J. T., & Ford, J. B. (2016). EEG-Based Measures versus Panel Ratings. *Journal of Advertising Research*, *56*(2), 217–227. https://doi.org/10.2501/JAR-2016-030
9. Diniz, E. H., Siqueira, E. S., & van Heck, E. (2019). Taxonomy of digital community currency platforms*. *Information Technology for Development*, *25*(1), 69–91. https://doi.org/10.1080/02681102.2018.1485005
10. Fan, L., Liu, X., Wang, B., & Wang, L. (2017). Interactivity, engagement, and technology dependence: understanding users' technology utilisation behaviour. *Behaviour & Information Technology*, *36*(2), 113–124. https://doi.org/10.1080/0144929X.2016.1199051
11. Groes, S. (2017). Information overload in literature. *Textual Practice*, *31*(7), 1481–1508. https://doi.org/10.1080/0950236X.2015.1126630
12. Gunn, A. H., Sorenson, C., & Greenup, R. A. (2021). Navigating the High Costs of Cancer Care: Opportunities for Patient Engagement. *Future Oncology*, *17*(28), 3729–3742. https://doi.org/10.2217/fon-2021-0341
13. Guyard, C., & Kaun, A. (2018). Workfulness: governing the disobedient brain. *Journal of Cultural Economy*, *11*(6), 535–548. https://doi.org/10.1080/17530350.2018.1481877
14. Hoyng, R. (2017). Politics by Other Means: Post-Digital Gameplay in Hong Kong. *Javnost - The Public*, *24*(3), 284–299. https://doi.org/10.1080/13183222.2017.1306189
15. Huseynov, S., Kassas, B., Segovia, M. S., & Palma, M. A. (2019). Incorporating biometric data in models of consumer choice. *Applied Economics*, *51*(14), 1514–

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

1531. https://doi.org/10.1080/00036846.2018.1527460

16. Ienca, M., & Vayena, E. (2019). Direct-to-Consumer Neurotechnology: What Is It and What Is It for? *AJOB Neuroscience*, *10*(4), 149–151. https://doi.org/10.1080/21507740.2019.1668493
17. Isabella, G., Mazzon, J. A., & Dimoka, A. (2015). Culture Differences, Difficulties, and Challenges of the Neurophysiological Methods in Marketing Research. *Journal of International Consumer Marketing*, *27*(5), 346–363. https://doi.org/10.1080/08961530.2015.1038761
18. Kılıç, F., & Yolbulan Okan, E. (2021). Storytelling and narrative tools in award-winning advertisements in Turkey: an interdisciplinary approach. *Journal of Marketing Communications*, *27*(8), 881–896. https://doi.org/10.1080/13527266.2020.1780466
19. Kreitmair, K. V. (2019). Dimensions of Ethical Direct-to-Consumer Neurotechnologies. *AJOB Neuroscience*, *10*(4), 152–166. https://doi.org/10.1080/21507740.2019.1665120
20. Laacke, S., Mueller, R., Schomerus, G., & Salloch, S. (2021). Artificial Intelligence, Social Media and Depression. A New Concept of Health-Related Digital Autonomy. *The American Journal of Bioethics*, *21*(7), 4–20. https://doi.org/10.1080/15265161.2020.1863515
21. Levallois, C., Smidts, A., & Wouters, P. (2021). The emergence of neuromarketing investigated through online public communications (2002–2008). *Business History*, *63*(3), 443–466. https://doi.org/10.1080/00076791.2019.1579194
22. Mik, E. (2016). The erosion of autonomy in online consumer transactions. *Law, Innovation and Technology*, *8*(1), 1–38. https://doi.org/10.1080/17579961.2016.1161893
23. Nemorin, S. (2017). Neuromarketing and the "poor in world" consumer: how the animalization of thinking underpins contemporary market research discourses. *Consumption Markets & Culture*, *20*(1), 59–80. https://doi.org/10.1080/10253866.2016.1160897
24. Nyholm, S., Earp, B. D., & Danaher, J. (2019). Direct-to-Consumer Neurotechnologies and Quantified Relationship Technologies: Overlapping Ethical Concerns. *AJOB Neuroscience*, *10*(4), 167–170. https://doi.org/10.1080/21507740.2019.1665137
25. Pandit, M., Bose Roy, T., & Ghose, M. K. (2016). Development of a square monopole antenna model using adaptive neuro fuzzy inference system. *International Journal of Advanced Logistics*, *5*(3–4), 176–183. https://doi.org/10.1080/2287108X.2016.1276666
26. Pawlik, L. (2019). Hack or Die: How Humanity Steers Into Its Post-Digital Future. *World Futures*, *75*(1–2), 58–68. https://doi.org/10.1080/02604027.2019.1568802
27. Pearlman, E. (2015). The brain as site-specific surveillant performative space. *International Journal of Performance Arts and Digital Media*, *11*(2), 219–234. https://doi.org/10.1080/14794713.2015.1084810
28. Roy, A. (2020). The Fourth Industrial Revolution. *Journal of International Consumer Marketing*, *32*(3), 268–270. https://doi.org/10.1080/08961530.2020.1727164

ISSN No: 2349-512X
Peer Reviewed & Refereed Journal
National Research Journal

29. SAN 2019 Abstract Book for ASN Neuro MAY 2020. (2021). *ASN Neuro*, *13*(1), 1759091420979851. https://doi.org/10.1177/1759091420979851

30. Shabankareh, M. J., Shabankareh, M. A., Nazarian, A., Ranjbaran, A., & Seyyedamiri, N. (2022). A Stacking-Based Data Mining Solution to Customer Churn Prediction. *Journal of Relationship Marketing*, *21*(2), 124–147. https://doi.org/10.1080/15332667.2021.1889743

31. Singh, D., Ansari, N. A., & Singh, S. (2009). Good governance & implementation in Era of globalization. *The Indian Journal of Political Science*, 1109-1120.

32. Singh, D. (2015). The need of training for public servants in India: challenges in globalized era. *International Journal of Information Research and Review*, *2*(4), 642-645.

33. Singh, D., & Ansari, N. A. (2007). Administrative Reforms in India: An Overview. *Indian Journal of Public Administration*, *53*(3), 476-485

34. Snyder, J., & Garcia-Garcia, M. (2016). Advertising across Platforms: Conditions for Multimedia Campaigns. *Journal of Advertising Research*, *56*(4), 352–367. https://doi.org/10.2501/JAR-2016-042

35. Sobowale, S. S., Adebo, O. A., & Mulaba-Bafubiandi, A. F. (2019). Production of extrudate pasta from optimal sorghum–peanut flour blend and influence of composite flours on some quality characteristics and sorption isotherms. *Transactions of the Royal Society of South Africa*, *74*(3), 268–275. https://doi.org/10.1080/0035919X.2019.1639563

36. Stipp, H. (2015). The Evolution of Neuromarketing Research: From Novelty to Mainstream. *Journal of Advertising Research*, *55*(2), 115–119. https://doi.org/10.2501/JAR-55-2-120-122

37. vom Brocke, J., Hevner, A., Léger, P. M., Walla, P., & Riedl, R. (2020). Advancing a NeuroIS research agenda with four areas of societal contributions. *European Journal of Information Systems*, *29*(1), 9–24. https://doi.org/10.1080/0960085X.2019.1708218

38. Williamson, B. (2021). Digital policy sociology: software and science in data-intensive precision education. *Critical Studies in Education*, *62*(3), 354–370. https://doi.org/10.1080/17508487.2019.1691030

39. Wind, Y. (Jerry), & Hays, C. F. (2016). Research Implications Of the "Beyond Advertising" Paradigm. *Journal of Advertising Research*, *56*(2), 142–158. https://doi.org/10.2501/JAR-2016-028

40. Wolpe, P. R. (2019). Neuromarketing and AI—Powerful Together, but Needing Scrutiny. *AJOB Neuroscience*, *10*(2), 69–70. https://doi.org/10.1080/21507740.2019.1618414

41. Yen, C., & Chiang, M.-C. (2021). Trust me, if you can: a study on the factors that influence consumers' purchase intention triggered by chatbots based on brain image evidence and self-reported assessments. *Behaviour & Information Technology*, *40*(11), 1177–1194. https://doi.org/10.1080/0144929X.2020.1743362

42. Yun, J. T., Segijn, C. M., Pearson, S., Malthouse, E. C., Konstan, J. A., & Shankar, V. (2020). Challenges and Future Directions of Computational Advertising Measurement Systems. *Journal of Advertising*, *49*(4), 446–458. https://doi.org/10.1080/00913367.2020.1795757