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CONCEPTUAL LEVEL STRATEGY RECOMMENDATIONS FOR UNDERSTANDING MARKETING COMMUNICATION EFFORTS IN DIGITAL CONSUMPTION CULTURE WITH NEUROSCIENCE TECHNIQUE

DİJİTAL TÜKETİM KÜLTÜRÜNDE PAZARLAMA İLETİŞİMİ ÇALIŞMALARININ NÖROBİLİM TEKNİKLERİYLE ANLAŞILMASINA YÖNELİK KAVRAMSAL DÜZEYDE STRATEJİ ÖNERİLERİ

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Abstract

The increasing complexity of marketing communication efforts in digital consumption culture requires a deeper understanding and measurement of their impact. Neuroscience techniques have become essential in this regard, and this paper proposes conceptual level strategy recommendations for understanding marketing communication efforts using such techniques. The paper recommends the use of neuromarketing research methods, such as EEG, fMRI, and eye-tracking, to gain insights into consumer behavior and preferences. Besides, the paper also suggests the use of cross-cultural research methods to account for cultural differences in consumer behavior and preferences. Moreover, the paper proposes integrated marketing communication strategies that leverage multiple channels to effectively reach consumers in digital consumption culture, such as social media marketing, content marketing, and mobile marketing. Overall, these conceptual level strategy recommendations provide a framework for better understanding and measuring the impact of marketing communication efforts in digital consumption culture using neuroscience techniques. By following these recommendations, marketers and researchers can develop more effective marketing strategies and gain a deeper understanding of consumer behavior and preferences in this context.

Keywords: ***Marketing Communication, Digital Consumption, Neuroscience Techniques.***

Öz

Pazarlama iletişimi çabalarının dijital tüketim kültüründe karmaşıklaşan yapısı, bu çabaların etkilerinin daha derin bir şekilde anlaşılmasını ve ölçülmesini gerektirmektedir. Nörobilim teknikleri bu bağlamda önemli bir noktaya ulaşmıştır. Bu makale, bu tür teknikleri kullanan pazarlama iletişimi çabalarını anlamak için kavramsal düzeyde strateji önerileri sunmayı amaçlamaktadır. Makale, tüketici davranışları ve tercihleri hakkında bilgi edinmek için EEG, fMRI ve göz izleme gibi nöropazarlama araştırma yöntemlerinin kullanılmasını önermektedir. Makale ayrıca tüketici davranışı ve tercihlerindeki kültürel farklılıkları açıklamak için kültürler arası araştırma yöntemlerinin kullanılmasını önermektedir. Bununla birlikte makale, sosyal medya pazarlaması, içerik pazarlaması ve mobil pazarlama gibi dijital tüketim kültüründe tüketicilere etkili bir şekilde ulaşmak için birden fazla kanalı kullanan bütünleşik pazarlama iletişimi stratejileri önermektedir. Genel olarak, bu kavramsal düzeydeki strateji önerileri, nörobilim teknikleri kullanılarak dijital tüketim kültüründe pazarlama iletişimi çabalarının etkisini daha iyi anlamak ve ölçmek için bir çerçeve sunmaktadır. Pazarlamacılar ve araştırmacılar bu önerileri izleyerek daha etkili pazarlama stratejileri geliştirebilir ve bu bağlamda tüketici davranışları ve tercihleri hakkında daha derin bir anlayış kazanabileceklerdir.

Anahtar Kelimeler: Pazarlama İletişimi, Dijital Tüketim, Nörobilim Teknikleri.

GENİŞLETİLMİŞ ÖZET

Çalışmanın Amacı

Modern teknoloji, küreselleşme ve uluslararasılaşma çağında, pazarlama iletişimi yeni araçlar, trendler ve fırsatlar kullanmaktadır. Teknolojik gelişmeler, iki yönlü pazarlama iletişimi potansiyelini ortaya çıkardığı için işletmeler için çevrimiçi ve çevrimdışı iletişimi gerekli hale getirmiştir. İletişim teknolojilerin dinamik yayılımı, kültüre, ekonomik gelişmeye ve toplumda yeniliğin kabulüne bağlı olarak pazarlama iletişimini etkilemiştir. Bu nedenle, modern pazarlama iletişiminin toplum üzerindeki etkisi, işletmelerin modern pazar trendlerine uyum sağlamaları gerektiğinden önemli bir değerdir. Bu çerçevede bu makale dijital tüketim kültüründe pazarlama iletişimi çalışmalarının nörobilim teknikleriyle açıklanabilmesine yönelik kavramsal düzeyde strateji önermeyi amaçlamaktadır.

Araştırma Soruları

Dijital tüketim kültüründe pazarlama iletişimi çabalarını nörobilim teknikleriyle anlamaya yönelik bir çerçeve oluşturmak gerekmektedir. Bu çerçeve pazarlama iletişimi ve nörobilimi içeren iki temel çalışma alanının entegrasyonuna dayanmaktadır. Bu alanların entegrasyonu, tüketicilerin dijital çağda pazarlama mesajlarını nasıl işlediğini ve bunlara nasıl yanıt verdiğini anlamak açısından hayati önem taşımaktadır. Buradan hareketle araştırmanın temel sorusu dijital tüketim kültüründe pazarlama iletişimi çalışmalarının nörobilim teknikleriyle nasıl geliştirilebileceğine yönelik oluşturulmuştur.

Literatür Araştırması

Tüketim kültürünün kolektif değerleri yok ettiğine inanılmaktadır (Dröge ve diğerleri, 1993). Genel olarak ihtiyaçları karşılama süreci olarak tanımlanan tüketim ise sosyal, ekonomik ve kültürel bir olgudur. Tüketim kültürü, çağdaş toplumlarda maddi kültürün yayılmasını ve hizmetlerin sunulduğu yerleri anlatan bir kavramdır. Ürün ve hizmet kültürünün yaygınlaşması toplumsal yaşamı etkileyen, başta gençler olmak üzere bireylerin kimliklerini, sosyal ilişkilerini ve yaşam biçimlerini değiştiren bir süreçtir (Kantar, 2020). Nöropazarlama, tüketici davranışını anlamak için nörobilim yöntemlerinin kullanılmasını içeren, gelişmekte olan bir pazarlama disiplinidir. Bu yenilikçi çalışma alanı, beynin ürünler, paketleme, reklam ve diğer pazarlama malzemeleri dahil olmak üzere pazarlama uyaranlarına nasıl tepki verdiğini araştırmak için en son teknolojileri kullanır. Genel olarak nöropazarlama, tüketici davranışını anlamak ve daha etkili pazarlama stratejileri geliştirmek için heyecan verici yeni bir yaklaşımı temsil eder (Hamalin ve Harcar, 2020). Nöropazarlama yöntemleri, reklamverenler ve pazarlamacılar tarafından sıklıkla tercih edilmektedir (Zurawicki, 2010). Nitekim Tüfekci ve Oyman (2020) tarafından yapılan çalışma, bir nöropazarlama tekniği olan elektroensefalografi (EEG) kayıtları kullanılarak televizyon reklamlarındaki duygusal çekiciliklerin ortaya çıkardığı davranışsal tepkileri inceleyerek akademik alana değerli bir katkı sağlamaktadır.

Yöntem

Bu çalışma kavramsal düzeyde ele alınmış bir çalışmadır. Bu kapsamda literatürde yer alan konular ve çalışmalar derlenerek çalışmanın kapsamı oluşturulmuştur. Literatürde yer alan çalışmaların

nöropazarlama eksenli ele alınması ve bu çalışmanın kapsamının oluşturulması açısından önem taşımaktadır. Böylece özellikle yerli literatürde yeni yeni çalışmaya başlanan nöropazarlama konusunda bir bakış açısı oluşturulmuştur.

Sonuç ve Değerlendirme

Nöropazarlama alanında özellikle endişe duyulan bir alan, farklı uyaranlara yanıt olarak beyin aktivitesini ölçmek için elektroensefalografinin (EEG) kullanılmasıdır. EEG'nin, özellikle çevrimiçi reklamcılık ve web sitesi tasarımı bağlamında tüketici davranışını anlamada güçlü bir araç olduğu kanıtlanmıştır. Araştırmalar, EEG'nin tüketicilerin dijital içerikle nasıl etkileşim kurduğuna dair değerli bilgiler sağlayabilen dikkat, katılım ve duygusal tepki dahil bir dizi yanıtı ölçmek için kullanılabileceğini göstermiştir (Ariely ve Berns, 2010; Kim vd., 2017). Diğer bir ilgi alanı, tüketici karar verme sürecinin altında yatan nöral süreçleri incelemek için fonksiyonel manyetik rezonans görüntülemenin (fMRI) kullanılmasıdır. fMRI, marka tercihleri, ürün değerlendirmesi ve fiyatlandırma kararları dahil olmak üzere bir dizi tüketici davranışını araştırmak için kullanılmıştır (Knutson vd., 2007). fMRI, farklı uyaranlara yanıt olarak beyin aktivitesini ölçerek, tüketici davranışının altında yatan nöral mekanizmalar hakkında fikir verebilir ve şirketlerin pazarlama stratejilerini tüketici tercihleriyle daha iyi uyum sağlayacak şekilde uyarlamalarına olanak tanımktadır. Nörobilim tekniklerini kullanmanın en önemli avantajlarından biri, geleneksel kişisel bildirim ölçümleriyle yakalanamayan pazarlama uyaranlarına verilen bilinçsiz tepkileri ölçebilme yeteneğidir (Plassmann vd., 2012). Bu, tüketicilerin pazarlama mesajlarına nasıl tepki verdiğine dair daha kapsamlı bir anlayış sağlayabilir ve daha etkili pazarlama stratejilerinin geliştirilmesini sağlayabilir.

1. INTRODUCTION

In today's digital consumption culture, effective marketing communication is crucial for the success of any business (Plassmann et al., 2018). However, the increasing volume of messages and stimuli that consumers are exposed to across multiple platforms has made it challenging for marketers to build impactful campaigns influencing their target audience. Neuroscience techniques, like functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye-tracking, were commonly employed in marketing research to study the neural and physiological responses of consumers to various stimuli, including marketing messages (Lee & Broderick, 2012). By using these techniques, marketers can gain valuable insights into how consumers process and respond to marketing communication efforts, allowing them to tailor their campaigns more effectively to their target audience.

The utilization of neuroscience techniques in marketing research has gained significant attention in recent years. Studies have shown that these techniques can provide valuable insights into the cognitive and emotional processes that underlie consumer decision-making (Plassmann et al., 2018). For example, fMRI studies have demonstrated that different communication styles and information formats can elicit different patterns of brain activation and influence persuasion (Lee & Broderick, 2012). EEG has been used to measure the attention, emotional engagement, and memory recall of consumers in response to marketing stimuli (Vecchiato et al., 2011; Oyman et al., 2020). Eye-tracking has been employed to measure the visual attention and gaze patterns of consumers in response to marketing stimuli, providing insights into their decision-making processes (Goldberg et al., 2013).

Despite the potential benefits of using neuroscience techniques in marketing research, there are also challenges and limitations to consider. For instance, some researchers have raised concerns about the ecological validity of laboratory-based studies and the generalizability of findings to real-world settings (Plassmann et al., 2018). There are also ethical considerations to be considered when conducting neuroscience research on human participants (Vecchiato et al., 2011).

This paper aims to provide conceptual level strategy recommendations for understanding marketing communication efforts in digital consumption culture with neuroscience techniques. The paper discusses the key concepts of marketing communication, the role of neuroscience in marketing research, and the benefits of using neuroscience techniques in understanding consumer behavior. The paper also highlights the challenges and limitations of using neuroscience techniques in marketing research and provides recommendations for future research in this area.

2. CONCEPTUAL FRAMEWORK

The conceptual framework for understanding marketing communication efforts in digital consumption culture with neuroscience techniques is based on the integration of two main fields of study: marketing communication and neuroscience. The integration of these fields is necessary to

understand how consumers process and respond to marketing messages in the digital age (Karmarkar & Plassmann, 2017).

2.1. Digital Consumption Culture

Marketing communication encompasses various methods of delivering messages to consumers, including advertising, public relations, personal selling, and sales promotion (Belch & Belch, 2021). In the digital consumption culture, these methods have evolved to include social media marketing, influencer marketing, content marketing, and email marketing, among others (De Pelsmacker et al., 2021).

In the age of modern technology, globalization, and internationalization, marketing communication is employing new tools, trends, and opportunities. The internet and technological advancement have made online and offline communication necessary for companies, as they expose the potential for two-way marketing communication. The dynamic diffusion of technologies has influenced marketing communication depending on the culture, economic development, and acceptance of innovation in society. Therefore, the impact of modern marketing communication on society is an important value as companies need to adapt to modern market trends (Madan & Rosca, 2022).

The advent of the internet and social media has significantly transformed both consumer behavior and corporate operations. As a result, organizations can leverage social and digital marketing to obtain various benefits, such as decreased costs, heightened brand visibility, and increased sales. Digital and social media marketing have introduced specific themes, including artificial intelligence, augmented reality marketing, digital content management, mobile marketing and advertising, business-to-business marketing, electronic word-of-mouth communication, and ethical considerations, to the field. These topics have been extensively researched by scholars to understand their implications for marketing and consumer behavior in the digital era. Moreover, research in this area has highlighted the need for organizations to remain up to date with emerging trends and technologies in digital and social media marketing to remain competitive in the marketplace. Therefore, continued investigation and exploration of these topics is crucial for both academics and practitioners to understand and leverage the opportunities and challenges presented by digital and social media marketing. (Dwivedi et al., 2021).

Recently, social media tools have been started to be used in marketing communication. In a study conducted in India (Nandy & Roy, 2022), it was observed that Parle-G biscuit brand used digital campaigns and digital films to connect with consumers. The integration of Android game techniques into a company's existing marketing communication model, with a focus on emotional and cognitive intelligence, represents a notable example of the shift from traditional to digital marketing communication. The digital marketing communication process consists of various crucial stages, such as recognizing the intended audience, conceptualizing a digital marketing communication plan, choosing appropriate digital communication channels and tools, allocating a comprehensive budget, and

assessing the outcomes of the complete digital marketing communication process. Effective digital marketing communication strategies require a thorough understanding of the target audience, including their preferences, attitudes, and behaviors in the digital space. This understanding enables companies to design digital marketing communication plans that effectively engage their target audience across various digital channels and tools. Moreover, the allocation of an appropriate budget and the use of outcome measures enable companies to evaluate the effectiveness of their digital marketing communication efforts and refine their strategies accordingly. These strategies can enhance the effectiveness of marketing communication efforts and enable companies to engage their target audience more effectively in the digital space. (Dwityas et al., 2020).

In recent years, Instagram has become a widely used tool in marketing communication, offering great advantages such as quick and cost-effective promotion of products, advertising, and brand awareness. In fact, a study conducted by Soedarsono et al. (2020) emphasizes that Instagram has become an effective marketing communication tool compared to traditional media, allowing promotion messages to be disseminated to customers quickly and at a low cost. Similarly, the unique tools of new digital communication, such as visual communication tools through virtual and augmented realities, are striking examples for the subject matter. Campaigns that use such new tools become more prominent, memorable, and therefore more effective. This is because they attract much more attention compared to traditional communication tools, create more awareness, and stimulate curiosity. Consequently, more potential customers are attracted (Wojciechowski & Fichnová, 2022). Moreover, with the increasing awareness of the importance of sustainable consumer behavior for the common good of society, the significance of corporate support has also come to the forefront. Therefore, digital marketing communication can take a leading role in promoting sustainable consumption (Vide et al., 2021).

2.2. Neuroscience Framework

Neuroscience is a scientific discipline concerned with investigating the functions and responses of the nervous system and brain. Technological advancements in brain imaging have resulted in the increasing prevalence of neuroscience as a field of study. This interdisciplinary field has given rise to new domains of inquiry, such as neuropsychology, neuroeconomics, neurosociology, neuroinformatics, neuropolitics, and neuromarketing. In recent years, neuroscience has been closely linked with other fields, including health, engineering, social sciences, and art. This integration has led to new insights and applications of neuroscience research in diverse areas. Neuromarketing, for example, has emerged as a novel application of neuroscience in the field of marketing, providing insights into consumer behavior and decision-making processes. (Şenbağcı Özer, 2021).

Neuroscience has made significant progress in recent years, with the development of new technologies and methods for studying the brain. For example, functional magnetic resonance imaging (fMRI) has allowed researchers to observe changes in brain activity in real-time, providing insights into

the neural basis of perception, attention, and memory (Logothetis, 2008). Similarly, advances in optogenetics have enabled researchers to manipulate the activity of specific neurons in the brain, allowing them to test hypotheses about the function of different brain regions (Deisseroth, 2015).

One of the most exciting developments in neuroscience is the emerging field of connectomics, which aims to map the complex network of connections between neurons in the brain (Sporns, 2013). This work is important because it can provide insights into how information is processed and integrated across different brain regions, and how this processing is affected by neurological and psychiatric disorders.

Cultural neuroscience is an expanding area of research that investigates the relationship between cultural diversity, psychological processes, neural processes, and genomic processes, as well as the interplay between these processes and their resulting traits. This interdisciplinary field of study is motivated by two fundamental inquiries regarding human nature. The first inquiry is aimed at understanding how cultural factors, such as values, beliefs, and practices, affect neurobiological processes. This investigation is guided by the understanding that cultural contexts have a significant impact on the development and manifestation of human behavior and cognition. The second inquiry in cultural neuroscience examines how neurobiological processes, including genetic and neural mechanisms, contribute to the emergence and transmission of cultural traits. This inquiry is informed by the understanding that the emergence and transmission of cultural traits are reliant on neurobiological processes, which are influenced by environmental and genetic factors. (Chiao et al., 2010).

Neuroscience techniques, like functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye tracking, can provide insights into how the brain processes information and responds to stimuli (Karmarkar & Plassmann, 2017). These techniques can be used to measure consumer responses to marketing messages, including attention, emotion, and memory.

Despite these advances, there is still much to learn about the brain and how it functions. One challenge is to develop more sophisticated models of brain function that can capture the complexity and variability of neural activity across different contexts and individuals (Poldrack, 2019). Another challenge is to translate this knowledge into practical applications, such as developing new treatments for neurological and psychiatric disorders.

3. NEUROSCIENCE IN A DIGITAL CONSUMER CULTURE

According to Bermingham and Brewer (1997), culture does not become "culture" until it is consumed. In consumer culture, products are imbued with excessive meanings, which can prevent an individual from achieving true meaning in life by chasing after products. It is believed that consumer culture destroys collective values (Dröge et al., 1993). Consumption, on the other hand, which is generally defined as the process of fulfilling needs, is a social, economic, and cultural phenomenon. The

culture of consumption is a concept that describes the spread of material culture and the places where services are provided in contemporary societies. The proliferation of product and service culture is a process that affects social life, changes the identities, social relationships, and lifestyles of individuals, especially young people (Kantar, 2020).

Neuromarketing is an emerging marketing discipline that involves the utilization of neuroscience methods to figure out consumer behavior. This innovative field of study employs cutting-edge medical technologies to investigate how the brain responds to marketing stimuli, including products, packaging, advertising, and other marketing materials. To directly gauge a consumer's reaction to marketing stimuli, neuromarketing employs brain imaging, scanning, or other technologies for measuring brain activity. By analyzing the brain activity associated with consumer preferences, marketers can gain insights into the underlying neural mechanisms that drive consumer decision-making. This knowledge can be used to develop more effective marketing strategies, tailored to the specific needs and desires of individual consumers. Overall, neuromarketing represents an exciting new approach to understanding consumer behavior and developing more effective marketing strategies. (Hamalin & Harcar, 2020).

It is known that the emergence of neuromarketing in the field of marketing started with the use of neuroimaging by Zaltman (2000). This concept has become a focus of interest for marketers, advertisers, researchers, and businesses alike. Recently, companies have been aiming to create effective and efficient advertising strategies to determine how consumers make their product and service choices, establish a place in the minds of consumers, and achieve greater sales of the produced goods and services. Therefore, neuromarketing methods are frequently preferred by advertisers and marketers (Zurawicki, 2010). Indeed, the study conducted by Tüfekci & Oyman (2020) makes a valuable contribution to the academic field by examining the behavioral responses elicited by emotional appeals in television advertisements using electroencephalography (EEG) recordings, a neuromarketing technique.

It is not clear which dynamics affect consumers' product and service preferences. In this regard, neuromarketing stands out in determining the intentional and unintentional decision-making process of consumers (Çubuk, 2012). Thus, neuromarketing can be defined as the determination of the impact of visual and auditory sensory organs on the attention, interest, and emotional attraction of consumers in the decision-making process they make (Yücel & Çubuk, 2013). Furthermore, consumers may not always use rational thinking while making purchasing decisions. In other words, consumers may also act irrationally in their purchase decisions.

Today's consumer cannot be reached solely through mass media channels. Leading marketing and communication strategists focus on creating personalized, data-driven, one-to-one customer relationships using every possible advertising, promotion, and relationship opportunity to increase brand

performance. If all elements of marketing communication are used effectively together, marketing communication can work. Moreover, companies no longer differentiate themselves based on their products or industry categories. Companies differentiate themselves by how they associate their product and service offerings with current and future customer preferences (Mulder, 2004).

The application of neuroscience tools in marketing has significantly enhanced our understanding of consumer behavior and decision-making by revealing the cognitive, neural, and emotional mechanisms involved in behavior. Electroencephalography (EEG) and eye tracking (ET) are among the most used tools in consumer neuroscience research. Consumer neuroscience tools have been employed in various marketing areas, such as advertising, branding, online experience, pricing, product development, and product experience, to examine consumer preferences and behaviors. Recently, two user-friendly platforms, Imotions and GRAIL, have emerged that allow the integration of different consumer neuroscience tools onto a single platform. These platforms have the potential to reduce the time and costs associated with conducting experiments, as well as facilitate the process by linking cognitive and emotional aspects to neural processes. Therefore, the use of these platforms can significantly enhance the efficiency and accuracy of consumer neuroscience research in marketing. (Alvino et al., 2020).

Table 1. Most Used Neuroimaging Methods

Changes in Electrical Activity	**Changes in Metabolism or Cerebral Flow**
Electroencephalography (EEG)	Positron emission tomography (PET)
Magnetoencephalography (MEG)	Functional magnetic resonance imaging (fMRI)
	Event related potential (ERP)

Source: Kenning & Plassman, 2005; Kent, 2011

Casado-Aranda and Sanchez-Fernandez (2022) conducted a study aimed at examining the potential contributions of neurophysiological techniques to the field of marketing and consumer decision-making. The researchers identified various ways in which marketing researchers could benefit from the application of neuroscience and psychology. Based on their findings, the researchers proposed recommendations in four thematic areas, including product decisions, pricing, communication, and retail methods.

Although some researchers (Zurawicki, 2010; Lindstrom, 2011; Hammou et al., 2013) consider neuromarketing as pressing the buying button in the human brain, a different study evaluates neuromarketing as finding the way to the buying button in the human brain (Yücel & Çubuk, 2014).

4. CONCLUSION AND RECOMMENDATIONS

In recent years, neuroscience has gained significant attention in the field of marketing and consumer behavior. This is particularly true in today's digital consumer culture, where companies are constantly seeking new and innovative ways to understand their customers and gain a competitive advantage. The competence to pick up enormous amounts of data on consumer behavior, preferences, and attitudes through digital technologies has provided unprecedented insights into the consumer mind. This has led to a surge of interest in the application of neuroscience techniques to better understand consumer decision-making.

One area of particular concern on the field of neuromarketing is the employment of electroencephalography (EEG) to measure brain activity in response to different stimuli. EEG has proven to be a powerful tool in understanding consumer behavior, particularly in the context of online advertising and website design. Research has shown that EEG can be used to measure a range of responses, including attention, engagement, and emotional response, which can provide valuable insights into how consumers interact with digital content (Ariely & Berns, 2010; Kim et al., 2017).

Another area of interest is the use of functional magnetic resonance imaging (fMRI) to study the neural processes underlying consumer decision-making. fMRI has been used to investigate a range of consumer behaviors, including brand preferences, product evaluation, and pricing decisions (Knutson et al., 2007). By measuring brain activity in response to different stimuli, fMRI can provide insights into the neural mechanisms that underlie consumer behavior, allowing companies to tailor their marketing strategies to better align with consumer preferences.

One of the key advantages of using neuroscience techniques is the ability to measure unconscious responses to marketing stimuli, which may not be captured through traditional self-report measures (Plassmann et al., 2012). This can provide a more comprehensive understanding of how consumers respond to marketing messages and inform the development of more effective marketing strategies. For example, studies have shown that visual attention to specific features of an advertisement can predict consumer behavior, such as purchase intentions (Jun et al., 2018).

The use of neuroscience techniques in conceptual level strategy recommendations provides valuable insights into understanding marketing communication efforts in digital consumption culture. Through a combination of traditional marketing research methods and advanced neuroscience tools, researchers can gain a more comprehensive understanding of how consumers engage with marketing content in a digital environment. This approach bears the potency to enable a further accurate picture of consumer behavior and cognition in reply to marketing stimuli (Lamberton & Stephen, 2016).

One key recommendation for marketers is to focus on creating emotional connections with consumers through marketing messages. This can be achieved using storytelling, visual cues, and other

techniques that appeal to the emotional centers of the brain. Additionally, marketers should aim to create personalized experiences for consumers by leveraging data and technology to deliver relevant and timely messages.

Another important recommendation is to optimize the mobile user experience. As more consumers use mobile devices to access digital content, marketers need to ensure that their marketing messages are optimized for these platforms. This includes ensuring that messages are easily readable on small screens, that load times are minimized, and that the user experience is seamless across different devices.

However, it is vital to state that the utilization of neuroscience techniques in marketing research is not without limitations. There are concerns on the generalizability of findings from laboratory studies to real-world marketing contexts, as well as ethical considerations related to the collection and use of personal data (Sorokowski et al., 2016). Furthermore, the use of neuroscience techniques is still in its early stages, and further research is needed to fully realize their potential in understanding marketing communication efforts.

Much as there appear several limitations, the application of neuroscience techniques in conceptual level strategy recommendations holds promise for improving the effectiveness of marketing communication efforts in the digital age. By gaining a deeper understanding of how consumers engage with marketing content in a digital environment, marketers can develop more effective strategies for engaging consumers and promoting brand awareness (Wang et al., 2017).

Despite the potential benefits of applying neuroscience techniques to the study of consumer behavior, there are also several ethical considerations that must be considered. For example, there is a risk that companies may use these techniques to manipulate consumer behavior, rather than simply seeking to better understand it. Additionally, there are concerns around privacy and data protection, particularly given the sensitivity of the data that can be collected through these techniques (Illes & Bird, 2006; Nairne, 2011).

To fully realize the potential of neuroscience techniques in understanding marketing communication, further research is needed to develop more sophisticated models of consumer behavior and the underlying neural processes involved. Future studies could also explore the potential of integrating neuroscience data with other types of consumer data, such as demographic and psychographic information, to provide a more complete understanding of consumer behavior. Ultimately, the application of neuroscience techniques in marketing research holds promise for improving the effectiveness of marketing communication efforts in the digital age.

In conclusion, neuroscience has the potential to provide valuable insights into the way consumers interact with digital content and make purchasing decisions. However, it is important that

these techniques are used ethically and with appropriate safeguards in place to protect consumer privacy. As the area of neuromarketing keeps developing, it seems probable that we shall witness further advancements in our understanding of the consumer mind and new techniques for applying this knowledge in marketing and advertising.

REFERENCES

Alvino L, Pavone L, Abhishta A & Robben H. (2020). Picking Your Brains: Where and How Neuroscience Tools Can Enhance Marketing Research. *Frontiers in neuroscience. 14*, 577666. doi: 10.3389/fnins.2020.577666.

Ariely, D., & Berns, G. S. (2010). Neuromarketing: The hope and hype of neuroimaging in business. *Nature Reviews Neuroscience, 11*(4), 284-292. https://www.nature.com/articles/nrn2795

Belch, G. E., & Belch, M. A. (2021). *Advertising and promotion: An integrated marketing communications perspective*. McGraw-Hill Education.

Casado-Aranda, L. A. & Sanchez-Fernandez, J. (2022). Advances in Neuroscience and Marketing: Analyzing Tool Possibilities and Research Opportunities, *Spanish Journal of Marketing - ESIC, 26*(1), 3-22. doi:10.1108/SJME-10-2021-0196.

Chiao, J. Y., Hariri, A. R. Harada, T., Mano, Y., Sadato, N., Parrish, T. B. & Iidaka, T. (2010). Theory and methods in cultural neuroscience, *Social Cognitive and Affective Neuroscience, 5*(2-3), 356-361. doi.org/10.1093/scan/nsq063.

Çubuk, F. (2012). *Pazarlamada Uygulamaya Yönelik Yeni Bir Yaklaşım: Nöropazarlama*, (Yayınlanmamış yüksek lisans tezi). Kadir Has Üniversitesi, Sosyal Bilgiler Enstitüsü, İstanbul.

De Pelsmacker, P., Geuens, M., & Van den Bergh, J. (2021). *Marketing communications: A European perspective*. Pearson Education.

Deisseroth, K. (2015). Optogenetics: 10 years of microbial opsins in neuroscience. *Nature Neuroscience, 18*(9), 1213-1225.

Dwityas, N. A., Mulyana, A., Hesti, S., Briandana, R. & Kurniasari, P. M. (2020). Digital Marketing Communication Strategies: The Case of Indonesian News'Portals. *International Journal of Economics and Business Administration, VIII*(3), 307-316.

Goldberg, J. H., Stimson, M. J., Lewenstein, M., Scott, N., & Wichansky, A. M. (2013). Eye tracking in usability evaluation: A practitioner's guide. In J. M. Carroll (Ed.), *HCI models, theories, and frameworks: Toward a multidisciplinary science* (pp. 331-352). Morgan Kaufmann.

Hamelin, N. & Harcar, T. (2020). *Neuroscience Marketing, Contemporary Issues In Strategic Marketing* (Chapter 6), pp. 161-191.

Hammou, K. A., Galib, Md. H. & Melloul, J. (2013). The Contributions of Neuromarketing in Marketing Research, *Journal of Management Research, 5*(4), 20-33.

Illes, J., & Bird, S. J. (2006). Neuroethics: A modern context for ethics in neuroscience. *Trends in neurosciences, 29*(9), 511-517.

Jun, S., Kim, H. J., Kim, S., & Choi, Y. (2018). Neural processing of advertising content and purchase motivation: An fMRI study. *Journal of Business Research, 88*, 397-406.

Karmarkar, U. R., & Plassmann, H. (2017). Consumer neuroscience: Past, present, and future. *Organizational Research Methods, 20*(4), 617-645.

Kenning, P., & Plassmann, H. (2005). NeuroEconomics: An overview from an economic perspective. *Brain Research Bulletin, 67*(5), 343-354.

Kent, O. (2011). Ana Akıma Bir Alternatif: Nöroiktisat. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi, 10*(19), 157-176.

Kim, S. J., Park, H. W., & Lee, S. H. (2017). The influence of web page complexity and emotion on cognitive load and satisfaction. *International Journal of Human-Computer Interaction, 33*(7), 513-523.

Knutson, B., Rick, S., Wimmer, G. E., Prelec, D., & Loewenstein, G. (2007). Neural predictors of purchases. *Neuron, 53*(1), 147-156.

Lamberton, C. P., & Stephen, A. T. (2016). A thematic exploration of digital, social media, and mobile marketing: Research evolution from 2000 to 2015 and an agenda for future inquiry. *Journal of Marketing, 80*(6), 146-172.

Lee, N., & Broderick, A. J. (2012). The effects of communication style and information format on persuasion: An fMRI investigation. *Journal of Consumer Behaviour, 11*(5), 353-363. https://doi.org/10.1002/cb.1396.

Lindstrom, M. (2011). **Buy.ology**, 1.Basım, Optimist Yayım Dağıtım.

Logothetis, N. K. (2008). What we can do and what we cannot do with fMRI. *Nature, 453*(7197), 869-878.

Madan, A. & Rosca, M. I. (2022), Current Trends in Digital Marketing Communication. *Journal of Marketing Research and Case Studies*, 2022, 1-13, doi: 10.5171/2022.981169.

Nairne, J. S. (2011). Psychology's dark secret. *Nature, 470*(7335), 30-31.

Nandy, M., & Roy, S.S. (2022). Transformation from Traditional to Digital Marketing Communications: A Case Study on Parle-G Brand. *Adhyayan: A Journal of Management Sciences, 12*(1):51-65.

Oyman, T., Yücel, N., Tüfekci, Ö. K. (2020). Sinir Bilimin Pazarlama Dünyasına Armağanı: Nöropazarlama Deneysel Araştırmaları. *Süleyman Demirel Üniversitesi Vizyoner Dergisi, 11*(26), 314-327. DOI: 10.21076/vizyoner.621148.

Plassmann, H., Ramsøy, T. Z., & Milosavljevic, M. (2012). Branding the brain: A critical review and outlook. *Journal of Consumer Psychology, 22*(1), 18-36.

Plassmann, H., Ramsøy, T. Z., & Milosavljevic, M. (2018). Branding the brain: A critical review and outlook. *Journal of Consumer Psychology, 28*(1), 5-19. https://doi.org/10.1016/j.jcps.2017.11.003.

Poldrack, R. A. (2019). Mapping mental function to brain structure: how can cognitive neuroimaging succeed?. *Perspectives on Psychological Science, 14*(2), 173-191.

Soedarsono, D. K., Mohamad, B., Adamu, A. A. & Pradita, K. A. (2020). Managing Digital Marketing Communication of Coffee Shop Using Instagram. *International Journal of Interactive Mobile Technologies (iJIM), 14*(5), 108-118. doi: 10.3991/ijim.v14i05.13351.

Sorokowski, P., Sorokowska, A., Oleszkiewicz, A., Frackowiak, T., Huanca, T., & Kowal, M. (2016). Neuroscience in marketing: Recent advances and future pathways. *Journal of Consumer Behaviour, 15*(3), 187-199.

Sporns, O. (2013). The human connectome: origins and challenges. *Neuroimage, 80*, 53-61.

Şenbağcı Özer, F. (2021). Neuroscience for Understanding and Developing Sustainability: Neurosustainability. *Journal of Business, Innovation and Governance, 4*(2), 132-148.

Tüfekci Ö. K., Oyman, T. (2020). Reklamlarda Kullanılan Duygusal Çekiciliklerin Elektroensefalografi (EEG) ile Araştırılması. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 40*, 561-584.

Vecchiato, G., Borghini, G., Maglione, A. G., Graziani, I., Piazza, M., & Babiloni, F. (2011). Neuroelectrical hyperscanning measures simultaneous brain activity in humans. *Brain Topography, 23*(3), 243-256. doi: 10.1007/s10548-010-0147-9.

Vide, R. K., Juhart, S., & Hunjet, A. (2021). Sustainable Food Consumption Promotion Through Online Marketing Communication: The Case of Slovenian and Croatian Grocery Stores. *Archives of Business Research, 9*(10). 102-123.

Wang, Y., Wu, L., & Wang, D. (2017). The effects of sensory marketing on brand awareness and brand attitude in digital media. *Journal of Business Research, 79*, 104-111.

Wojciechowski, L. P. & Fichnová, K. (2022). New Technologies and Ambient Marketing Communication. *Studia de Cultura, 14*(2), 22-46. doi: 10.24917/20837275.14.2.2.

Yogesh K. Dwivedi, Elvira Ismagilova, D. Laurie Hughes, Jamie Carlson, Raffaele Filieri, Jenna Jacobson, Varsha Jain, Heikki Karjaluoto, Hajer Kefi, Anjala S. Krishen, Vikram Kumar, Mohammad M. Rahman, Ramakrishnan Raman, Philipp A. Rauschnabel, Jennifer Rowley, Jari Salo, Gina A. Tran & Wang Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions, *International Journal of Information Management, 59*, 102168. doi: 10.1016/j.ijinfomgt.2020.102168.

Yücel, A. & Çubuk, F. (2013). Bilinçaltı Reklamcılık ve Nöropazarlama Yaklaşımların Karşılaştırılması, *Niğde Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 6*(2), s.172-183.

Yücel, N. & Çubuk, F. (2014). Nöropazarlama Penceresinden Marka Değeri, International *Journal of Social Science, 25*(1), 221-233, doi: 10.9761/JASSS2226.

Zaltman, G. (2000). *Neuroimaging as a Marketing Tool*, USPTO, Ed. USA.

Zurawicki, L. (2010). *Neuromarketing, Exploring the Brain of the Consumer*, Springer, Boston MA, USA.