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NEUROMARKETING IN HEALTH SERVICES

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Abstract:
Public service advertisements are necessary to raise awareness, warn or change behavior positively. Countries have started to advertise public services as a cheap, easily accessible, fast, and effective way to save the health system and meet the population's medical needs. However, due to the immediate broadcast of the public service announcements, sufficient information could not be obtained about its effectiveness and deficiencies on people. With the widespread use of neuromarketing techniques in recent years, it is possible to evaluate individuals' positive or negative reactions to public service announcements. The drawbacks and effectiveness of lines can be determined by evaluating the individual's biological, neurological and psychological responses to social lines.

Keywords: neuromarketing, health, service, health system

1. Introduction

Neuromarketing has emerged as a strategy that has caught the attention of retailers in a shopping environment where distances no longer matter, connectivity is ubiquitous, competition is fierce, consumers have more choices, and purchasing cycles are much longer than in the past.

In recent years, developments in neuroimaging have been accepted commercially and, in many areas, and neuromarketing has emerged. Neuromarketing can be briefly defined as applying neuroimaging techniques to market research.

The community demands better services and compensation from service providers due to increased competition, rising healthcare costs, pressures, and relationships from society and policymakers to address systemic deficiencies. With increasing customer mobility, organizational pressures, and new regulations, efficiency has become strategically important for managers and healthcare professionals. While

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customer wants and needs can only be determined by asking questions or observing, neuromarketing has added another layer to this concept.

1.1. Neuromarketing Concept

Neuromarketing, which is very important in consumer behavior, is a marketing method based on the measurement of three critical parameters: attention, emotional commitment, and retention. Neuromarketing drives marketing using concepts that seem impossible to measure at first glance. Better understanding and predicting consumer behavior is the primary goal of neuromarketing (Cherubino et al., 2019: 284).

An example of neuromarketing studies is the use of neurophysiological methods such as EEG (electroencephalography) by some US companies for marketing research in the 1980s, and even Herdert E. Krugman's use of the EEG method in 1971 to explore the interests of marketing (Krugman, 1971: 7).

With the development of communication and information technologies, businesses face a more selective customer group in a competitive market environment. As consumers become familiar with and more aware of traditional marketing channels and business methods, they lead the business to alternative methods, awareness, and research. Professional marketers have used marketing research tools to understand better consumers' responses to the reasons and motivations for their choices. The reliability of the information obtained from the research is important in developing more effective marketing strategies and a better understanding of customers through communication. When the root causes of consumer decisions were discovered, the concept of neuromarketing emerged (Demirtürk and Yücel, 2017: 59).

Developed by Harvard University professor Gary Zaltman in the second half of the 1990s, neuromarketing was introduced as a research technique to analyze the "black box" model of the human mind. In his research, Gary Zaltman declared that functional magnetic resonance imaging (fMRI) tools are used in marketing research (Akgün and Ergün, 2016: 232).

The joint work of neuroscience and marketing today is based on Gerry Zaltman's study of MR imaging techniques, which he adapted to several Fortune 500 companies in the 1990s. Professor Alsmids used the term neuromarketing for the first time in 2002 and brought it to the academic literature (Demirtürk and Yücel, 2017: 61).

Neuromarketing research conducted by Danish marketing researcher Martin Lindström is known as one of the most comprehensive research studies. Lindström, who spent about 7 million dollars on his 3-year work, collected the results of his work, new interactions of technology, and medical information and marketing in his book "Buy-ology" (Yücel and Şimşek, 2018: 137).

There are many definitions of neuromarketing in the literature. According to Yücel and Çubuk, neuromarketing is the measurement of the effects of digitized responses in the subconscious on preferences through sensory organs such as attention, emotional attraction, and interest, visual and auditory, which affect the mindset of the person. According to a different definition in the related study, it is done by measuring the effects of the digitized responses of the subconscious on our preferences, especially through the

interest, attention, and emotional attraction, auditory and visual sense organs that affect the mentality of people (Yücel and Çubuk, 2013: 176).

However, the person who used the term "neuromarketing" for the first time in 2002 is known as Dutch marketing professor Ale Smidts. The researchers shared the view that data from neuroscience complements and illuminates the findings in consumer research. Compared to the use of psychological methods and the emergence of 'neuroeconomics', particularly in economic research, their use in marketing has been slow (Akın, 2014: 81).

Neuromarketing techniques and methods have demonstrated methods of psychoanalyzing people's nonlinear responses in decision-making and then using them in all phases of marketing. In other words, the main difference between neuromarketing techniques and traditional marketing methods is that neuromarketing tries to directly affect consumer consciousness by trying to understand the decision-making mechanism of our brain (Lee et al., 2007: 201).

After the first papers published in neuroeconomics, marketing scholars have suggested the potential of neuroscience methods as a new field of research alongside the classical quantitative and qualitative methodological spectrum. In the years since the publication of the article by Ale Smidts, in which he first proposed the term 'neuromarketing' in 2002, advances in neuroscience and technology have expanded the tools available to researchers in this field, and many definitions of neuromarketing have evolved (Ural, 2008: 421).

The term has been used more frequently in recent years when we look at the place of neuromarketing in the media. There is a fluctuating terminology called "consumer neuroscience" for neuroscience methods and "neuromarketing" for commercial approaches. The debate on whether neuromarketing is applied within the framework of ethical rules has been going on for years. In this context, public and scientific debates about the ethical framework of neuromarketing may disturb consumers (Bayır, 2016: 183).

1.2. Neuromarketing Historical Process

Neuroscience research has also gained momentum with the development of brain research methods since 1985. Neuroscience research has started in military research centers and universities, especially in the United States, Canada, and European countries. Neuroscience research, advancing with discoveries and new technologies, has started to examine the structure of the brain and the decision-making process over time. The discovery of the neuron is the starting point of all neurofields. Introducing the concept of the neuron to the literature has added another dimension to the issue of making decisions with free will, which is used only by philosophers or psychologists (Lewis and Bridger, 2008: 126).

"*While neuroscience has been a growing science since the beginning of the 20th century, everything related to the brain has been tried to be explained by the interconnection of neurons, the brain's flexibility, and its flexibility at the neuronal level*". It is known that the field of

neuromarketing has been a valid research technique since the beginning of neuroscience research and has entered our lives as a new perspective on marketing (Uzbay, 2017: 84).

Although the term neuromarketing entered the literature in the 2000s, its origins date back to much earlier times. Marketing development has always progressed by putting people at the center, and there have always been people who took it as a basis. A form of marketing based on human motivation, purchase, and the continuation of this behavior has never been independent of neurons and the human brain. The meaning and basis of neuromarketing as a name date back to the 20th century (Salman and Peker, 2017: 43).

1.3. Techniques Used in Neuromarketing

The techniques used in neuromarketing are generally classified as neurometric techniques, biometric techniques, and psychometric techniques. These techniques are explored below.

a. Neurometric Techniques

Techniques used to measure emotional and cognitive brain activity. EEG, PET, MEG, and fMRI devices are the most popular. EEG and fMRI are the most commonly used devices in neuromarketing. While EEG device is commonly used in neuromarketing research, fMRI device is also used sometimes (Erdemir and Yavuz, 2016: 67).

b. Biometric Techniques

Biometric techniques used in neuromarketing are eye tracking, skin conductivity, and facial coding. Facial coding is a method of measuring microexpressions that encode unconscious reactions based on the activity of facial muscles via a video camera. Facial expressions are spontaneous and provide real-time information but are subjective (Bercea, 2013: 138).

GRS "Electrodermal Activity" is a neuromarketing application that measures how the brain is affected (emotional or emotionally) according to stimuli from the nervous system. This way, the arousal level of the visual stimuli shown to the subjects can be measured (Erdemir and Yavuz, 2016: 96).

The first true eye movement recording system was developed in 1936, and technological advances have come a long way. Many people, such as psychologists, neuroscientists, business people, artists, architects, academics, and research institutions, use it for visual stimulation, which is directly related to brain functions. (Yücel, 2016: 47).

c. Psychometric Techniques

In neuromarketing research, psychometric measurements are used as well as neurometric and biometric measurements. Brain functions can be measured indirectly using psychometric measurements. In psychometric measurements, reaction times and behaviors are determined in implicit association tests. For example, if we ask an obese person who eats three loaves of bread a day how many loaves a day, we may not get the

answer, "I eat three loaves of bread a day". Thanks to such implicit association tests, it is possible to measure people's behavior indescribably (Varan et al., 2015: 187).

1.4. Ethical Dimension of Neuromarketing Research

The number of marketing activities in society has grown tremendously in the last decade. Some focus on ethics in marketing. Much research is being done to understand customers' emotions, preferences, and decisions during shopping. Consumers are exposed to many marketing strategies and face risks such as unnecessary purchases and excessive consumption addiction (Yücel and Coşkun, 2018: 162-163).

Two views support and oppose neuromarketing studies in the scientific world. The focus of these opposing views is ethical concerns about using consumer data from methods used in neuromarketing research to increase commercial revenues. The idea that brands can easily market their products and services to consumers with the information obtained from neuromarketing results by a specific group seriously criticizes these studies (Fakiri, 2019: 8-9).

Another criticism is that neuromarketing studies focus on finding correlations rather than analyzing causal effects. Neuroscientific research provides information about the consumer's brain rather than providing information about consumer behavior. Electrical brain waves obtained by neuromarketing research methods do not provide information about the causes of the responses given by the subjects. In addition, ethical concerns and some deficiencies in legal regulations are faced with brain measurements that interfere with the subject's intimate areas (Ustaahmetoğlu, 2015: 47).

The number of researchers who find neuromarketing research important, valuable and necessary in marketing is also high. With its current applications, neuromarketing only tries to understand how consumers interact with advertisements, brands, and consumer behavior and uses brain imaging techniques as a research tool. Lee et al. defined it as "*the use of neuroscience methods to understand and analyze human behavior related to markets and marketing exchanges*". This definition is important at two points regarding revealing the neuromarketing intention. First, it removes neuromarketing from an approach that uses neuroimaging techniques solely for the economic benefit of companies. Second, neuromarketing expands the field of research and relates it not only to consumer behavior but also to many of the concerns prevalent in the academic marketing literature, such as research on inter-organizational relationships (Ural, 2008: 435).

1.5. Studies on Neuromarketing in Health Services

While health and education are the subjects that people are most sensitive to throughout their lives, they are no different from other commercial marketing areas today. Humanity has found solutions to pain and illness in its history. The combination of these solutions with scientific data and observations over time has led to the substantial development of the pharmaceutical industry (Ural, 2008: 428).

According to the change graph of the Turkish pharmaceutical market, the pharmaceutical market has grown by 131% in 8 years, even in the Turkish market. While

it was 13.29 billion TL in 2010, it increased to 30.94 billion TL in 2018. Due to people's need for drugs, the pharmaceutical industry is growing day by day, and investments in this field continue rapidly every year. With the increase in this sector's activity and trade volume, the biggest innovation and technology companies have started to invest in this sector. 85% of the participants in KPMG's global research believe that technology companies such as Microsoft, Cisco, IBM, Amazon, and Google will enable the digitalization and further development of the pharmaceutical industry (Savaş and Şener, 2018: 1238).

While all health investments are made to take human health one step further, the commercial orientation of the pharmaceutical industry has emerged with the power of today's media. When a drug is developed to serve commercial rather than public use, it is expected to be produced in a way that suppresses rather than cures human disease based on long-term use. However, if we look at it within the framework of science and morality, it is expected that the principle of benefit to society will be fully implemented. One of the most critical threats to health is that society is affected by the media, opinion leaders, and advertisements. Especially nutritional supplements, vitamins, and drugs marketed by pharmaceutical companies, although many of them are not in the status of pharmaceuticals, have become a market with significant volume power in this field (Lee et al., 2007: 201).

Another critical issue related to health tourism marketing in Turkey (in each region) is cost leadership. A cost leadership strategy is one that any country can successfully implement. Competing on cost alone can be difficult, as alternative destination countries for health tourists are already much cheaper than countries, and the cost differences between alternatives can still be relatively small. Looking at the examples from all over the world, it is estimated that focusing on a specific area and continuing marketing activities using the "focus method" with target area selections can create value. It is thought that Turkey, which has made breakthroughs in the effective use of the internet, providing government support and international certification in line with good practices, can gain a competitive advantage by continuing these initiatives, focusing on certain branches and regions, and establishing international organizations. For example, it would be beneficial to use public and private focusing strategies such as visual impairment, infertility treatment, and plastic surgery and focus on IVF practices like in Barbados. It will be beneficial to determine and weigh the factors that potential health tourists consider when deciding on the country, facility, and subsidiary selection in the target market and shape marketing practices according to the important factors to be determined (Aktan and Işık, 2011: 22).

The structure of the health system in Turkey is very complex. Some of the general practitioners in the health sector are public, some are semi-public, and some are private foundations and associations/institutions. While the Ministry of Health, universities, and units affiliated with the Ministry of National Defense provide health services in public, private institutions are private hospitals, founding hospitals, minority hospitals, private practitioners/experts, polyclinics, laboratories, diagnostic centers, pharmacies, and

medical hospitals, Kızılay, foundations, and associations It plays an important role among the NGOs. (Çıraklı and Sayım, 2009: 17).

Health services in Turkey are financed by the Ministry of Finance, the Social Insurance Institution (SSK, Bağ-Kur, and Emekli Sandigi), private insurance companies, self-financing organizations, and international organizations. Changes and developments in health services have also revealed some innovations in service delivery. The necessity of quality in service, the complex structure of hospitals, the competition between the units providing the service, the constant renewal of technology, and cost pressures affect the management of health services (Döğücü and Sayım, 2009: 32).

1.6. Neuromarketing Research in the World and Turkey

Neuromarketing research has brought a different approach to the consumer decision-making process. Recent research has shown that many brain regions are associated with reward and pleasure. In addition, many different situations are the subject of neuromarketing research, from the relationship between the smell and color of food products to car preferences or which type of advertisement is more successful in conveying different messages to consumers (Uzbay, 2019: 93).

A group of scientists working for Daimler & Chrysler discovered in 2002 that by using an fMRI device, they could better understand consumers' reactions to cars. The subjects were shown photographs of Ferrari and Mini Cooper cars in the study, and their brain activity was carefully examined using an fMRI device. Demonstration of a photograph of a Mini Cooper car showed activation of the brain region that responds to human faces. As a result of the research, it was determined that Mini Cooper brand cars were associated with children's faces (Yücel and Şimşek, 2018: 131).

In 2003, researchers from Baylor College of Medicine, including Prof. Read Montag, examined consumers' preference rates for Coca-Cola and Pepsi. This study was carried out on 67 people using an fMRI device. As a result of neuromarketing research, it has been observed that the rational region of the brain and the emotional region are in conflict and the emotional region is superior to Coca-Cola subjects (Akgün and Ergün, 2016: 232).

This study, which started in 2004 and is much more comprehensive than neuromarketing research, was conducted on smokers and lasted about three and a half years. Very advanced equipment was used in the research. Lindström, from the Center for Neuroimaging Sciences in London, studied 32 smokers and 2,081 volunteer subjects from Germany, the USA, Japan, the UK, and China and how health warnings on cigarette packs affect or do not affect smokers, using fMRI technology. As a result of the research, it was found that the warnings on the front and back of the cigarette pack did not have any effect on reducing the desire to smoke (Faqiri, 2019: 17).

In our country, theoretical and applied studies have been carried out in the field of neuromarketing: 36 gynecology and obstetrics specialists from 4 hospitals in Istanbul participated in the research conducted by Demirtürk and Yücel (2017). The effect of smell on the decision process was measured using a 14-channel EEG device (Demirtürk and Yücel, 2017: 65).

In the study of Yücel et al. (2020), the eye-tracking analysis method was used, and the main parts of the subjects were determined using heat maps. It was determined that the subjects focused on the ad player in 8 of 14 ad images and on texts in 6. In this case, highlighting the texts in the advertisement images and making them more attractive shows that the impact on the target audience will increase (Yücel et al., 2020: 982).

Bayır's (2016) master's thesis on determining the brand identity of GSM operators was also conducted at Fırat University Marketing and Neuromarketing Research Center (Bayır, 2016: 184).

Bağcı (2022) aimed to contribute to the field of literature by researching "Examination of the Effects of Turkish-Themed Commercials on the Consumer Mind", "Eye Tracking and EEG Devices Reveal Symbols and Music Used with Neurochemical Devices" and the "Turkey" branding in tourism and the impact of these symbols and music on tourists (Bağçı, 2022: 86).

2. Conclusion and Suggestions

In today's increasingly competitive environment, companies seek innovation, especially in marketing and advertising, to survive and stand out from the competition. Reaching the right audience while reducing promotional costs has become the most important goal of companies. In this process, the neuromarketing research strategy has created an opportunity for companies to reduce advertising costs, get detailed information on how to appeal to the right audience, and increase interest in the product sold by specific games. Neuromarketing is a marketing method that uses information from the human brain and nervous system.

During neuromarketing research, topics suitable for the product's target audience are selected. It can be understood whether these people perceive the message presented in the product advertisement correctly and whether they are interested in the product. Companies and experts doing marketing and advertising research use the information from the neuromarketing application to sell more products or services to people, raising some ethical issues. First, the fact that research companies and experts can read the minds of individuals raises the issue of violating the privacy of personal feelings and thoughts. The ability of neuromarketers to reveal individuals' personal preferences outside research questions leads to a violation of privacy. In addition, these studies change the subject's perception and make them interested in the product. Thus, subjects more interested in the product consume what they do not need. The most significant criticism of neuromarketing research comes at this point.

In a highly competitive market environment, even a small amount of business insight effectively increases the effectiveness of marketing communications and new product promotions. Although traditional research methods are beneficial, adequate and accurate results cannot be obtained due to individual and environmental factors. Individual and environmental factors have been minimized, and accurate data have been obtained by trying to reach individuals' subconscious or examining the body's biological

reactions. One of the most important and newest areas of marketing research is neuromarketing.

In addition to rational information, emotional factors affect consumers' purchasing decisions. Neuromarketing can measure these emotional factors. Techniques used in neuromarketing and medicine are used to measure strategies on issues such as product design, pricing, advertising effectiveness, and customer loyalty. This technique is used to understand consumer behavior. It is possible to determine which part of the brain is active and how they react to an advertisement or product they see. Applying this marketing approach also raises ethical issues. The threat of not protecting user data and exploiting the human brain creates these problems. The lack of official regulation of neuromarketing research also raises these issues. Approval from the Non-Interventional Research Ethics Committee is required for neuromarketing studies. As a result of the literature review, there are studies in the field of neuromarketing, but there are almost no studies in the field of neuromarketing in health services and businesses. It is recommended that studies in this field should be increased, that it should be an important agenda item in the field of medical tourism, thermal tourism, and wellness tourism, especially in private and public hospitals and other health enterprises, and that the importance of neuromarketing should be emphasized.

Conflict of Interest Statement

The author declares no conflicts of interest.

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