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RESEARCH ARTICLE

Content Analysis of Academic Studies on Neuromarketing in Turkey[1]

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Abstract

Developments in neuroimaging in recent years have found their way into marketing and many other areas, giving rise to the concept of neuromarketing. Neuromarketing can be briefly defined as the application of neuroimaging techniques to market research. Within the scope of this work, a content analysis study was made of the sources available in the literature in the field of neuromarketing, covering the master's and Ph.D. theses that have been written in Turkey so far. In order to avoid semantic confusion and to focus on the analysis, the detailed examination of the concept of neuromarketing is left to the studies discussed in the study and specified in the appendices. The aim of the study is to provide an overview of the current state of neuromarketing research and the direction it should take in the future. At the same time, this study is the first literature review of its kind in the field of neuromarketing. 76 master's and 21 doctoral theses on the subject were found and included in the study. As a result of the research, joint studies with different disciplines can be carried out due to the focus on different areas within applied studies.

Keywords: *Marketing, Neuromarketing, Marketing Communications, Consumer, Content Analysis*

Öz

Son yıllarda nörogörüntülemede yaşanan gelişmeler birçok alanda olduğu gibi pazarlama alanında da benimsenmiş ve nöropazarlama kavramı ortaya çıkmıştır. Nöropazarlama kısaca nörogörüntüleme tekniklerinin pazar araştırmalarına uygulanması olarak tanımlanabilir. Çalışma kapsamında; nöropazarlama alanında literatürde ulaşılabilen kaynaklar çerçevesinde şimdiye kadar Türkiye'de yapılan Yüksek Lisans ve Doktora tezlerini kapsayan bir içerik analiz çalışması oluşturulmuştur. Anlam karmaşası oluşturmamak ve analizi ön plana çıkarabilmek adına nöropazarlama kavramının detaylı irdelenmesi çalışmada ele alınan ve ekler kısmında belirtilen çalışmalara bırakılmıştır. Bununla beraber mevcut durumu ortaya koymak, akademik çalışmalarda nöropazarlamaya verilen önemi belirtmek, gelecekteki nöropazarlama araştırmalarına yön tayin etmeye katkı sağlamak amaçlanmıştır. Aynı zamanda bu çalışma, nöropazarlama alanında bu kapsamda yapılan ilk literatür taraması olma özelliğini de taşımaktadır. Konu ile ilgili 76 yüksek lisans, 21 doktora tezi bulunmuş ve çalışmaya dâhil edilmiştir. Araştırma sonucunda; uygulamalı çalışmalar içerisinde farklı alanlara yönelerek farklı disiplinlerle ortak çalışmalar yürütülebilir.

Anahtar Kelimeler: *Pazarlama, Nöropazarlama, Pazarlama Iletişimi, Tüketici, Içerik Analizi*

Introduction

Scientific developments are progressing much faster than before. Marketing has also taken its share from this progress. The results obtained in traditional ways do not satisfy the researchers. By focusing on the gaps in research processes with technological developments, different solutions have started to be produced from different perspectives.

It is known that not only rational but also emotional tendencies are effective in consumers' decisions. Based on the knowledge that neurological processes are the most effective way of measuring emotional influence, neurological tools have started to be applied to consumer decision-making processes. However, the possibility of measuring the effect of marketing stimuli with neurological tools is called neuromarketing. Marketing, which has gone through various periods until today, today crowns the efficiency of its meeting with technology with outputs that cannot be doubted.

The problem status of this study, which is carried out as an examination of academic theses in the field of neuromarketing in Turkey, the questions sought for answers, the purpose, importance, assumptions and limitations of the study are mentioned. Then, the research model, population and sample, data collection tools and data analysis, and finally validity and reliability of the study will be stated. Afterwards, the findings emerging from the data obtained will be detailed under headings.

This study was conducted between January 2021 and May 2021, and 72 master's and 20 doctoral theses written since 2012 on the subject were found from the Higher Education Institution Database and included in the study.

Neuromarketing and Its Application Fields

In the history of world production, the delivery of the product/goods to the consumer has gone through different phases. At first, all the products produced found buyers, but over time, the production surplus, thus the competition increased and it came to a time when the consumer had the luxury of choice. Thus, the introduction of marketing into our lives has become inevitable and various activities and strategies have been developed and implemented in order to influence the consumer and make the product / product demanded by the user. Nowadays, the consumer is at the centre of all processes of the business and the end user is tried to be addressed with personalised products when necessary. Nevertheless, what drives the consumer to prefer one product over another in the decision-making process remains the biggest problem that the marketing sector is trying to understand. The search for solutions has shown that the decision-making process takes place at the subconscious level. Our choices and the product/goods etc. we think we want match very little (Boksem & Smidts, 2015).

As a result of the researches in the field of neuroanatomy, the physiological functions of human brain structure and regions might be known by time. In addition, it has been possible to understand and interpret the neural activities that trigger consumer behaviours. With technological developments, neuroimaging competencies have developed and studies on brain imaging and their analysis to understand consumer behaviour have increased considerably. Therefore, interest in studies on imaging and analysing brain activities to understand consumer behaviour has also increased considerably. With these methods that have started to be used in the field of marketing, the concept of neuromarketing has entered the literature (Lee et al., 2007). As a research field, neuromarketing can be defined as trying to understand the reactions to stimuli with neuroscience tools.

In the 1980s, some companies used the EEG (electroencephalography) technique in their marketing research (Olson and Ray, 1983; Rothschild et al., 1986). Although there have been studies that can be shown as examples of neuromarketing studies before this, the term 'neuromarketing' was used for the first time in 2002 by Ale Smidts, a marketing professor (Smidts, 2002). There is a common view that the information obtained through neuroscience research plays a complementary role in understanding consumer behaviour. In addition, neuromarketing should be considered as a

complementary rather than an alternative marketing research tool (Cherubino et al., 2019).

Research Model

In this study, it is aimed to examine the master's and doctoral thesis studies in the field of neuromarketing published in Turkey. In this direction, content analysis, one of the qualitative research methods, was preferred. Content analysis is a research technique that aims to make repeatable and valid inferences about the concepts used in the texts and documents studied (Krippendorff, 2004). In another definition, it is

Universe and Sample

The research population of the study is the master's and doctoral academic thesis studies on neuromarketing in Turkey. The sample of the study consists of a total of 92 thesis studies, 72 master's degree and 20 doctoral degree theses, which can be accessed from the YÖK Database on neuromarketing since 2012.

Table 1. Sample Distribution of the Study

Sample	f	%
Master's Theses	72	78
Doctoral Theses	20	22
Total	**92**	**100**
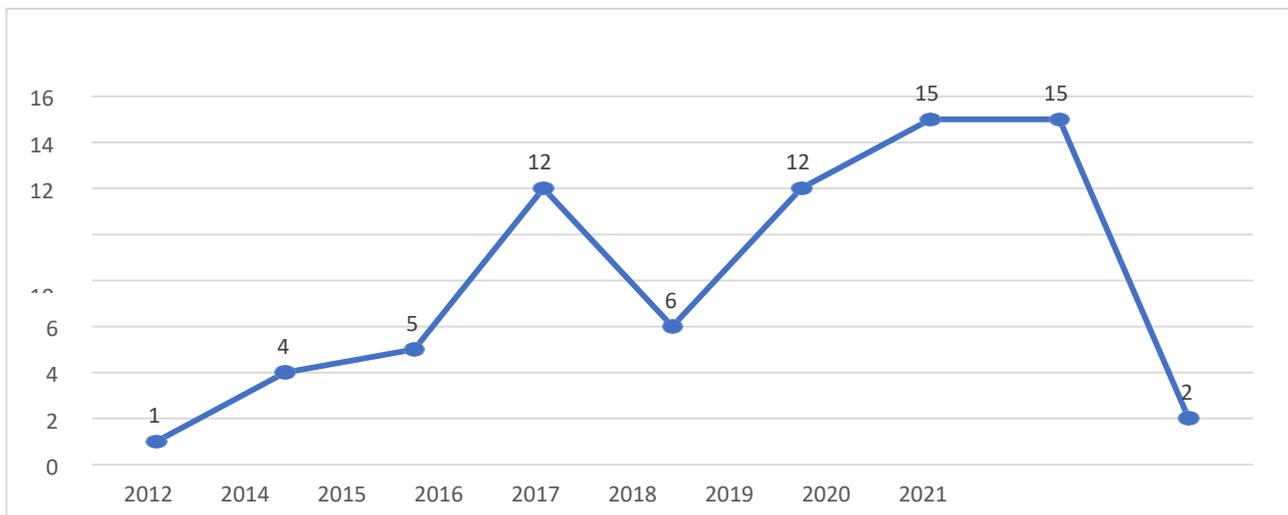
Figure 1. Distribution of Master's Theses by Years

defined as an objective, quantitative examination of the apparent content of communication in a certain order (Berelson, 1952). According to Cohen, Manion and Morrison (2007), content analysis is the process of summarising and specifying the information contained in the available written sources. As a scientific research technique, it is a necessary element that content analysis is reliable and reproducible (Krippendorff, 2004). In the studies conducted with the content analysis method, the content, summary and findings of many studies are included. This allows more information to be obtained about the subject in order to determine the trends and the scope of the studies.

Data Analyses

The data obtained in this study were analysed using content analysis method. Content analysis is a type of research that aims to obtain inferences by digitising the outputs of written material on a specific subject under predetermined headings (Karasar, 2003).

Figure 2. Distribution of PhD Theses by Years

In content analysis, the data collected under predetermined headings are explained and their relationships are revealed. By processing the collected data, it is tried to obtain in-depth information on th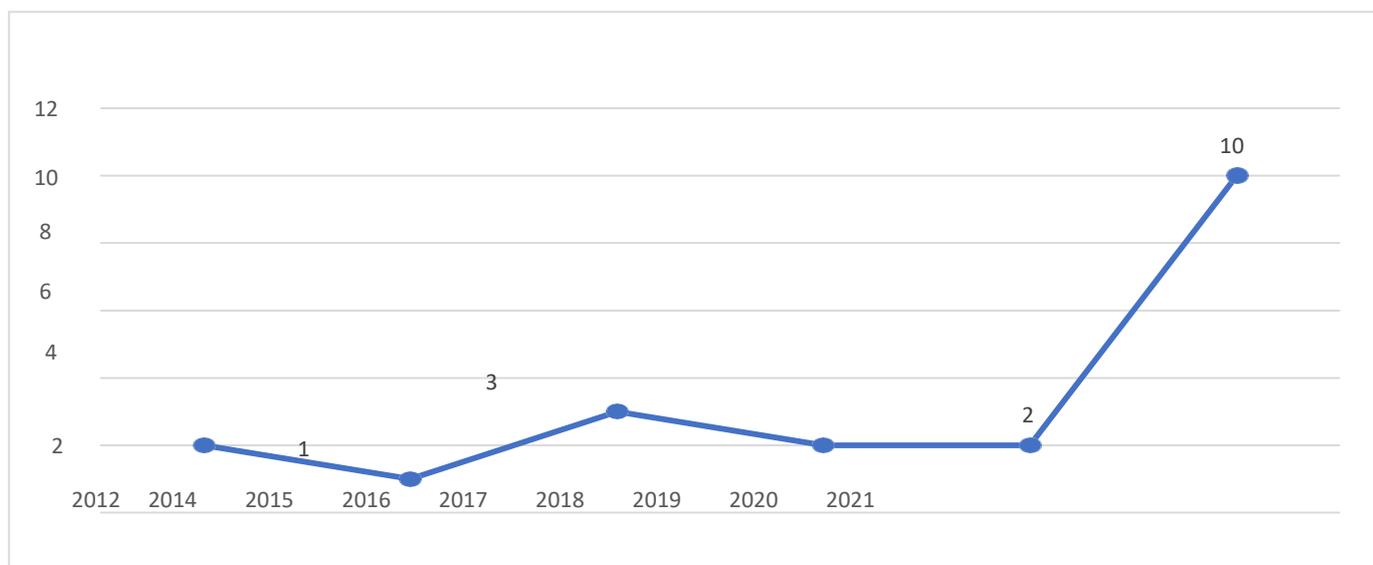e subject under consideration and to bring the data to a conclusion (Yıldırım & Şimşek, 2013). In the findings obtained, the ratio of the variable in the whole document was expressed as percentage (%) and the number of times it was used was expressed as frequency of use (f). For this purpose, all documents suitable for predetermined criteria were scanned and the desired data and variables were handled in tables.

Findings

Distribution of Theses by Year

When we break down the grouping of studies in the field of Neuromarketing according to publication types by years, it is seen that the increasing popularity and usage area of

Neuromarketing is reflected in academic publications.

According to the Higher Education Institution Database information; it is seen that the first study was conducted in 2012. After this date, it is seen that the gradually increasing study first peaked in

2016 with 12 studies. Although there was a decrease in 2017, we can see that it increased in the

following years without slowing down. In 2019, 15 studies were conducted and this number was maintained in 2020.

According to the data of the Higher Education Institution Database; the first academic thesis study in the field of neuromarketing in our country started in 2012, followed by the first doctoral study in 2014. In 2019, it has reached a peak with 10 studies.

We see that the Covid-19 outbreak, which started in 2019 and the first case was seen in 2020 in our country, had a negative impact on the studies conducted in this field and the number of studies conducted compared to the previous year, but maintained its place. The negative reflection of the Covid-19 pandemic on academic studies in this field is also shown by the fact that there were only 2 master's theses in the field of neuromarketing as of May 2021, when this thesis was conducted.
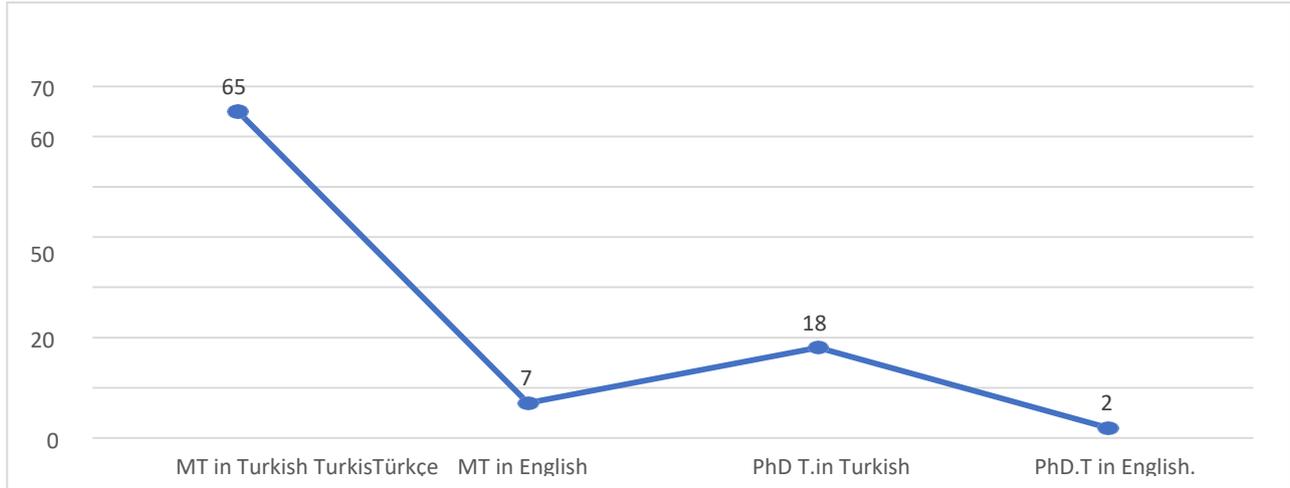
Figure 3. *Distribution of the studied theses according to the languages of publication*

Distribution by Institution

The number of universities in which master's and doctoral studies are carried out within the scope of this study is 37.

Table 2. *Distribution of universities according to the number of publications of master's theses*

Üniversite	f
Fırat University	15
Üsküdar University	12
Bahçeşehir University	8
Marmara University	4
Hitit University	3
İstanbul Okan University	3
İstanbul University	3
Anadolu University	2
Selçuk University	2
Balıkesir University si	1
Başkent University i	1
Bilecik Şeyh Edebali University	1
Çağ University	1
Doğuş University	1
Dokuz Eylül University si	1
Gediz University	1
Hacettepe University	1
İstanbul Gelişim University	1
İstanbul Kültür University	1
Kadir Has University	1

Karabük University	1
KTO Karatay University	1
Kütahya Dumlupınar University	1
Muğla Sıtkı Koçman University	1
Necmettin Erbakan University	1
Recep Tayyip Erdoğan University	1
Sakarya University	1
Trakya University	1
Yozgat Bozok University	1
Total	**72**

According to the data of the Higher Education Institution Database, 3 of the 20 doctoral theses have been published in Selçuk University since 2012 when the first study was conducted. Selçuk University is followed by Süleyman Demirel University with 2 theses.

Table 3. *Distribution of the theses according to the research method used*

Research Model	f	%
Both	4	4
Quantitative	69	75
Qualitative	19	21
Total	**92**	**100**

Table 4. Sub-divisions of research methods used in master's theses

Master's Thesis	f
Experiment	28
Experiment&Application	11
Theoretical	14
Application	18
Total	**72**

Table 5. Sub-divisions of research methods used in doctoral theses

Doctoral Thesis	f
Experiment	5
Experiment&Application	14
Theoretical	1
Application	0
Total	**20**

Subdivision of Methods Used in Thesis Studies

The research sub-design of the research methods to which the theses included in the analysis are subjected to are mostly experimental studies with a total of 33 studies (master's 28 and doctorate 5).
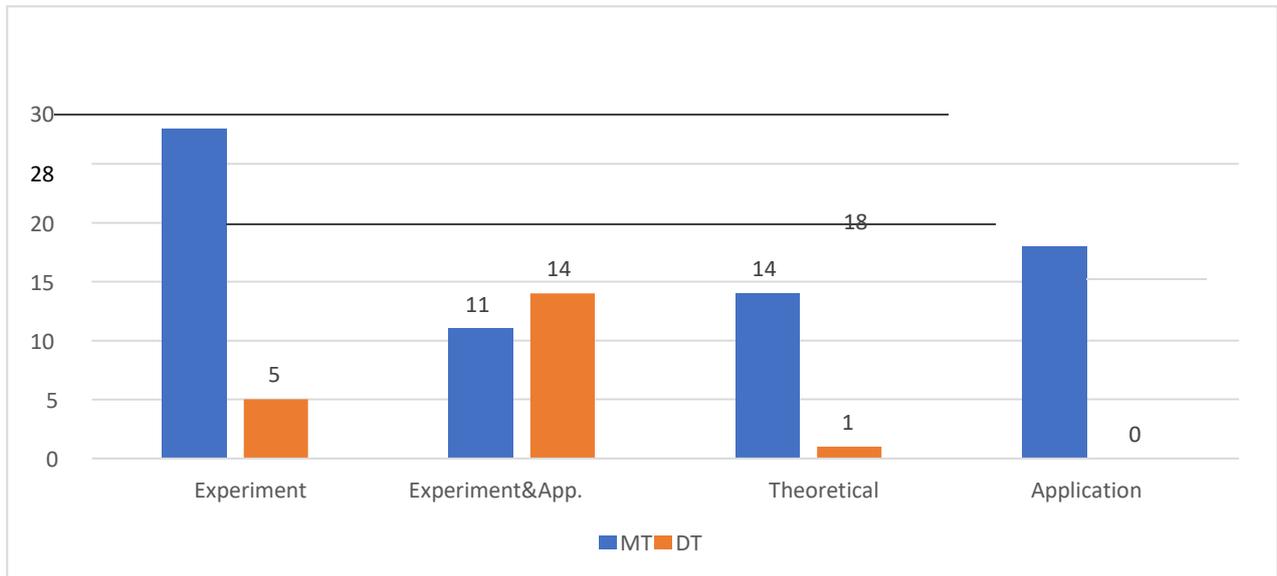
Figure 4. Distribution of the theses according to research method sub-divisions

Research Methods Used in Theses

Since 2012, quantitative, qualitative and mixed methods have been used in theses published on neuromarketing. It is seen in Table 8.

Quantitative research methods were used in 69 (75 %) of the studies. Subsequently, qualitative studies, in which the subject is theoretically handled, take the second place with 19 (21 %) publications. The frequency of using quantitative research method is a very positive finding for the research-based field of neuromarketing.

Distribution of Data Collection Methods Used in Theses

Table 6. Data collection methods and numbers used in the theses studied

Data Collection Methods	f
Survey	38
EEG	36
Eye Tracking	26
Literature Review	14
In-depth Interview	7
GSR	5
EMG	3
Comparison/Description	2
PPG	1
Focus Group	1
HR	1
fNIRS	1
fMRI	1
Biopac	1

Findings Related to Keywords Used in Publications

Within the scope of the research, the keywords used in the researches on neuromarketing were analysed. It is aimed to observe the width of the study area by transferring all words.

Table 7. Keywords Used in the Theses and Frequency of Use

Keyword	f	Keyword	f	Keyword	f	Keyword	f
Neuromarketing	89	Visual Attention	1	Impulse	2	Brand Image	1
Marketing	24	Visual Communication Design	1	Ethics	2	Branding	1
Consumer Behavior	18	Eye Movement	1	Conventional Methods	2	Humorous Advertising	1
EEG	16	Graphic Design	1	Guerilla Research Techniques	2	Effects of Models on Purchase Behavior	1
Eye tracking	16	Hedonic Consumption	1	FMCG	2	Qualitative Research	1
Neuroscience	13	Covid-19	1	Woman	2	Neuroeconomy	1
Advertising	12	Content Analysis	1	Decision Making	2	Neuro Imaging	1
Consumer	9	Instinctive Buying	1	Fear	2	Neuroeconomics	1
EEG Analysis	8	Persuasion	1	Fear Appeal	2	Neuromotivational Dynamics	1
Brain	6	Communication	1	Psychobioneuro-chemistry	2	Neuro-stimulus	1
Perception	5	Relevance	1	Advertisiment Reseaarch	2	Oscillation	1
Neuroimaging	5	Models	1	Advertising Appeal	2	Marketing Communications	1
Subliminal Advertising	4	Human Behavior	1	Decision-making process	2	Pegasus Airways	1
Digital e-marketing	4	Internet Advertising	1	Purchase Intent	2	Psychophysiological Methods	1
Eye Tracking Analysis	4	Impulsive Buying Behavior	1	Consumer Perception	2	Advertisement Likes	1
Brand	4	Quality Perception	1	Consumer Behaivor Models	2	Advertisement	1
Brand Awareness	4	Heart Rate Analysis	1	Consumer Preference	2	Advertisement Events	1
Event Related Potential	4	PSA	1	Banner	1	Advertisement Memory	1
Subconscious	3	Decision Making	1	Detection	1	Advertisement Music	1
Emotion	3	Identity	1	Packaging Design	1	Retro	1
Brand Identity	3	The Effect of Smell on Purchasing	1	Animation	1	Purchasing	1
Marketing Research	3	Conventional Media	1	Survey Management	1	Purchasing Behavior	1
Marketing Research Tecniques	3	Creative Strategy	1	B2B	1	Purchasing Decision	1
Tourism	3	Crisis Management	1	B2C	1	Sales Techniques	1
Re-purchasing Decision	3	User Experience	1	Bank Advertisements	1	Voter	1
Perception Management	2	Usability	1	Banner Events	1	Serotonin	1
Packaging	2	Store Atmosphere	1	Banner Advertisements	1	Anti-smoking Advertisement	1
Sensory Branding	2	Brand Perception	1	Memory	1	Political Product	1
Sensory Marketing	2	Brand Equity	1	Five Factor Personality Features	1	Politics	1
				White Collar Employees	1	Social Innovation	1
				Informed User	1	Social Psychology	1
				Subliminal Message	1	Social Help	1
				Individual Preferance	1	Subliminal Preperation	1
				Large Size Models	1	Company	1
				CITTASLOW	1	Holiday Package	1
				Gender Factor	1	Tipography	1
				Wavelet Phase Coherence	1	Touristic Purchasing Decision	1

Behavioural Economics	1	Tourist Types	1
Skin Conductivity Signal	1	Tourism Marketing	1
Destination Marketing	1	Consumer Decision Making Styles	1
Attention	1	Turkish Airlines	1
Sensory Branding	1	UNESCO	1
Sense	1	Turkish Consumers	1
Sensory Branding Fragmentation	1	Product Placement	1
E-Magazine	1	Web Design	1
Emotion	1	Web Site Design Features	1
Male	1	Generation X	1
Awareness	1	Generation Y	1
Price Reduction	1	Typeface	1
fMRI	1	New Media	1
fNIRS	1	F&B Businesses	1
Photoplethysmography Signal	1	Facial Muscle Activity Rate Analysis	1
LLP	1	Facial Muscle Movement Analysis	1
Food Retailing	1	Generation Z	1

Note: Since more than one tool can be used in a study, the total value is not given.

All keywords were reviewed one by one and a meticulous study was carried out and it was determined that a total of 166 singular words and phrases were used in the studies. The breadth of this number is important in terms of shedding light on the scope and spread of studies in the field of neuromarketing. It can be easily seen that consumer purchasing decision and process and purchasing habits constitute the main focus of the researches.

Findings Related to Purpose Sentences of Publications

In this section, the purpose statements of the theses were analysed. The purpose statements of a total of 92 studies in the grouping of master's and doctoral thesis studies were interpreted and categorised under 4 main headings and these 4 headings were divided into a total of 14 sub-headings.

Table 8. Distribution of purpose statements within the main heading 'Neuromarketing Review'

Neuromarketing Review	f
What is neuromarketing?	14

Increasing Awareness in Neuromarketing	13
Ethics	2
Methos Comparison	7

In the categorization study conducted under the main title of Neuromarketing Review, the titles that the theoretical studies in this field focus on are listed. Here, in order to contribute to the literature, the concept of neuromarketing and its fields of study were analysed. Comparison of neuromarketing with classical marketing research methods and ethical analyses are also discussed.

Table 9. Distribution of the purpose statements according to the main topic 'Consumer and Purchasing'.

Consumer and Purchasing	f
Consumer Attitudes and Behaviors	18
Purchasing Behavior	22
Repurchasing Decision	3
Scent	2

Under the main topic of Consumer and Purchasing, the experimental studies conducted in the field of neuromarketing were categorised according to the topics examined.

Figure 5. Keyword Cloud

Table 10. Distribution of purpose statements according to 'Content/Message/Advertising Stimulus Effect' a. b.

Content/Message/Advertisement Stimulus Effect	f
Marketing Communication Method	1
Content (Awareness) Activity	44

The majority of studies in the field of neuromarketing have aimed to observe the effect of marketing stimulus content on consumer perception. This has naturally led to the main topic of Content/Message/Advertising Stimulus Effect.

Table 11. Distribution of purpose statements according to the sub-heading 'Brand'

Brand	f
Sensory Brand Fragmentation	1
Brand Investment Efficiency	1
Brand Awareness	4
Brand Perception	3

In neuromarketing, where 92 studies have conducted research in a total of 135 topics, one of the main topics that studies focus on is branding studies.

Conclusion and Evaluation

Understanding the consumer and revealing the factors affecting his/her decisions is one of the primary objectives of marketing. It is a well-known fact that not only rational decisions are made in purchasing processes. From this point of view, the contribution of technological progress to the effort to understand the consumer is inevitable. With the developments in the medical world, especially in the field of neuroscience, it has become possible to understand the consumer's purchasing decisions objectively. Neuromarketing provides undoubted benefits to researchers in evaluating the results of marketing strategies and activities by identifying consumer behaviour and purchasing decisions by using the possibilities of neuroscience.

Consumers do not only act on the basis of rational data when they make a purchase decision, but they also include emotional factors in the decision-making process. The measurement of these emotional factors is the focus of neuromarketing research. Neuromarketing applies the techniques of medicine to the development and measurement of strategies in areas such as product design, advertising effectiveness, pricing, and customer loyalty. Neuromarketing has broken new ground for marketers because the techniques used in neuroscience have been used in marketing to understand consumer behavior. Effective advertising and neuromarketing methods are used to create marketing strategies to stay in the minds of consumers and to determine what consumers prefer when they are ready to buy (Yücel&Coşkun). So, neuromarketing can be defined as the use of brain imaging techniques to understand the behavior of people in response to changes in the marketplace and in marketing. (Lee&Chamberlain, 2007)

Looking at the distribution of MSc and PhD dissertations in the field of neuromarketing in Turkey, the scope of this study, it becomes clear that the importance and popularity of the subject are growing daily. Since the publication of the first study in 2012, a total of 92 master's and doctoral theses have been written. The field, which was initially approached theoretically, is now the subject of applied and experimental studies. The interest and contribution of Fırat University to the field is one of the most striking points under the headings where the results of the dissertations analysed are presented. A total of 15 master's and doctoral theses were carried out at this university alone. Following this, Üsküdar University has made a high contribution to the field with its Master's studies. When we look at the data collection methods, in addition to survey studies, experimental studies, especially those using EEG and eye tracking tools, stand out.

Supporting the opening of research centers in universities with master's and doctoral programs in order to make studies in this field more institutional will contribute significantly to the development of this field.

Incorporate neuromarketing studies into educational activities to expand and enhance their impact, as well as into undergraduate and graduate programs in higher education is very important.

Neuromarketing topics and theoretical knowledge should be reinforced by gaining practical experience in laboratory environments. The publication of academic articles on the results of neuromarketing studies and the provision of resources for the field of neuromarketing in Turkey will have to be organized. (Salman&Perker, 2017)

References

Ariely, D., ve Berns, G.S., 2010, "Neuromarketing: The hope and hype of neuroimaging in business", Nature Reviews Neuroscience, 11(4), pp 284-292.

Aşkın, Ö., Öğrenme Stilleri ile İlgili Elektronik Ortamda Yayımlanan Çalışmaların İncelenmesi, Yüksek Lisans Tezi, Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara, 2006.

Ataseven, N. 2015, "Türkiye'de Öğrenme Stilleri Konusunda Yapılan Tezlerin İncelenmesi", Eğitim ve Öğretim Araştırmaları Dergisi, 4 (3), pp 192-205.

Babiloni, F. ve Cherubino, P., "Neuromarketing" Reference Module in Neuroscience and Biobehavioral Psychology, 2020.

Benito, S.M. and Guerra, V.F., 2011, "Neuromarketing: Tecnologías, Mercado y Retos", Pensar la Publicidad, 5(2), pp 19-42.

Berelson, B., Content analysis in communication research, Hafner Press, New York, 1952.

Bloom, Floyd E. 2008, "Fundamentals of Neuroscience", Academic Press Burlingtan, San Diego, London pp 3-13.

Bozkurt, A., and Durak, G., 2018, "A Systematic Review of Gamification Research: In Pursuit of Homo Ludens", International Journal of Game-Based Learning (IJGBL), 8(3), pp 15-33.

Bozoklu, Ç., Pınar, S. A., Nöropazarlama Reklam Tasarımı ve Etik. Ankara: Siyasal Kitapevi, 2017.

Byrne, M., Anderson J.R., Douglass, S. and Matessa, M., 1999, "Eye tracking the visual search of click-down menus.", Proceedings of the SIGCHI conference on Human Factors in Computing Systems, 99, pp 402-409.

Cevher, A. Y., Öğrenme stilleri konusunda yapılmış akademik çalışmaların incelenmesi: Sistematik derleme, Yüksek Lisans Tezi, Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Bilgisayar ve Öğretim Teknolojileri Eğitimi Anabilim Dalı, Erzurum, 2017.

Cherubino, P., Martinez-Levy, A. C., Caratu, M., Cartocci, G., Di Flumeri, G., Modica, E., Rossi, D., Mancini, M. and Trettel, A., "Consumer Behaviour through the Eyes of Neurophysiological Measures: State-Of-The-Art and Future Trends", Computational Intelligence and Neuroscience, 41, 2019.

Neurophysiological Measures: State-Of-The-Art and Future Trends", Computational Intelligence and Neuroscience, 41. https://doi.org/10.1155/2019/1976847

Cherubino, P., Martinez-Levy, A. C., Caratu, M., Cartocci, G., Di Flumeri, G., Modica, E., Rossi, D., Mancini, M. ve Trettel, A., 2019, "Consumer Behaviour through the Eyes of Neurophysiological Measures: State-Of-The-Art and Future Trends", Computational Intelligence and Neuroscience, 41. https://doi.org/10.1155/2019/1976847

Cohen, L., Manion, L., Morrison, K., Research methods in education, Routledge, New York, 2007.

Coşkun, A., Türkiye'de matematik eğitimi alanında problem çözmeye yönelik yapılan çalışmaların bir içerik analizi, Yüksek Lisans Tezi, Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum, 2021.

Deppe, M., 2006, "Nonlinear Responses Within the Medial Prefrontal Cortex Reveal When Specific Implicit Information Influences Economic Decision Making". Journal of Neuroimaging 15(2), pp. 171-182.

Flores, J., Baruca, A., ve Saldivar, R., 2014, "Is neuromarketing ethical? Consumers say yes. consumers say no", Journal of Legal, Ethical & Regulatory Issues, 17(2), pp 77-91.

Fortunato, V. C. R., Giraldi, J. D. M. E., ve De Oliveira, J. H. C., 2014, "A review of studies on neuromarketing: Practical results, techniques, contributions and limitations." Journal of Management Research, 6(2), pp 201.

Fugate, D. L., 2007, "Neuromarketing: A layman's look at neuroscience and its potential application to marketing practice", Journal of Consumer Marketing, 24(7), pp 385-394.

Hammersley, M., Partisanship and credibility: the case of antiracist educational research, Open University Pres, Buckingham, 1998.

Hegazy, İ.M., "The effect of political neuromarketing 2.0 on election outcomes. The case of Trump's presidential campaign 2016", Review of Economics and Political, 2019.

Hegazy, İ.M., 2019, "The effect of political neuromarketing 2.0 on election outcomes.

The case of Trump's presidential campaign 2016", Review of Economics and Political 59

Science. İnstitute for Neuromarketing, 2019, "Facial Coding" https://neuromarketinginstitut.com/eng/facial-coding/

Hoffman, J.N., 1998, Visual Attention and Eye Movements., University of Delawere, USA, pp 119-153.

Karasar, N., Bilimsel Araştırma Yöntemi, Nobel Yayın Dağıtım, Ankara, 2003.

Knutson, B., Charles M. A., Grace W. F., "Anticipation of Increasing Monetary Reward Selectively Recruits Nucleus Accumbens", Journal of Neuroscience, 2001.

Kod MRK, 2015, "Pazarlama Üzerine Araştırmalar", Pazarlamayla ilgili teorik bilgilerin, makalelerin ve çevirilerin yayınlandığı pazarlama bloğu, http://marketingdersleri.blogspot.com/2015/04/pazarlama-marketing-nedir.html

Kotler, P., Kartajaya, H. ve Setiawan, İ., "Marketing 4.0 Moving from Traditional to Digital.", Wiley, 2017.

Krippendorff, K., Content analysis: an introduction to its methodology, Sage Publications, Thousand Oaks, 2004.

Kunduracıoğlu, İ., Oyunlaştırma Kavramı Üzerine İçerik Analizi Çalışması, Yüksek Lisans Tezi, Balıkesir Üniversitesi Fen Bilimleri Enstitüsü, Balıkesir, 2018.

Lee, N., Broderick, A. J. & Chamberlain, L. (2007). What is 'neuromarketing'? A discussion and agenda for future research. *International Journal of Psychophysiology*, 63(2), 199-204.

Lopez, M.A. ve Garcia, G.S., 2018, "Review of the Relationship between HumanMachine Interaction and Web Usability in the Application of the Eye Tracking Technique in Neuromarketing" Noble International Journal of Business and Management Research, 2(2), pp 7-17.

Martin, L.S., "Neurociencia, empresa y marketing." ESİC Editorial, Madrid 2013

McClure, S. M., Jian L., Damon T., (2004). "Neural Correlates of Behavioral Preference for Culturally Familiar Drinks", Neuron, 44 pp. 379–387.

McClure, S.M., Li, J., Tomlin, D., Cypert, K.S., Montague, L.M. and Montague, P.R., 2004, "Neural correlates of behavioral preference for culturally familiar drinks.", Neuron, 44, pp 379-387.

Morin, C., (2014), "Neuromarketing: The new science of consumer behavior", Society, 48(2), pp 131-135.

Morin, C., 2011, "Neuromarketing: The New Science of Consumer Behavior", Springer Science + Business Media, 48, pp 131-135.

Murphy, E.R., Illes, J., ve Reiner, P.B., 2008, "Neuroethics of neuromarketing", Journal of Consumer Behaviour, 7(4-5), pp 293-302.

Noble, T., 2013, "Neuroscience in Practice: The Definitive Guide for Marketers." Admap 48(3), pp 30-45.

Oliveira, J.H.C. ve Giraldi, J.M.E., 2017, "What is Neuromarketing? A Proposal for a Broader and more Accurate Definition", Global Business and Management Research: An International Journal, 9(2), pp 19-29.

Olson, J. ve Ray, W., 1983, "Brain wave responses to emotional versus attribute oriented television commercials." Marketing Science Institute, Cambridge, pp 83- 108.

Orak, Z., Türkiye'de Akademik Başarı Değişkeni Alanında Yapılan Öğrenme Stilleriyle İlgili Çalışmaların İncelenmesi, Yüksek Lisans Tezi, Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü, Hatay, 2015.

Plassmann, H., Ambler, T., Sven, B., ve Kenning, P., 2007, "What can advertisers learn from neuroscience?", International Journal of Advertising, 26(2), pp 151-175.

Plassmann, H., Venkatraman, V., Huettel, S., ve Yoon, C. (2015). Consumer neuroscience: applications, challenges, and possible solutions. *Journal of Marketing Research*. 52(4), 427-435.

Roth, V.A. (2013), The Potential of Neuromarketing as a Marketing Tool, The Netherlands.

Salman, G. ve Perker, B. (2017). Dünya'da ve Türkiye'de Nöropazarlama Çalışmalarının İncelenmesi ve Değerlendirilmesi. *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi*, 4(3), 35-57.

Schaefer M., Michael R. (2007). Thinking on luxury or pragmatic brand products: Brain responses to different categories of culturally based brands. *Brain Research 1165*, 98- 104

Schneider, T., ve Woolgar, S.(2012), Technologies of ironic revelation: enacting consumers in neuromarkets. *Consumption Markets and*

Culture, 15(2), 169-189. http://dx.doi.org/10.1080/10253866.2012.654959

Silverman, D., Interpreting qualitative data: Methods for analysing talk, text and interaction, Sage, London, 2001.

Smidts, A. "Kijken in het brein Over de mogelijkheden van neuromarketing." University Rotterdam, Rotterdam, 2002.

Tressoldi, Patrizio E., Francesco Sella, Max Coltheart vd. (2012). Using functional neuroimaging to test theories of cognition: A selective survey of studies from 2007 to 2011 as a contribution to the Decade of the Mind Initiative. *Cortex*. 1247-1250.

Uplifers, 2017, "Evrensel yüz ifadeleri ve Charles Darwin'e övgü". Avaible on site https://www.uplifers.com/evrensel-yuz-ifadeleri-charles-darwine-ovgu/

Uzunbaz, D., Türkiye'de 2006-2017 yılları arasında kimya öğretmen eğitimi alanında yayınlanmış yüksek lisans ve doktora tezlerinin içerik analizi, Yüksek Lisans Tezi, Van Yüzüncü Yıl Üniversitesi Eğitim Bilimleri Enstitüsü, Van, 2019.

Varan, D., Lang, A., Barwise, P., Weber, R. and Ballman S. (2015). How Reliable Are Neuromarketers' Measures of Advertising Effectiveness?. *Journal of Advertising Research*, 176-191

Varan, D., Lang, A., Barwise, P., Weber, R. ve Ballman S.(2015). How Reliable Are Neuromarketers' Measures of Advertising Effectiveness?. *Journal of Advertising Research*, 176-191.

Wang, Q., Yang, S., Liu, M., Cao, Z. ve Ma, Q. (2014) An eye-tracking study of website complexity from cognitive load perspectiv". Decision Support Systems.

Yıldırım, A., ve Şimşek, H., Sosyal Bilimlerde Nitel Araştırma Yöntemleri, Seçkin Yayıncılık, Ankara, 2013.

Yıldırım, K. (2010). Nitel Araştırmalarda Niteliği Artırma. *İlköğretim Online Dergisi*, 9 (1), 79-92.

Yücel, A., ve Coşkun, P. (2018). Nöropazarlama Literatür İncelemesi. *Fırat Üniversitesi Sosyl Bilimler Dergisi*, 28(2), 157-177.

Zurawicki, L, Neuromarketing Exploring the Brain of the Consumer, , Springer New York, 2010.