

**THE REPUBLIC OF TURKEY  
BAHCESEHIR UNIVERSITY**

**COMPARISON OF ADVERTISING RESEARCH  
RESULTS: NEUROMARKETING  
AND FOCUS GROUP RESEARCH**

**Master's Thesis**

**CEYDA USLU**

**İSTANBUL, 2017**



**THE REPUBLIC OF TURKEY  
BAHCESEHIR UNIVERSITY**

**SOCIAL SCIENCES INSTITUTE  
MASTER OF MARKETING**

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**Supervisor: ASSISTANT PROF. AHU ERGEN**

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NAME OF THE GRADUATE SCHOOL  
NAME OF THE GRADUATE PROGRAM

Name of the thesis: *Comparison of Advertising Research Results: Neuromarketing and Focus Group Research*  
Name/Last Name of the Student: *Ceyda Uslu*  
Date of the Defense of Thesis: *25 / 05 / 2017*

The thesis has been approved by the Graduate School of \_\_\_\_\_.

Assoc. Prof. Burak Küntay  
Graduate School Director  
Signature

I certify that this thesis meets all the requirements as a thesis for the degree of Master of Arts.

*Dr. Seluk Turcuoğlu*  
Title, Name and LAST NAME  
Program Coordinator  
Signature

This is to certify that we have read this thesis and we find it fully adequate in scope, quality and content, as a thesis for the degree of Master of Arts.

Examining Committee Members

Thesis Supervisor  
Title, Name and SURNAME

Thesis Co-supervisor  
Title Name and SURNAME

Member  
Title Name and SURNAME

Member  
Title Name and SURNAME

Signature  
\_\_\_\_\_  
*Assist. Prof. Ali Ergen*  
\_\_\_\_\_  
*[Signature]*

\_\_\_\_\_  
*Assoc. Prof. H. Necla Keleş*  
\_\_\_\_\_  
*[Signature]*  
\_\_\_\_\_  
*Assist. Prof. Burcu İnci*  
\_\_\_\_\_  
*[Signature]*

## ABSTRACT

### COMPARISON OF ADVERTISING RESEARCH RESULTS: NEUROMARKETING AND FOCUS GROUP RESEARCH

Ceyda Uslu

Master of Marketing

Thesis Supervisor: Assistant Prof. Ahu Ergen

April 2017, 43 Pages

Neuromarketing is an interdisciplinary study field that has advanced and draw attention in recent years. Neuromarketing tools are not usually preferred because of their high cost and the results require special training to analyze. Furthermore, since the studies in this area are limited especially in Turkey, the concept of neuromarketing is not fully known by most marketers and it is not preferred as a marketing research method.

This research primarily aims to examine the neuromarketing and review the studies carried out in this context. The data generated by neuromarketing researches were compared with the data obtained by focus group method, and it was aimed to reveal the strengths and weaknesses of neuromarketing studies. In addition, this study aims to find out the similarities and differences of the data obtained by both methods and to determine which marketing tool gives more effective results in which situations.

In order to make this comparison, Tropicana Afyon Cherry Juice advertisement which was implemented by Thinkneuro in 2014 with neuromarketing tools is chosen. Then the study was repeated with focus group method for the same advertising.

**Keywords:** Neuromarketing, Focus Group, Advertising Research

## ÖZET

### REKLAM ARAŞTIRMASI SONUÇLARININ KARŞILAŞTIRILMASI: NÖROPAZARLAMA VE ODAK GRUP ARAŞTIRMASI

Ceyda Uslu

Pazarlama Yüksek Lisansı

Tez Danışmanı: Yrd. Doç. Dr. Ahu Ergen

Nisan 2017, 43 Sayfa

Nöropazarlama son yıllarda yükselen ve merak uyandıran disiplinler arası bir çalışma alanıdır. Nöropazarlama kapsamında kullanılan araçların pahalı olması ve elde edilen sonuçların analiz edilebilmesi için özel bir eğitime gereksinim olması sebebiyle çok fazla tercih edilmemektedir. Ayrıca bu kapsamda yapılan çalışmaların özellikle Türkiye’de kısıtlı olması sebebiyle çoğu pazarlamacı tarafından nöropazarlama kavramı tam olarak bilinmemekte ve bir pazarlama araştırma yöntemi olarak kabul görmemektedir.

Bu araştırmanın amacı öncelikle nöropazarlama kavramını ve bu kapsamda yapılmış olan çalışmaları aktarmaktır. Bu çalışma sonucunda nöropazarlama araştırmaları ile elde edilen veriler, odak grup yöntemi ile elde edilen veriler ile karşılaştırılarak; nöropazarlama araştırmalarının güçlü ve zayıf yönlerinin ortaya konması amaçlanmıştır. Ayrıca bu çalışma, her iki yöntemle elde edilen verilerin benzerlik ve farklılıklarını tespit etmeyi ve hangi pazarlama aracının hangi durumlarda daha etkili sonuçlar verdiğini belirlemeyi amaçlamaktadır.

Bu karşılaştırmayı yapabilmek için Thinkneuro tarafından 2014 yılında nöropazarlama araçları ile değerlendirilmiş olan Tropicana Afyon Vişne Suyu reklamı seçilmiş ve odak grup yöntemi ile aynı reklam için bu çalışma tekrarlanmıştır.

**Anahtar Kelimeler:** Nöropazarlama, Odak Grup, Reklam Araştırmaları

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## ABBREVIATIONS

AIDA : Attention-Interest-Desire-Action

DAGMAR: Defining Advertising Goals for Measured Advertising Results

EEG : Electroencephalograph

fMRI : Functional Magnetic Resonance Imaging

GRS : Galvanic Skin Response

MEG : Magnetoencephalography

NAIDAS : Needs-Attention-Interest-Desire-Action-Satisfaction

NMSBA : Neuromarketing Science & Business Association

PET : Positron Emission Tomography

## 1. INTRODUCTION

Marketing communication (promotion) is one of the most important elements of marketing. This is because it is unlikely that a product that cannot be explained to the potential consumer can sell on its own. Advertising is the most popular type of marketing tools. Being able to acquire an effective advertising is very important because it enables to the product stand out among the products / brands which are supplied more than the quantity demanded in the market (Moriarty & Burnett 2006). In order to acquire an effective advertising, it is necessary to be able to analyze the input and output of the advertisement well. To achieve this, various marketing research techniques have been used for many years. Studies such as focus groups, individual interviews, surveys, etc. can be shown as examples to these marketing researches (Proctor 1997).

In addition to these traditional marketing researches, marketing researchers have begun to utilize neuromarketing tools to create an effective advertising or measure the effectiveness of existing advertisements in recent years. Neuromarketing is an interdisciplinary method created by the combination of neuroscience and marketing. fMRI, EEG, eye tracking are the main tools used in neuromarketing studies.

Since neuromarketing is a new field of study, there are limited academic resources and studies about neuromarketing. Nevertheless, the number of these studies is increasing day by day. There are a few companies conducting neuromarketing researches in Turkey. Thinkneuro, which was established as the 35th in the world in 2011, is one of them (Girişken 2015). Within the scope of this study, Tropicana Afyon Cherry Juice advertisement, which was measured by Thinkneuro with EEG and eye tracking devices, was re-evaluated by conducting focus group study.

The aim of this study is to compare the results obtained by neuromarketing researches that are not so much preferred since they are costly and it is very difficult to analyze their data with the results obtained by qualitative marketing researches that are less costly and easier to analyze.

This study reveals the similarities and differences of the data obtained and it has been determined which marketing tool gives more effective results in which cases.

In the first part of the literature review section, marketing communication tools were examined first. Then, the question "What processes does the advertising follow on the person who is exposed to the advertising?" has been answered.

In the second part of the literature review section, the measurement types of advertising effectiveness and the marketing research methods used for these measurements were explained.

In the last part of the literature review, neuromarketing was generally defined; the techniques used in neuromarketing were explained under two main headings as neurometric and biometric, and the researches carried out in the scope of neuromarketing were examined.

In the research part, firstly, the purpose of the chosen method and how the data was collected was explained. The results of the advertising measurement made by Thinkneuro were reported and then the differences and similarities between the two studies were revealed by demonstrating the results of the focus groups.

## **2. MARKETING COMMUNICATIONS AND ADVERTISING**

The main subject of marketing is to bring products and services together with potential customers. Marketing serves to design and produce products in the direction of consumers' preferences and desires. In this way, when a new product or service finds its place in the market, marketing people make great efforts to deliver these goods to the customers with discounts, offers, promotions etc. (Ariely & Berns 2010).

Enterprises produce products or services as required by their purpose of foundation. The products or services offered must be recognized in the market besides being useful and of high quality. If potential customers have not heard anything about the product or service, it is often impossible to perform sale. Therefore; the main objective must be to promote the recognition of the product or service in the market and to offer it in a more presentable way than its competitors (Cohen 2006).

### **2.1 MARKETING COMMUNICATIONS**

Promotion is the most recognized element among the marketing mix. Promotion is a strategic marketing tool which announces the presence of the new product or service and which helps the business to survive and develop (Pelsmacker et al. 2001). The purpose of promotion is to inform the target group about the product or service and to persuade them to try such products or services.

It is necessary for each business to communicate with its target group and to perform a promotional activity. Accurate planning is vital in managing this communication. Kotler (2003) points out the necessity to act in accordance with the below-given priority order when planning marketing communication:

- i. Identifying the Target Group
- ii. Identifying the Communication Tools
- iii. Designing and Creating Messages
- iv. Choosing the Communication Channel
- v. Forming the Entire Communication Budget
- vi. Choosing the Suitable Market Mix
- vii. Assessing the Results of Communication

### viii. Managing the Integrated Marketing Communication

Lifestyles of the customers, is another factor that needs to be considered when managing marketing communication. Customers have different life styles and thus, it is necessary to determine the target group and use a marketing communication tool that is suitable for such target group. Kaatz (1994) identifies the factors that need to be considered as the following:

- i. Each customer has his/her own communication time.
- ii. Communication tool to be used for each customer may vary.
- iii. Each customer has his/her own way of using a communication tool. For example, different people may read different pages of the same journal or newspaper or they watch different channels among the same set of TV channels.
- iv. Each customer has a different way of understanding which can only be found out during communication with the customer. One must make researches for this.
- v. In order not to deviate from the objectives and practices, promotion efforts must be performed within a plan, even if there is the risk for important chances to go unnoticed.
- vi. A reliable and credible media tool for the delivery of the message may change from one customer to another. It is necessary to choose the tool that suits the target group best.
- vii. Though minimum pay and minimum loss may seem to be the basic purpose, failing to deliver catchy messages may have the customer feel like one-time use.

## **2.2 MARKETING COMMUNICATION TOOLS**

Kotler (2003) emphasizes the need for unique and harmonious combination of personal selling, sales promotion, public relations and advertising for the creation of the concept of promotion.

### **2.2.1 Personal Selling**

Personal selling is the earliest one among all promotional tools and is defined as the sales representative's performing promotional activity through face-to-face

communication. For personal selling, the sales representative may visit the customers or the customers may visit the point of sales and the sales representative deals with the customers (Boone & Kurtz 1994). Here, getting to know about the customer and engaging in a face-to-face communication with the customer ensures a long-term and strong relationship between customer and the sales representative (Duncan 2001).

According to Smith et al. (2002), personal selling has a direct impact on sales depending on the magnitude of the sales power as personal selling is all about agreeing with the customer, achieving sales and delivering the product or service to the distribution channel.

### **2.2.2 Sales Promotion**

Sales promotions are mostly short-term marketing campaigns that are conducted to promote the faster or greater consumption of a product or a service by the customers (Kotler 2003).

Peattie and Peattie (2003) define sales promotions under three main titles:

- i. It is not standardized: They are mostly short-term practices that are conducted for a particular and temporary time period, which may also vary depending on the target group.
- ii. It is response oriented: Customers are expected to directly respond to the promotions. Promotions are organized to encourage the consumers and to make them willing to buy.
- iii. It is benefit oriented: Target consumer groups are offered additional benefits apart from the standard marketing activities.

Kotler (2003) remarks that, sales promotions often cause brand deviation particularly in customers who are seeking for affordable or premium goods and they are not sufficient for transforming these customers to loyal customers.

### **2.2.3 Public Relations**

Public relations contribute to the development of a social environment that will facilitate the efficiency of promotional activities. Public relations in marketing is used

in order to support the introduction of new products to the market, re-positioning of products and to create interest towards a product category, impress target groups, defend products that face social problems and to create a corporate image (Kitchen & Papasolomou 1999).

Caywood (2012) claims that, public relations field is an individual and specialty requiring discipline which basically supports and guides marketing activities. He further defines the public relations in marketing as the planning, implementation and evaluation process for the development of programs where the businesses introduce their brands and the communication programs in parallel with customer demands, concerns and interests and which aim to contribute to customer satisfaction, buying and image creation.

Marketing public relations emerge together with an advertisement or a marketing campaign. Public relations add security to product promotions, which would not be possible for an advertisement to accomplish. Today, people do not believe in advertisements only but they are also influenced by the news and comments that take place in newspapers and on TV and they empower their faith to the brands (Bozkurt 2000).

Kitchen and Papasolomou (1999) state that, measurement of the scope and efficiency of marketing public relations is difficult and it does not yield definite results. Nevertheless, this tool must be utilized in order to realize marketing objectives.

#### **2.2.4 Direct Marketing**

Direct marketing is used in order to directly communicate with customers to elicit fast and measurable responses from them and to develop long-term relationships with customers (Kotler & Armstrong 2006). Direct marketing, which was deemed as a distribution channel at first, is now used as a tool to create customer loyalty by establishing long-term relationships with potential customers (Hoekstra 1994).

Direct marketing gets into direct communication with current and potential customers through catalogues, telephone, e-mails and traditional media etc. in order to receive fast

and measurable responses from them. A data set is created with these responses and this data set is used for achieving customer loyalty (Goldberg & Emerick, 2000).

### **2.2.5 Advertising**

Advertising is the utilization of media in favor of the advertiser in order to deliver a message to the pre-specified target group about the benefits of any service or company (Norgan 1994). Advertising is also defined as a communication method where the advertiser buys mass media to access the target consumer in parallel with certain objectives, which includes the delivery of its message with declaration of its identity (Wells et al. 2006).

According to Fill (1995), one of the most obvious properties of advertisement is that, among the entire marketing mix, it possesses the mix element where the company management control is the highest. On the other hand; it is rather difficult to measure the impact of advertising on sales. Moreover; advertising is less successful in achieving the trust of the target group compared to other mass media tools, as it is less reliable with respect to the message delivered. Though the total cost of advertising is high, considering the cost per person accessed and it is possible to say that advertising is the one with the lowest unit cost among all elements of the marketing mix.

Biel (1990) states that, it would not be useful to decrease the amount of advertising expenditures in crisis times or during recession periods, and that, companies decreasing such expenditures would even lose the chance to gain share.

According to Batra et al. (1996), general objective of advertising is to support the sales and increase the market share of companies and the following sub-objectives must be fulfilled first in order to achieve this general objective:

- i. Attracting customers from other brands
- ii. Attracting customers from other product categories
- iii. Increasing the share of demand
- iv. Improving brand loyalty to restrict customer erosion and price flexibility
- v. Augmenting usage

Kotler (2003) on the other hand, defines the objectives of advertising as follows:

- i. Informing: Giving information to the consumer about the product or service, introducing its content and usage areas, informing the consumer about prices through a follower approach,
- ii. Persuading: Persuading the consumer to buy, changing the consumer's view about the properties of any product or service,
- iii. Reminding: Helping the consumer keep any product or service in mind for one year and eliminating the negative effects of seasonal fluctuations or changes.

### **2.3 ADVERTISING COMMUNICATION PROCESS**

How a consumer perceives an advertisement and how an advertisement encourages the consumer to give purchase decision have always been wondered and several models have been created for these processes. The most prominent of these models are; (N)AIDA(S) (Needs-Attention-Interest-Desire-Action-Satisfaction) and DAGMAR (Defining Advertising Goals for Measured Advertising Results). These models are based on the judgment that, the effects of advertising progresses in a hierarchical manner.

According to the different models created for these stages, the consumer goes through cognitive, affective and behavioral processes gradually (Kotler 2003). In the first stage, consumers perform thinking behavior which creates awareness about any product or service. In the second stage, consumers give emotional responses to the brand and they form their attitude towards the brand. In the third stage, consumers are expected to perform the buying (Pelsmacker et al. 2001). According to Reed and Ewing (2001), the interrelation and sequence of cognitive and affective elements can vary and moreover, it is not certain whether the emotional element is the same as these two processes. The hierarchy of the models and these processes are shown in Table 2.1.

According to Rossiter and Percy (1997), consumers respond to all these impacts in four main stages: exposure, processing, brand positioning and target group behavior. Wells et al. (2006) on the other hand, take attention to the priority of concepts such as attention, interest and remembering in the process that starts with the consumer's exposure to the advertisement message. If consumers pay attention to the advertisement that they are exposed to, they show interest depending on the suitability and

meaningfulness of the message and as a result, the consumer can develop awareness about the product and brand.

The state of interest and emotional factors in advertisements are found to involve factors influencing attention. High emotional motivation helps focusing attention and a more selective attention is enabled (Peter et al. 1999). When a consumer pays attention to any stimulus, he/she evaluates it in several ways. Therefore; attention plays a critical role in persuasion process and thus, in the efficiency of the advertisement (Tellis 1998).

**Table 2.1: Hierarchy of models and response stage**

	<b>NAIDAS</b>	<b>DAGMAR</b>
<b>Cognitive Stage</b>	Needs Attention	Awareness Comprehension
<b>Affective Stage</b>	Interest Desire	Conviction
<b>Behavior Stage</b>	Action Satisfaction	Action

*Reference: Pelsmacker et al. 2001, 147*

### **2.3.1 NAIDAS**

The first model developed in advertising is the AIDA (Attention-Interest-Desire-Action) model. This model claims that, an advertisement influences the consumer gradually and the process is concluded with the buying of the consumer. According to this model which was developed by Elmo Lewis in 1900s, buyers progress gradually through the consumption path (Pickton & Broderick 2001).

This model was improved in the following years and AIDAS model was formed. Here, the effect of satisfaction was also included in the model following action. The model was further improved in parallel with the orientation approach. Therefore, pre-determination of consumer needs was also included in the model to transform it into the form of NAIDAS (Yurdakul 2006).

An advertisement makes the consumer feel that he/she has a need. Then comes the stages of attention-interest-desire-action and finally, consumer satisfaction is emphasized.

### **2.3.2 DAGMAR**

This model consists of the initials of the motto “Defining Advertising Goals for Measured Advertising Results”. This model facilitates the measurement of the advertisement’s impact on consumer awareness and understanding through tested to be performed pre- and post-advertising stages (Wilmschurst & Mackay 1999). For the determination of the efficiency of advertising, DAGMAR model advises the measurement of awareness and image ratios, which are more related with communication, instead of sales goals, which are more difficult to link to communication expenditures (Pelsmacker et al. 2001).

The stages of this model are defined as Awareness, Comprehension, Conviction and Action (Batra et al. 1995). According to this model, potential buyer becomes aware of the product or brand at first and secondly, he/she comprehends what the product is and what benefits it will offer. Then the consumer who has a tendency to buy the product at conviction stage concludes the process with buying.

### 3. ADVERTISING RESEARCH

As the distance between the manufacturer and consumers gets longer, it has become more difficult for the manufacturers to comprehend consumer demands and thus, the need for market researches has appeared. It is necessary to possess accurate knowledge in order to deliver the right product to the right target group in right time with accurate pricing and promotion techniques and market researches enables access to such information (McDaniel & Gates 1999). Market research includes the data collection and analysis of the decision-making process and reporting of the results of such analysis to the management.

Advertising research, on the other hand, is continuous and dynamic. Once an advertising campaign is planned, created and implemented, the data collected in the evaluation stage are used in the planning stage of the following campaign. Evaluation research of the previous campaign is the strategic research of the following campaign (Bergh & Katz 1999).

According to Proctor (1997), measurement of the impact of an advertisement is one of the most challenging marketing research issues as there are several factors other than advertising, which affect sales. Although the goal of advertising is to encourage buying, no advertisement can be planned in such a way that it immediately directs all the audiences to buying. Short-term sales results (even if they can be measured) can be a short measure of the efficiency of the advertisement at best (Lavidge & Steiner 1961). Many advertisements have long-term impacts. One needs to wait in order to see whether the advertisement is really efficient or not.

According to Lavidge and Steiner (1961), if there appears a change in the sales of products in the long-term, it means, there are changes regarding the buying in short-term, as well. An advertisement cannot immediately turn its target consumer group into persons who are ready to buy. This change-creating process must be measured in order to obtain data that will support accurate determination of the efficiency of an advertisement (Belch & Belch 2001).

### **3.1 MEASUREMENTS OF ADVERTISING EFFECTS**

It is important to use information obtained from advertising research in all decisions regarding an advertising campaign. The information that is gathered and analyzed contributes to the development and assessment of advertising strategies. The most basic purpose of ad research is to assess the effectiveness of advertising; therefore various research techniques are used to measure the effectiveness of advertising before and after the implementation of the advertising campaign (Arens 2000). These techniques are pre-testing and post-testing.

#### **3.1.1 Pre-testing**

The pre-testing method is applied to test the adequacy of advertising purposes and to select the most appropriate one among different alternatives before the advertising messages prepared to carry out the advertising campaign are transmitted to the target group through the media channel (Russell & Lane 1996).

The pre-tests that advertisers often apply measure the level of liking and understanding of the participants. Applied before the final implementation of the advertising application, these tests help to improve the advertising application while providing information about possible effects and attitude changes that ads might cause on consumers (Belch & Belch 2004).

Pre-tests are important since they provide an indication whether the advertising or campaign will be accepted by the target market. Pre-test results reveal the boundaries of the advertising or campaign. Changes can be made before the advertising is released to the market, thus it helps saving time and money (Bootwala et al. 2007).

The main benefit of pre-tests is that they make it possible to distinguish strong ads from weak ads. However, because the tests are applied in an artificial environment, the characteristics of the participants are effective on the results and there is a risk of not reflecting the actual buying behaviors. Pre-tests ensure that spending budgets for advertising campaigns are not risked. For this reason, in tests, advertisers primarily evaluate advertising based on criteria such as interesting, convincing, likable, and memorable (Arens 2000).

### **3.1.2 Post-testing**

The final step in measuring the effectiveness of an advertising or ad campaign is the post-testing research. The post-testing research is about finding out how much success the advertising has achieved in its goal. The post-testing phase involves testing the ad's access and effectiveness once it is released to the market. Pre-production research testing and post-production research testing complement each other (Bootwala et al. 2007).

Post-tests that are applied to measure the effects of advertising after they are broadcasted are more expensive and more time-consuming than pre-tests. However, these tests are carried out under real market conditions. Post-tests are generally categorized in five categories. These are aided-recall, unaided-recall, attitude tests, inquiry tests and sales tests (Arens 2000).

- a. Unaided recall: Participants are asked to answer questions about the advertising message without reminding them about the advertising they have watched or heard before.
- b. Aided Recall: It is a testing method based on moving the memory. Participants are asked to watch ads and asked to respond to questions based on their prior exposure to the advertising.
- c. Attitude Tests: The methods of asking direct questions or indirect questions are used in attitude tests in order to measure the attitude change of the subjects after the campaign.
- d. Inquiry Tests: Participant will be provided with additional product information and similar information about the ads. The more responses an advertising produces, the more effective it becomes.
- e. Sales Tests: Past sales levels are compared to the sales results that occur after the broadcast of the ad campaign. Controlled experiments are carried out in different markets and in different circles.

## **3.2 THE TYPES OF ADVERTISING RESEARCH**

Research methods that are conducted throughout marketing are used when conducting advertising research. These methods are examined in two main groups according to the structure of the data obtained as a result of the research. These methods are quantitative research and qualitative research.

### **3.2.1 Quantitative Research**

Quantitative research is a method that provides statistical and precise data on marketing conditions. This research method is applied to calculate the advantages and weaknesses of attitudes and needs against each other, or the mathematical relationship between them (Arens 2000).

In quantitative research, progress is made by adhering to previously prepared questionnaire forms. The preparation, implementation, analysis and interpretation of these forms require expertise. The reason for preferring quantitative research is that it provides the study with large sample groups and mathematical data in a short time (McDaniel & Gates 1999).

Three basic research methods are used to collect numerical data in these studies. These are observation, experiment, and survey.

#### **3.2.1.1 Observation**

In the observation method, researchers monitor the behavior of individuals. For instance, watching the reaction of consumers to the advertising visuals in a supermarket is realized by observation (Craig & Douglas 2005). Observational measurements include the recording of work done in a natural process without asking the people who are observed to complete a certain task. The information obtained is more accurate than the information declared because the participant is not expected to remember or predict to access this information; the information that is obtained at that time is recorded (Kumar 2000).

One of the reasons why the observation method is preferred among other methods is that some products may be distressing for consumers. Consumers may hesitate to

respond to questions about these kinds of products, in which case more accurate results can be achieved by observing. Young children may also have difficulty in expressing their feelings and opinions about products; so, observation is the preferred method in research conducted to children (Bergh & Katz 1999).

According to Proctor (1997), the event must be observable in order to be able to apply the observation method; attitudes and feelings cannot be observed. It is also necessary that the event is predictable and happens frequently and in a short time. The observation method is mostly applied in shopping experience studies.

### **3.2.1.2. Experiment**

Researchers use the experiment technique to measure the relationship between actual cause and effect. It allows the creation of test groups as well as control groups and the comparison of results to measure the response of subjects to the stimuli (Arens 2000).

The experiment design is based on the principle that a variable is changed appropriate to the aim and the changes in a response variable are observed accordingly. In this research method, causality is sought in the occurrence of events by revealing all the factors that may cause change (Kumar 2000).

### **3.2.1.3 Survey**

The survey is a research method in which participants are asked questions to obtain information. When this method is applied, the questions to be asked, the order in which the questions will be asked and the rules to be obeyed are determined. Survey forms are often designed to learn about customer attitudes, opinions, lifestyles and demographic information. In addition, the frequency of use of a product or brand can be learned by surveys (Bergh & Katz 1999).

Marketing researchers want to know whom they reach in terms of demographic features or lifestyle. Factors such as age, marital status, education, income group, shopping habits, etc. are important information in the formation and definition of market segments (McDaniel & Gates 1999).

Closed-ended questions are used more in the survey method. Even though open-ended questions provide richer information, it is much easier to tabulate and analyze closed-ended questions. In addition, participants respond to closed-ended questions more easily and more quickly (Kotler 2003)

McDaniel and Gates (1999) summarized the advantages and disadvantages of the survey compared with other research methods as follows:

Advantages:

- i. It is easy to reach large masses and base research on large groups.
- ii. It saves researchers money, time and energy.
- iii. Anonymous filling of surveys makes it easier to get more accurate answers.

Disadvantages:

- i. It is not flexible; the researcher and the respondent cannot progress independently from the questions and options.
- ii. It is not possible to obtain in-depth information.
- iii. They provide limited information as they need to be completed in a short time.

### **3.2.2 Qualitative Research**

Qualitative research is a research method that does not quantitatively reveal its findings, but examines the participants' attitudes, feelings and thoughts. In general, answers to "what", "why" or "how" are sought (Proctor 1997).

Qualitative research is used to obtain more information on situations that are not directly measured and observed. There is a longer and more flexible relationship with the respondent, thus, the data obtained provides a deeper insight and new perspectives for the researcher (Briggs & Stuart 2007).

Data collected in qualitative research is obtained through interview or observation. This data can also be obtained in the form of observation notes, interview records, sound recordings, pictures or other graphical presentations. The coding, analysis, and

interpretation of data collected by qualitative methods require a systematic approach (Strauss & Corbin 1998).

The internal basic method is used within the scope of qualitative research. These are focus group, in-depth interview and projective techniques.

### **3.2.2.1 Focus group**

Focus group interviews were first used in market researches to convince customers and to reveal their attitudes and behaviors. Today, it is also used in social sciences to understand human behavior. Focus group method is a way of trying to understand people in a synergistic environment by asking questions (Byers & Wilcox 1991).

In focus group studies, it is tried to obtain possible ideas and solutions of a group of participants about a marketing problem by creating an argument environment. Each participant is encouraged to express his / her opinion on the argument issue and to contribute or oppose the views of the other participants (Kumar 2000).

Wilson (1997) describes the focus group interviews as a research technique which is composed of at least 4, at most 12 people and an educated researcher or moderator, which lasts for one hour or two hours, in which a chosen subject or subjects are discussed and the perceptions, attitudes, feelings, opinions of participants are tried to be learned by encouraging them and interacting with them.

The moderator must be knowledgeable about the focus group interview process and good at communication skills. This will enable participants to express their ideas easily and sincerely. The moderator should also be able to ask questions that will affect the participants and be away from prejudices (Quible 1998).

The analysis of focus group interviews is less structured and more descriptive than quantitative studies (Edmunds 2000). Quantification in focus group discussions is not a preferred and convenient method. It is more important how ideas are conveyed than the quantitative data (Fern 2001). The best way in the data analysis is to set key themes under certain headings. When reporting, the perceptions determined according to the theme should be included. Researchers should pay attention to the fact that the language of speech remains the same when analyzing and reporting (Creswell 1998).

The advantages of focus group interviews can be summarized as follows (Krueger 1994, Byers & Wilcox 1991).

- i. When group synergy is captured, unexpected valuable data can be obtained by developing the idea raised by a person.
- ii. It provides descriptive and interrogative information.
- iii. New hypotheses can be developed with the obtained data after the research.
- iv. It makes quantitative data utilizable.

In addition to the advantages of focus group interviews, they also have some disadvantages. These are also listed below (Krueger 1994, Byers & Wilcox 1991).

- i. If dominant person/persons appear in the group, they can dominate the results of the research in the direction of their own ideas.
- ii. Disagreements that may arise in the group may lead to debates.
- iii. The research may be limited because of composing of few participants and few questions.
- iv. The obtained data is specific to the research and cannot be generalized.

### **3.2.2.2 In-depth interview**

It is a one-to-one face-to-face interview with the participants, in which the interview subject is examined in detail. These interviews are shaped by the answers of the interviewee, and they are asked to elaborate on their answers by establishing cause-effect relationship or exemplifying (Kumar 2000).

The in-depth interview is a research method aimed at understanding customer attitudes and behaviors or feelings and connotations related to a topic. The non-structural nature of the interview helps to conduct in-depth research and does not require the use of pre-configured formats or questions. However, the interpretation of data is subjective and as in other qualitative techniques, different abilities of the researchers may affect the consistency of data (Craig & Douglas 2005).

According to Proctor (1997), the individual can reveal his/her ideas more easily in individual group interviews since there is not the pressure of the group. Furthermore, as more time is allocated to each participant, more in-depth data can be obtained.

### **3.2.2.3 Projective techniques**

In projective techniques, it is tried to create an environment where customers' will easily reveal their feelings about a problem or a product by asking indirect questions it is aimed to get real data about their emotions (Arens 2000).

It is used by the advertisers to understand the feelings, attitudes, opinions, ideas, needs and motives of the individual. The best way to learn people's feelings and thoughts is to make people talk through others. Researchers use projective techniques to find the real cause behind consumer behavior (Kumar 2000).

The most commonly used projective tests in advertising research are word association tests, sentence and story completion and balloon tests. In these tests, participants are asked to complete a specific task, such as finding a relationship between words, completing a sentence or story, or filling a speech balloon where there is a third person. In this way, it is aimed to reach the subconscious feelings and thoughts of the participants (Craig & Douglas 2005, Proctor 1997).

#### 4. NEUROMARKETING

Genco et al. (2013) describes neuromarketing as a market research activity using neuroscience techniques. According to Senior et al (2007), neuromarketing is the utility of neuroscience techniques in understanding the response of the human brain to marketing stimuli. Neuromarketing, like other marketing techniques, aims to reveal how a company can best spend its budget on marketing and brand communication while increasing its income and profit. According to Lee et al. (2007), the aim of neuromarketing is to better understand, explain, and predict the behavior of individuals, groups, and organizations in the marketplace.

Neuromarketing is one of the lower branches of neuroscience since neuroscience is concerned with the structure and function of the brain (Perrachione & Perrachione 2008). The fact that neuroscience and marketing disciplines can work in collaboration was first seen in the late 1990s when Gerry Zaltman from Harvard University used functional magnetic resonance imaging (fMRI) as a marketing research tool (Lewis & Bridger 2005). Neuromarketing, which uses the principles of neuroscience that tries to understand the effects of consciousness on behaviors in marketing research applications, has become a rapidly developing area of the research industry (McDowell & Dick 2013).

Nowadays, thanks to brain imaging techniques, neuroscience experts have the opportunity to predict the electrical activity in the brain and how different functions of the brain work together when the person is performing sensory functions or cognitive processes. These techniques determine which control area in the brain ensures which functions. Thus, it allows associating specific types of activities with emotion and behavior types (Carter 2009).

With the use of brain imaging techniques in marketing, marketing researchers have had the opportunity to identify the attractiveness of products (Zurawicki 2010). With neuromarketing methods, consumers' responses in their brains to marketing communication stimuli such as smell, packaging, product, advertisement, logo and

music are measured in seconds using brain imaging tools and the actual reasons underlying consumer purchasing decisions and preferences are tried to reveal within the framework of the data obtained from the statistical analysis. This ensures that the right message reaches the right audience at the right time (Lee et al. 2007).

Neuromarketing assumes that the brain contains confidential information about the individual's personal preferences and that there is a relationship between brain activities and preferences, and aims to reveal this hidden information by solving the brain structure of a person (Ariely & Berns 2010).

John Wanamaker said these about advertising long ago: "*Half of my advertising budget is wasted. But the problem is, I do not know which half this is*". All these neuromarketing studies aim to answer this question (Lindstrom 2009). In this context, marketers use the neuromarketing techniques to determine which ads are useless and which work, what affects the purchasing behaviors of consumers and which brands have which features that consumers like.

According to Stipp (2015), neuromarketing distinguishes itself from other techniques in that it has the possibility of obtaining information that cannot be obtained with conventional techniques and provides a better understanding of emotions. Neuro-scientific techniques provide direct and detailed information on consumer responses. Neuro-scientific techniques have begun to be used to illuminate dark areas in the human brain that behavioral psychology defines as the "flight recorder" (Hubert & Kenning 2008).

Ariely and Berns (2010) state that neuromarketing techniques are preferred more on the market because they are starting to offer solutions faster and less costly than conventional market research techniques, and they provide additional information that conventional market research techniques cannot offer.

Traditional methods such as surveys, observation, focus group interviews used during marketing research can sometimes be insufficient to fully understand the causes of consumer decisions and behaviors. Because the findings obtained from the researches in which conventional methods are used are interpreted according to the discourses of the

consumers. According to Varinli (2012), 95% of the thoughts and feelings are realized sub-conscious. Since subconscious thinking is the consequence of ideas we are not aware of or are partly aware of, consumers in such researches can express different discourses.

According to Venkatraman (2012), during conventional research methods, individuals always tend to say what the interviewer want to hear from them rather than the actual reasons underlying their preferences. Even though people can truly express what they like, they may sometimes find it difficult to answer "why" or "how much" questions (McDowell & Dick 2013).

It has not been possible to measure in a healthy way the effectiveness of advertisements carried out with large budgets. Advertising agencies, in their efforts, have always hoped that they understood what is in the consumer's mind. Understanding what is in the consumer's mind has long been a matter both for marketers and advertisers. The results of all these conventional research methods are interpreted on the basis of the discourse of the consumer. With the use of neuro techniques, it is thought that more efficient advertising messages and visuals can be created because it will help understand what the consumer really thinks (Zurawicki 2010).

#### **4.1 TECHNIQUES USED IN NEUROMARKETING**

Biometric measurement techniques including computer aided systems developed to measure the physiological and biological responses of the consumer as well as functional brain imaging techniques are used in neuromarketing researches (Ustaahmetoğlu 2015).

Devices used in neuroscience are used in the researches in the field of neuromarketing. Techniques used in neuromarketing aim to measure the physical response. The most important feature of these techniques is that they do not allow subjectivity (Perrachione & Perrachione, 2008). These techniques are basically divided into two, neurometric measurement and biometric measurement.

#### **4.1.1 Neurometric Measurement**

It aims to measure brain and neuro reactions. Functional brain imaging techniques used in neuromarketing studies are Functional Magnetic Resonance Imaging (fMRI) and Positron Emission Tomography (PET) which record the metabolic activities in the brain and Electroencephalograph (EEG) and Magnetoencephalography (MEG) which record the electrical activities in the brain (Ariely & Berns 2010).

Functional Magnetic Resonance Imaging (fMRI) and Electroencephalograph (EEG) devices are preferred more in terms of cost and ease of application.

##### **4.1.1.1 Functional magnetic resonance imaging (fMRI)**

With the fMRI method, the brain is displayed in high resolution and specific areas are focused on, and structural changes at these areas are detected, and connections between behavior and these areas are tried to be established. When there is activation in our brain, the blood flows more towards this area through the capillaries. Red blood cells give oxygen of their own to the neural cells to use. The person inside the fMRI device, and therefore the brain, is under the influence of a strong magnetic field generated and emitted by the fMRI device. The magnetic field emitted by the fMRI device influences the red cells carrying oxygen, at some value and they influence the oxygenless red cells which leave their oxygen load to the nerve cells at another value. This difference is reflected as a bright spot on the brain images obtained by the fMRI. Hence, these stain-like luminosities in the brain image show activation at that part of the brain. These identified activation parts indicate which part of our brain is activated by our brain's reaction to any visual or event (Berman et al. 2010).

With the help of fMRI, certain movements of the subjects' are detected based on the ratio of oxygen in the blood in specific parts of their brains. As the areas of the brain involved in the buying activity are activated, these areas attract more blood to themselves and this can be monitored in fMRI scanning as short as a millionth of a second (Varinli 2012).

With the fMRI method, the brain is scanned to determine which areas are affected by stimuli such as voice, vision, and thoughts. In recent years, the FMRI method has been

used actively in research to understand how learning, perceptions, and emotions are shaped and important data has been acquired (Lynch & Laursen 2009).

The main reason for the effective use of the fMRI device in neuromarketing is that subjects' emotional feelings such as pain, happiness, nervousness can be identified at the actual time and instantly. A person may feel pleasure or pain without being aware at the moment of observation. Since these emotions are experienced in the subconscious, they can be observed in the test results even though they are not expressed in conscious narratives (Ariely & Berns 2010).

The advantages and disadvantages of using fMRI in neuromarketing researches can be listed as follows (Fortunato et al. 2014, Ariely & Berns 2010).

Advantages:

- i. It provides high-resolution, deep and detailed visualization of brain activities and activity changes
- ii. It allows the interpretation of psychological processes in the brain
- iii. Valid and reliable results are obtained in the measurement of cognitive and emotional reactions.

Disadvantages:

- i. Subjects must remain motionless throughout the process and avoid possible head movements as much as possible, which can cause discomfort and unnatural consequences.
- ii. Its cost is significantly higher than other methods.
- iii. It captures dynamic changes with a temporal resolution of 1-10 seconds and is slow to capture fast-developing events.
- iv. It is not scalable.
- v. Data analysis is complex and requires high level of knowledge.

#### **4.1.1.2 Electroencephalograph (EEG)**

Electroencephalography (EEG) measures brain waves at different frequencies with the help of electrodes placed around the skull. It is one of the most used techniques in

neuromarketing studies after the fMRI technique. The most important parameter in the evaluation of EEG waves is frequency, and the second important parameter is amplitude. As the activity level of the brain increases, the frequency of the EEG waves increases while the amplitude decreases. Brain waves are defined as low-frequency electrical activity generated by neurochemical activity in the living brain. This electrical activity is recorded with EEG, and these recorded neuronal electric wave patterns show brain waves (Varinli 2012).

Electroencephalograph (EEG) measures instantaneous electrical activity in the brain. The motions in the brain shell are measured and these motions are made mathematically meaningful and provide us with knowledge of activities such as attention, motivation, emotional attention, cognitive workload, sleep state, etc. This method reflects the functional state of the brain at that time rather than the structural features of the brain (Genco et al. 2013).

The advantages and disadvantages of using the EEG method in neuromarketing researches can be listed as follows (Ariely & Berns 2010).

Advantages:

- i. EEG is a silent and harmless device that is directly sensitive to neuron activity.
- ii. A normal EEG device can record data in 1 to 3 milliseconds, allowing precise detection of changes in brain activity based on rapidly changing stimuli.
- iii. It is less costly and easier to carry than the fMRI method.
- iv. It is simpler to use it than fMRI technique.
- v. Comparisons can be made between the right and left hemispheres of the brain, tendencies, positive or negative reactions can be measured.
- vi. Statistical software packages are available

Disadvantages:

- i. The electrical conductivity may vary from person to person; it is difficult to get the exact position for each recorded signal.
- ii. It only records activity data in the surface layers of the cortex.
- iii. It is not scalable.

#### **4.1.2 Biometric Measurement**

Biological and physiological reactions are measured. It aims to measure the reactions of the whole body except the brain, e.g. heart rate, facial expressions, breathing speed, spasm, intonation, eye movements, sweating, etc. The skin, especially the palms react to things that are pleasing or stressful as an automatic reaction of the nervous system. Following these reactions, pleasing or disturbing parts of the images or products are detected (Plassmann et al 2015).

Biometric measurements include eye tracking, Facial Coding and Galvanic Skin Response (GRS) techniques. Eye tracking is the most preferred measurement method among these techniques. This is because the eye tracking device is more easily integrated with neurometric measurement techniques such as EEG and fMRI and it offers more significant data (Batı & Erdem 2015).

##### **4.1.2.1 Eye tracking**

The eye tracking technique involves tracking eye movements in front of visual stimuli without measuring brain activity. In the experiment, the data is obtained based on the physiological measurement of where and how long a participant looks at, and how his/her eyes move (Nenad 2011).

As long as there is no conscious focus, the eye is fixed at a certain point at a maximum of 250-300 milliseconds. This increase is related to the brain's solution and judgment process. A system that records eye movements was developed for the first time in 1936 (Erdemir & Yavuz 2016).

Eye tracking is one of the most commonly used methods of neuromarketing research techniques. With this technique, the pupils of the participants are followed up by various methods during the test. Eye tracking technique is effectively used in placing products and designing shelves in big stores, designing internet sites and testing TV and printed advertisements. This method provides important findings on such as what participants first look, what they focus and how long they look at it during the test (Badoc et al. 2014).

The advantages and disadvantages of the eye tracking method can be summarized as follows (Ariely & Berns 2010).

Advantages:

- i. It provides accurate information about image processing and participation on the excitement level of instant changes in pupil and blink rate.
- ii. It is portable.
- iii. Attention level can be determined.

Disadvantages:

- i. The results depend on the participant's eye conditions.

#### **4.2. APPLICATION OF NEUROMARKETING**

Neuro-marketing offers the opportunity to understand what consumers pay attention to, what attracts their emotions, what consumers remember, and how they remember it (Zurawicki 2010). Brain-scan tests used in neuromarketing are used to reveal subliminal thoughts, emotions, and desires that create the consumer's decision to buy. Researchers follow the activities in subjects' brains and measure how they respond to them, after showing them advertisements, images, and logos about the topics they are conducting research about. Thus they determine what consumers are really influenced by (Levy 2009).

Marketing researchers use neuromarketing to test, compare, and re-adapt consumer behavior theories. Feelings like trust, risk taking, personal threats, customer satisfaction; brand loyalty in marketing literature are confirmed by means of brain imaging and physical measurements (Fugate 2007). With neuroscience studies, the possibility of knowing what, where and when consumers will buy is increasing day by day. Thanks to neuroscience, it is now possible both to predict consumer behaviors and to learn what they think and feel (Stipp 2015).

The diversity of neuromarketing studies is increasing day by day. The research topics of neuromarketing include measurement of consumers' price perception, measurement of trust and commitment to the brand, effective store design, creation of effective

advertising messages, measurement of reactions to advertising messages, measurement of memorability and attractiveness of advertising, selection of media tools, product placement efficiency, product design and packaging decisions (Varinli 2012, Lee et al. 2007).

Many companies promise to offer neuromarketing solutions to commercial marketing problems. BrightHouse and SalesBrain in the US, Neurosense, and Neuroco in the UK are examples of these companies. The Center for Experimental Consumer Psychology at the University of Wales conducts joint works with companies that offer ready-to-wear goods (Lee et al. 2007). Membership to the Neuromarketing Science & Business Association (NMSBA), which is based in the Netherlands and conducts international neuromarketing activities, is an important criterion. This institution has authority on the academic and application side of neuromarketing. Representatives of this institution in Turkey are Thinkneuro, Neurodiscover, PTMS (SalesBrain Turkey Authority) and Emoreader. IPSOS and Millward Brown are international companies conducting research on Nueomarketing in Turkey.<sup>1</sup>

The most known research on neuromarketing is the repetition of the blind taste test of Pepsi in 1975 by Read Montague and his team with the fMRI device in 2004. It was seen that the vast majority of subjects who drank Pepsi and coca cola with their eyes closed preferred Pepsi. After this test, Pepsi started a big campaign that suggested that it was tastier than coca cola. Coca cola conducted the same experiment secretly and realized that the result was the same. However, due to the fact that subjects in these tests were abstracted from the brand influence, some experts suggested that the test result might be wrong. Read Montague and his team repeated this test again in 2004 with the introduction of the fMRI device. First of all, the subjects were asked whether they preferred Pepsi or Coca-Cola. More than half of the subjects and also their brains stated that preferred Pepsi. Later on, they were asked to taste the drink knowing what it is they drink, and then they were asked which one they liked best. 75% of the subjects said that

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<sup>1</sup>*Türkiye'deki Nöropazarlama Araştırma Şirketleri*. 2015.

<https://noropazarlama.wordpress.com/2015/02/11/turkiyedeki-noropazarlama-arastirma-sirketleri/>  
[accessed 09.03.2017].

they preferred Coca-Cola. It was observed that the orbitofrontal cortex, i.e., the part that is activated when a liking for art, music or taste is realized, was active when the participants drank coca cola without knowing they were drinking it. It was also observed that the hippocampus and the dorsolateral cortex which are related to the memory and reward system were active when they drank coca cola knowing they drank coca cola, but, there was no activity in the related brain parts of the subjects who drank coca cola knowing that they drank Pepsi. It was found out that there is a relationship between the brand and purchasing. Also, Dr. Montague observed that the rational and the emotional part of the brain entered into a conflict and that the emotions of the subjects outweighed the preference of the rational part of the brain, therefore, Coca-cola prevailed over Pepsi (McClure et al 2004).

One of the most comprehensive researches on neuromarketing is the measurement of the influence of warnings and deterrent visuals on cigarette packs with the neuromarketing techniques which Lindstrom (2009, pp. 17-24) told about in his famous book Buyology. Within the scope of this research, Lindstrom worked with 32 subjects selected from 2081 volunteers from various countries. This study, which included 200 researchers, 10 professors, and 1 ethics committee, started in 2004 and continued for 3.5 years. Functional Magnetic Resonance Imaging (fMRI) and Steady State Typography (SST), the most advanced brain scanning methods, were used during the study. Before the research, a research was applied to the subjects so that the difference between the results of the brain imaging method and the results of the research was tried to be revealed. The questions asked in this research were whether the visuals on the cigarette packets affected the subjects and whether these visuals decreased the cigarette consumption. The responses of the subjects indicated that they were influenced by the visual stimuli on cigarette packets and their smoking desires decreased. During the experiment, the subjects were shown cigarette warning signs and the visuals on the cigarette packs reflecting the harms of smoking on human's bodies and the brain activities of the subjects were observed. A surprising fact emerged as a result of the experiment; none of these visuals affected smokers. This meant that billions of dollars of money spent by 123 countries against smoking had been wasted. The more surprising result, however, was the fact that these visuals activated the acumben core in the brain and motivated smokers into smoking. This research revealed that the visual stimuli and

texts (smoking kills; smoking causes deadly lung cancer, etc.) that are still on cigarette packets do not really work and the answers to the research questions may be misleading. The studies carried out in the field of neuromarketing can be examined under the headings of product, brand and advertising in general.

#### **4.2.1 Product**

Neuromarketing surveys can test consumer experience before or after a product is offered to the market. It is much easier to test food and beverage products in this way. Attitudes towards products can be easily measured by monitoring the brain waves of consumers testing the products (Ariely& Berns 2010)

Neuro-scientific techniques can provide very useful results in the process of developing new products and improving existing products. Consumers' taste, smell and visual response to food products can easily be detected by fMRI. In this regard, it may become easier to develop a product that can meet consumer desires and needs (Ariely& Berns 2010).

Neuromarketing techniques can be used while creating a new product or determining package designs and pricing strategies. When a new product is introduced into the market, the product must be able to occupy more place in the consumers 'brains/minds than the competitive products. A product that has recently been introduced into the market should attract consumers' attention with its packaging, shape, color, or price. Neuroimaging techniques help marketers understand which features of a product's design trigger positive or negative reactions in the consumer's brain (Genco et al. 2013).

Pupil reaction analysis measures the physiological changes in the pupil size of a person. Psychophysiological research based on pupil reactions focuses on the temporal expansion of the pupils as a sign of affection reactions such as satisfaction and arousal by visual stimuli (Hess & Polt 1960). Pupil reactions occur as a possible application when evaluating the effectiveness of stimulants such as product, product packaging, advertising, etc.

### **4.2.2 Branding**

In a neuromarketing study conducted by Deppe et al. (2005), it was researched in which part of the brain the decision for a brand originated. It was determined that the inclusion of feelings into the decision-making process in the human brain arises from the ventromedial parts of the left and right side of the prefrontal cortex in the frontal lobe of the brain. Therefore, it has been found that the emotions evoked in the individual are influential in the decisions of the first preferred brands. The first preferred brands have been found to run the reward mechanism of the brain and to have created positive emotions on the individual.

Neuromarketing studies conducted revealed that learning whether there was a loyalty for the brand with the verbal expressions of subjects was a weak possibility (McClure et al. 2004). Because when the brain analysis data is based while evaluating what subjects feel, it is possible to reveal only with numerical data in which parts of the brain the mechanisms that make a sense of loyalty take place and what the stimuli that stimulate them are. Thus, it is thought that concrete indicators can be obtained on whether the marketing activities created or carried out on brand loyalty are successful.

### **4.2.3 Advertising**

Neuromarketing methods are used effectively in the field of advertising. Researchers can measure their emotional reactions and attention levels when consumers are exposed to TV commercials or billboard advertisements. Emotional reactions are shown in the form of likability, in the intensity of emotion, or in a way that affects communication. Consumer attention levels can be measured in real time using eye tracking or EEG methods (Zurawicki 2010).

Ambler et al. (2000) conducted a study in which the different effects of rational and emotional ads were evaluated using MEG, in order to see the effects of advertising on brain activity. High activation was detected in recognition-related fields in addition to the basic and related visual parts of the brain as a result of this study.

Researchers can make predictions about the unconscious thinking tendencies of the subjects, depending on the parts of the brain that are activated, while subjects watch the

commercials of the product or service. Thanks to the obtained analysis data, it is possible to compare the emotions such as excitement, passion, humor that consumers feel about the advertisement, and the approximate brain parts that these emotions activate. If the brain parts associated with the emotion do not become active, then that means the success of the ad in the test is low. On the contrary, if the stimulus produces a measurable natural change in a specific part of the brain, then it means that it is successful in terms of influencing the consumer even though the actual buying behavior is still an unanswered question (Fugate 2007).



## **5. DATA AND METHODOLOGY**

In this study, the focus group, which is the most prominent method of qualitative research techniques, was used to compare the results of an advertising research conducted by neuromarketing methods with the traditional methods.

### **5.1 THE AIM OF THIS STUDY**

The main aim of this study is to reveal the similarities and differences of the results obtained by neuromarketing and traditional marketing researches.

The secondary aim is to find out in which cases the chosen methods are more advantageous.

### **5.2 STUDY METHOD**

In this exploratory research, a qualitative method of focus group was chosen. The focus group interview is a special group interview technique structured to determine the detailed information and ideas of the selected group of participants on a specific topic. It is possible to get information about the psychological and sociocultural characteristics of the group participants and to learn the reasons of their behavior (Krueger,1994). The focus group is defined as a marketing research tool in which at least 4 and at most 12 people discuss about a specific topic, chaired by a moderator in a natural environment (Wilson 1997).

The reason for choosing this method is to ask open-ended questions to help the participants express themselves better and to reach the underlying causes of the feelings and thoughts about the advertisements they are watching. In addition, the fact that the sample numbers preferred in the neuromarketing study and in focus group study are close to each other is another reason for preference. As stated in the literature, more detailed and descriptive data can be obtained with focus synergy in focus group studies.

### **5.3 DATA COLLECTION**

Two different types of data were used in the study. The secondary data are the results of the Tropicana Afyon Cherry Juice advertisement test, which was implemented by

Thinkneuro in 2014 with EEG and eye tracking measurement tools and published in *Mediacatonline*. These results were evaluated with emotional arousal, attention and frustration scores.

In line with this former neuromarketing research, two focus groups, one consisting of 7 and the other of 6 participants, were conducted questions about the same advertisement advertisement previously measured by Thinkneuro with a different technic. Recorded by voice recording method.

In the scope of the study to be conducted, firstly, the questions to be asked were prepared parallel to the neuromarketing dimensions measured by Thinkneuro. Then the focus groups were determined. While preparing the questions, the traditional bipolar evaluative adjective scales (good/bad, like/dislike, irritating/not irritating, interesting/uninteresting) method (Hill & Mazis 1986, Heath 2007) were used. The prepared questionnaire is included in Appendix-1. The questions were not pre-shared with the participants, but were directed by the moderator during the interview.

The first group consisted of 3 males and 4 females with an age range of 24-35. The second group consisted of 3 males and 3 females with an age range of 22-31. When creating groups, young participants over the age of 20 are chosen and the participants consisted of people who were 15% are high school graduates, 65% are university graduates and 20% are students according to company's target group. In addition, it was noted that the participants were consumers who buy fruit juice.

Participants were first shown an image in the advertisement in Figure 5.1 that did not show any brand or product, and they were tested whether they could recall the advertisement and the brand unaided (unaided recall). All participants were then shown ads. Participants who could not recall the advertising / brand unaided were asked about the memorability of the ad after the ad was viewed, and aided recall was tested.

**Figure 5.1: One image of the advertising**



Later, the participants were asked about the likability of the ad to provide their opinions about the advertisement. In addition to these, open-ended questions were asked to the participants to reveal the compatibility between the ad and the brand, the interestingness of the ad and the irritating elements in the advertisement. As in the results of the neuromarketing study, these criteria were grouped as emotional arousal, attention and frustration since they are comparable.

## 6. FINDINGS

Founded in 1947, the Tropicana brand joined PepsiCo in 1998. The Tropicana brand, which first specialized in the category of orange juice it produced with Florida oranges, gradually spread to the world in the early '90s. The brand, located in more than 70 countries at the moment, entered the Turkish market in 2013 with the slogan "We are making fruit juice out of fruits by purchasing fruits from regions where fruits are considered the most delicious".<sup>2</sup>

### 6.1. RESULTS OF NEUROMARKETING STUDY

In 2014, the effectiveness of the Tropicana Afyon Cherry Juice advertisement was measured by ThinkNeuro over 24 volunteer participants, who are 16 women and 8 men, using EEG and eye tracking devices. The participants consisted of consumers who were 21-45 years old, 80% frequent and 13% middle-class fruit juice buyers.

Brain waves of these participants were measured by EEG and the emotional arousal, attention and frustration scores created by the advertisement were recorded. Concurrently, with the eye tracking device, it was determined where the participants focused in which scenes and what they perceived.

In Figure 6.1, the areas where consumers focused in the final stage of the advertisement are shown, as measured by eye tracking measurement. The fact that both the brand and the most advertised variable along with the other variables were seen indicates that the design of the advertisement was successful.

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<sup>2</sup> PepsiCo Türkiye, Tropicana , 2017, <http://www.pepsico.com.tr/brands/tropicana/> [accessed 01.04.2017].

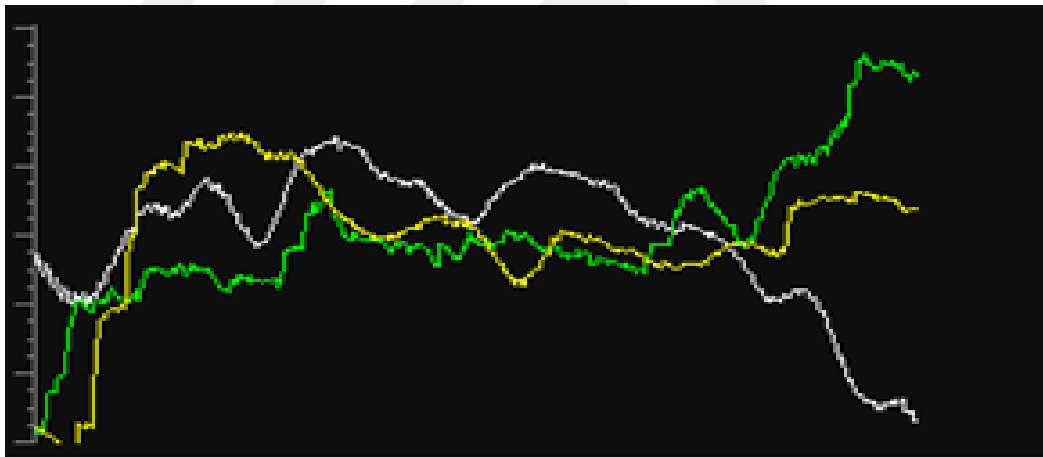
**Figure 6.1: Focused areas of the advertising**



*Reference: Mediacatonline, 2014*

In Figure 6.2, EEG measurements are shown. The green lines represent the emotional effect, the white lines represent the attention, and the yellow lines represent the frustration measurement.

**Figure 6.2: Curve of emotional arousal, attention, frustration**



*Reference: Mediacatonline, 2014*

According to the study, it was observed that the emotional arousal curve, which is represented by green, started to rise with the influence of music and then the attention curve also rose. The rise of the emotional impact curve throughout the advertising suggests that the advertising increasingly made an emotional bond with the audience. The fact that the emotional impact curve finishes at the top means that the name and the message of the brand and the advertisement match each other. This creates a significant union and also this is an indication that the brand will remain in mind.

While the attention curve, which is represented by white, continues up and down through the ad, it falls till the end of the ad especially when a voice-over enters in the advertising at the 37th second. The viewer, who understands that the emotional process is over and that the rational process has begun with the entrance of the voice-over, does not pay attention to what is said although he/she continues his/her connection with the visual.

The frustration curve, which is represented by yellow, starting high and falling through the advertising rises up till the appearance of the girl up the tree at the fifth second. Blurred view from the leaves during the first five seconds of the advertising causes frustration to increase; but as the view becomes clearer with the entrance of the girl, frustration starts to fall.<sup>3</sup>

## **6.2 RESULTS OF FOCUS GROUP STUDY**

The data obtained from the focus groups were examined under three main headings as emotional arousal, frustration and attention, parallel to the neuromarketing study. In order to measure these dimensions, questions are formulated for unaided recall, aided recall, likability and irritation. Also, participants were asked what emotions they felt while watching the advertising to measure emotional arousal score. Positive emotions express high emotional scores. In addition, compatibility of the brand message and the advertising were measured by yes / no question. The participants were asked what the advertising message was in order to confirm the correctness of the answers.

The responses of the participants to the open-ended questions were specified separately as Focus Group 1 and Focus Group 2, and classified as in Table 6.1.

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<sup>3</sup> Mediacatonline, Tropicana marka algısını dalından koparıyor, 2014, <http://www.mediacaonline.com/tropicana-marka-algisini-dalindan-kopariyor/> [accessed 01.04.2017].

**Table 6.1: Results of focus groups**

	Scale	Focus Group 1	Focus Group 2
<b>Emotional Arousal</b>	<b>Unaided Recall</b>	4 of 7 participants recalled brand	4 of 6 participants recalled brand
	<b>Aided Recall</b>	2 of 3 participants recalled, 1 of them did not see	2 of 2 participants recalled,
	<b>Feeling</b>	Happiness, cheer	Bored, cheer
	<b>Compatibility of the Brand Message and the Advertising</b>	Compatible Brand message: The best juice with best fruits	Compatible Brand message: The best juice with best fruits
<b>Attention</b>	<b>Likability</b>	Cute Kids Real-like Characters Lovely Nature Sunny Scenes Repeated dialogues	Cute Kids Lovely Nature Sunny Scenes
	<b>Interesting</b>	Familiar and cheerful music Lovely Nature Sunny scenes	Cheerful music Lovely Nature Sunny scenes Colours (red&green)
<b>Frustration</b>	<b>Irritating</b>	Repeated dialogues Children played with cherry	Repeated dialogues Children played with cherry Stereotype, Ordinary Unrealistic message

In both groups, the rate of unaided recall measured for brand and advertising is high. The common opinion from both groups is that the advertising message is clear and that the brand communicates what it wants to say. When they were asked about the feelings that the advertisement aroused, while the first group had completely positive feelings for the advertisement, the second group felt boredom because they found the advertising unrealistic, but, at the same time, they thought that the ad was cheerful. When they were asked about liked and interesting elements and scenes in the ad, both groups stated that they liked the sweet and cheerful moods of the children. Moreover, the fact that the scenes take place on a sunny and natural environment was appreciated by both groups and they were expressed as the interesting elements in the advertisement. The first group also stated that they felt that the grandfather and children characters were realistic, which was another feature they liked. Although the scene in which the children played with cherries was liked by some of the participants in the first group, some other participants in the first group and all the participants in the second group found this scene irritating. Furthermore, the repetitive dialogues were found irritating by both groups and the second group thought that the advertising was stereotyped and ordinary, which was among irritating details.

## 7. DISCUSSION AND CONCLUSION

### 7.1. DISCUSSION

In terms of the comparability of the two studies, attitudes were grouped positively and negatively according to the responses given in the focus group and compared with the neuromarketing scores as in Table 7.1. When the advertising is evaluated in terms of emotional impact, attention, and frustration in general, similar results were obtained from the two studies.

**Table 7.1: Comparison results of neuromarketing and focus groups**

	Scale	Focus Group 1	Focus Group 2	EEG & Eye Tracking
<b>Emotional Arousal</b>	<b>Unaided Recall</b>	Positive	Positive	Above Average
	<b>Aided Recall</b>	Positive	Positive	
	<b>Compatibility of the Brand Message and the Advertising</b>	Positive	Positive	
<b>Attention</b>	<b>Likability</b>	Positive	Negative	Above Average
	<b>Interesting</b>	Positive	Positive & Negative	
<b>Frustration</b>	<b>Irritating</b>	Negative	Positive	Little Above Average

The voice-over factor, which was revealed in the neuromarketing study and caused the attention curve to fall severely, were not expressed in the focus groups and were not recognized by the participants. In addition, the feeling of frustration in the first 5 seconds which was revealed in the neuromarketing study was not a detail that was specified in focus group studies.

In addition to these, no result was obtained in the neuromarketing study regarding the scene in which the children played with cherries which received both positive and negative views in the two focus groups. Moreover, recall results could only be obtained with qualitative methods.

Both studies have shown that the compatibility between the advertising message and the brand was successful and clear. In addition, at the end of both studies, it was seen that music was an important element to draw more attention to the advertisement. Both studies have shown that advertising is successful in terms of emotional subscription.

Although both focus groups expressed a common view regarding attention and frustration within themselves, it can be said that the results of both groups were not compatible with each other. The fact that both focus groups had different attitudes is due to the fact that group members influenced each other, as mentioned in the literature. The dominant group members convince the others and the group's viewpoint of the advertising merges under a common attitude. This is one of the disadvantages of the focus group studies.

In the neuromarketing study, it is clearly revealed in which scenes of the advertising, participants give positive responses and in which scenes they give negative responses. However, it is not possible to learn why these responses occur without asking the participants. Any information obtained without applying to human factor can only be based on assumptions. On the other hand, the results for which scenes are liked and why they are liked could easily be obtained in both focus groups.

This study shows that only neuromarketing or only focus group research is inadequate to achieve the right result. Neuromarketing is still very costly, and statistics, brain biology and physics are needed to analyze the results (Perrachione & Perrachione 2008). With traditional research methods, it is not possible to see how each second in an advertisement affects the consumer. In addition, the participants can be persuaded by the group in the method of expression as in this study, or they cannot express their unconscious decisions.

It is not right to eliminate traditional research methods completely. Traditional research methods give information about the reasons of the results of neuro researches. Furthermore, it is less costly to implement and faster to interpret these methods. These methods are effective when information about the market is needed to obtain quickly and with less cost. The study results also show that similar results can be obtained between the focus group and neuromarketing results.

Neuromarketing studies conducted in Turkey are very limited, and these studies are not effectively compared with traditional marketing methods, and comparisons are made mostly by companies that implement neuromarketing methods. This study will be a new

one among the limited number of studies conducted in Turkey and will enable an objective comparison of traditional methods with the new neuromarketing method.

## **7.2 MANAGERIAL IMPLICATIONS**

Neuromarketing is a very new field of study in the world and especially in Turkey. Publications and studies on neuromarketing are still limited.

Because of the facts that neuromarketing is known little and it is costly, most companies are distant to this method. However, the budget allocated for an ad or campaign constitutes a high percentage of the company's annual budget, and if this ad / campaign is not managed effectively, the budget allocated is wasted. What John Wanamaker said about advertising long ago exactly expresses this: "Half of my advertising budget is wasted. But the problem is, I do not know which half this is" (Lindstrom 2009, p. 28).

Nowadays, consumers are exposed to a lot of warnings and too many advertisements during the day. From all these advertisements, it is very important to instantaneously draw consumer's attention and to have a place in his mind. By examining ads second-by-second, neuromarketing studies explore ways to have a place in consumers' minds with an instantaneous image and aim to make an ad most effective.

Moreover, qualitative researches, in which people participate by expressing themselves, is also very important to create an effective advertisement. Through this method, the results obtained from neuromarketing studies are supported by reasons and important data for further studies is provided. With this study, it has been understood that supporting neuromarketing studies with traditional methods is extremely important in creating an effective advertisement.

## **7.3 LIMITATIONS**

This study was limited to only two focus groups of 21 to 35 years of age. It is possible to reach a more general result by keeping the age range wider and by broadening the scope of work with groups from different demographic structures.

In addition, while the results from Neuromarketing were compared, only as many results as permitted by Thinkneuro were reached. The assumption that some of the

information obtained by Thinkneuro was not published has to be taken into consideration.

#### **7.4 FURTHER RESEARCH**

When this study was conducted, neuromarketing data were obtained as secondary data, and there occurred some missing points while doing the comparison. If neuromarketing data are obtained primarily in a similar study, it is possible to obtain more accurate results.

This study was conducted with two focus groups, and it would not be correct to generalize the results because the number of samples is low. More accurate results can be obtained if the number of focus groups and the number of samples are increased.

This study was conducted exclusively in the post-test study of a TV advertisement. The results of the comparison should be increased by carrying out similar studies in the context of different advertising and other marketing researches in which Neuromarketing is used. In addition, comparisons made should be supported by other qualitative and quantitative methods.

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## **APPENDIX**

### **APPENDIX-1, Focus Group Questions**

1. Do you remember the advertisement of which scene is shown on the screen?
2. Do you know that this advertisement belongs to which brand?
3. Do you remember the advertisement after watched it?
4. Is the message given in the advertisement clear in your opinion?
5. Is the advertisement compatible with the brand message in your opinion?
6. What is the brand message according to advertisement?
7. How did you feel watching the advertisement? What positive and negative feelings arose when watching the advertisement?
8. What are your likes and dislikes in the advertisement?
9. What are the interesting factors in the advertisement? What attracted your interest in the advertisement?
10. Which scene of the advertisement you lost your interest in?
11. What are the scenes / factors that disturb you while watching the advertisement?