

Does the attractiveness of the cabin crew affect the perception of customers? A neuromarketing perspective

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Abstract— With deregulation and liberalization, the airline industry has undergone a major change process and more competitive markets have emerged. Considering the importance of service quality, airlines have focused on service quality as one of the most important means of surviving in these competitive environments. So, it is essential to reveal which factors affect the perception of service quality. It has been argued that one of these elements is the attractiveness of cabin crews. Therefore, this study aims to investigate the role of cabin crews' attractiveness on service quality perception. Accordingly, it is planned to conduct EEG measurements on consumers by means of various service delivery scenarios and to obtain service perceptions related to service delivery through self-assessment. Then, it is aimed to analyze, interpret and discuss the obtained data, thus providing useful information to airline managers.

Keywords-Component; Attractiveness; Service Quality; Airline; EEG; Neuromarketing

I. INTRODUCTION

The deregulation and liberalization movements that started in the USA in the 1970s and then spread to Europe radically changed the structure of the aviation industry [1]. As a consequence of this process, the airline industry, which was subjected to strict regulations, has gained a free market structure [2]. The main changes in this context are as follows: a) Tight regulations have been eliminated with liberalization, b) Opensky policies started to be implemented, c) Revenue management applications were implemented for the first time, d) The emerged business models have created more competitive markets [1]. In this competitive environment, airlines have finally realized that a sustainable competitive advantage can only be achieved by service quality. Thus, service quality has become an important strategic tool for airlines. At the same time, this has encouraged airlines to evaluate their service performance to be sustainable [3]. Briefly, the service quality has become one of the most important factors affecting the long-term success of airlines [4].

As is known, services refer to a process based on a reciprocal interaction. One of the most important elements in this process is the service staff [5]. The importance of the role of service staff in creating and providing service quality has been discussed in many studies. These studies revealed that many factors related to service staff affect the delivery processes of the services and change the perceptions of the customers [6]–[8]. One of these factors is the physical attractiveness of the employees. Many studies have addressed that the attractiveness of service staff has an impact on perceived service quality [9]–[11]. When these studies are examined, it is observed that the survey method was mainly used and the emotions and thoughts of the participants regarding the perception of service at the level of consciousness were discussed. However, it is known that consumer decisions and thoughts are not entirely based on rational thinking. Those responses and decisions hinge on both reason and emotion, and it is estimated that up to 95% of human thinking takes place in the subconscious mind. On the other hand, participants can respond with some prejudices under the influence of cognitive bias and social norms and this may not reflect the true thoughts of the participants. Therefore, subconscious processes should be examined in determining the service quality perceptions of customers depending on the attractiveness levels of service employees. Some thoughts expressed only at the level of consciousness may not reflect the true opinions of the customers. Therefore, using novel methods such as neuromarketing will be more effective in revealing the role of attractiveness on perceptions of service quality. In this context, the role of the cabin staff's attractiveness on the perceived service quality will be measured by the EEG method in this study. Besides, another aim of this study is to ascertain whether there is any difference between what customers express and what they think. In this way, it is aimed to broaden the insights into the effect of attractiveness on service quality perception by measuring processes at the subconscious level.

II. LITERATURE REVIEW

Physical attraction is defined as “the degree to which one’s facial image elicits favorable reactions from others”[12]. The concept of attraction, which is important in the disciplines of sociology and psychology, also attracted the attention of marketers. There are many studies on the importance of attractiveness in different domains of marketing. When the literature is examined, it is seen that these studies are mostly examined in terms of salesman performance, advertisement effectiveness, customer satisfaction, and service quality. In this study, we will focus on the role of attractiveness on service quality.

Sundaram and Webster [13] conceptualized a communication paradigm by combining the elements of verbal or non-verbal communication in a service environment. According to this model, they reported that some verbal and non-verbal elements related to employees affect the feelings and thoughts of the customers, thus affecting the service evaluations of the customers. In this model, they also argued that the attractiveness of employees, which is one of the important elements of nonverbal communication, plays a critical role in the service evaluation processes of customers. Li et al. [14] revealed that physical attractiveness is an important factor affecting customers' evaluation processes in a service encounter. With this study, it has been ascertained that physical attractiveness affects customer satisfaction and perceived service quality. Luoh and Tsaur [9] found that attractive service staff in restaurants significantly affect customers' perceptions of service quality. However, this significant effect in responsiveness and assurance dimensions was not found in other dimensions. Söderlund [10] discussed the effect of attractiveness on service quality perceptions and it was concluded that attractiveness has an impact on customer satisfaction. It was also found that attractiveness positively affects customers' attitudes. Berscheid and Walster [15] addressed that the services provided by attractive employees are perceived with higher quality. Manipulating attractiveness, Gabbott and Hogg [11] argued that attractiveness has an indirect effect on customer satisfaction. Bitner (1990), similarly, revealed that the appearance of employees is effective in evaluating service quality.

On the other hand, there are many studies arguing that attractiveness has little or no impact on service quality and customer satisfaction. Koernig and Page [16] found that attractiveness has no significant effect on customer satisfaction. They suggested that attractiveness can only be beneficial in ensuring customer trust. Wan and Wyer [17] argued that attractiveness may vary depending on the situation, causing low purchasing intention and low job performance. Similarly, Agthe et al. [18] argued that although attractiveness seems to be an advantageous situation, it may create a backfire effect as expectations regarding attractive people increase. The

authors also suggested that people would not want to interact with attractive employees because of their self-concern.

Concerning the existing literature, the number of studies addressing the impact of attractiveness on the perception of service quality is limited. Considering the methods used, it has been observed that some studies were handled experimentally, while others used the survey method. As a result, there is no consensus on whether attractiveness has an impact on service quality. In the studies conducted, it has been observed that the data obtained from the customers are often based on psychometric measurements. However, evaluations regarding several non-verbal characteristics such as race, sex appeal usually appear in subconscious processes. These subconscious evaluations greatly affect the communication process [19]. Therefore, it is necessary to examine the subconscious processes of the consumers to examine the effect of attractiveness in processes such as service delivery. In line with this fact, in this study, it is planned to examine the role of attractiveness in service quality perception by using the EEG technique that can measure subconscious processes.

III. METHODOLOGY

In this study, video clips prepared to be measured by the EEG technique will be displayed to the participants. At the end of these videos, the participants will be asked to answer how satisfied they are with the service they receive on a 10-point Likert scale (“1-extremely dissatisfied” to “10-extremely satisfied”). Then, the data obtained will be analyzed and discussed. Since the study is an experimental study, there are some steps to be taken before and after the experiment and these steps will be achieved in a sequence.

A. *Creating Service Delivery Scenarios and Videos*

During the experiment, it is planned to display the participants with 4 video clips. These videos will include both positive and negative deliveries of some services provided by the cabin crew. It will be ensured that positive and negative service deliveries will be provided by either an attractive or unattractive cabin crew. Thus, a total of four videos (positive service delivery-attractive cabin attendant, negative service delivery-unattractive cabin attendant, negative service delivery-attractive cabin attendant, negative service delivery-unattractive cabin attendant) will be prepared. Each video clip is planned to take approximately two minutes. Certain stages of service deliveries in video clips will be prepared to represent service quality dimensions. Thus, customers' perceptions of service quality can be measured.

In the first phase of the study, video clip scenarios will be prepared to be shown to the participants. When creating the service delivery scenarios, SERVQUAL, which has been frequently used and accepted model in the literature, will be

taken as a basis [20], [21]. Therefore, certain stages of scenarios will represent different dimensions of the SERVQUAL model. These dimensions are enumerated as physical evidence, responsiveness, empathy, assurance, and reliability. The scenarios included in the video clips are planned to be created by the authors.

A preliminary study will be done to find out whether the prepared test scenarios represent the dimensions of service quality that they intend to represent. This study will be carried out with approximately 100 participants. In this study, we will distribute a research form to the participants. The body of this form is divided into two parts. In the first part, the dimensions based on SERVQUAL are listed, in the second part, there are descriptions regarding the service quality dimension that the scenarios will cover. Then, participants will be asked to match the descriptions with the relevant service quality dimensions. In this step, if 75% of participants do not match the relevant dimension with the relevant discourse, the scenarios will be refined and efforts will be made to represent the descriptions in all dimensions [22]. Thus, it will be cleared that which SERVQUAL dimensions represent the descriptions in the scenarios.

In the next stage, two representative cabin attendants (attractive and unattractive) must be selected for the videos. However, it is unethical to call a cabin crew unattractive. Therefore, with the help of makeup, we will present cabin crews as attractive or unattractive. It is important to ensure whether this cabin crew is unattractive or attractive. To achieve this, participants will be asked how attractive they find the cabin crew by showing their photos. In doing so, the photos of the cabin crew, which are presented as attractive or unattractive through make-up, will be shown to the group of 40-50 participants. They will be asked to rate these photos on a 9-point Likert scale (1= extremely unattractive, 9= extremely attractive). If there is a significant difference between the two photographs in terms of attractiveness, it will be started to prepare the video clips. It is planned to produce video clips on an airplane. Video clips will be designed as if customers and cabin crews are communicating face to face.

A pilot study involving 5 participants will be carried out before the experimental study to eliminate possible problems.

B. Neuropsychological and Psychometric Measurements

We will employ two different research methods in the research, namely survey method and EEG, one of the neuromarketing techniques. In this study, the data will be collected through the electronic observation technique and the design of the research can be defined as a laboratory experiment.

After the participants fill in the "voluntary criteria form" and "voluntary participation forms", the participants who meet the necessary conditions will be included in the experiment. In

total, 120 participants are planned to be included in the experiment. The experiment will be conducted in an environment where the participants can feel comfortable. The reason for this is to prevent participants from experiencing anxiety and stress. Because anxiety and stress situations negatively affect EEG data quality. In the first step of the experiment, the EEG device will be placed on the scalp of the participants. By doing so, the brain responses of the participants will be measured with the EEG device.

EEG is electrical potential changes in the cerebral cortex that result from synchronous postsynaptic potentials and can be recorded from the scalp surface. In other words, it is the monitoring of brain wave activities by the electrical method. The EEG device planned to be used in the study is Epoc Emotiv and its location on the scalp is shown in Figure 1. This EEG device is a 14 channel device designed according to the international 10-20 system.

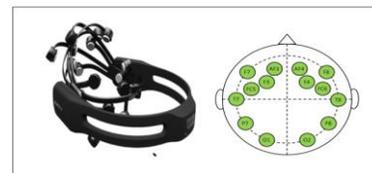


Figure 1. Emotiv Epoc and placement of electrodes

The EEG technique offers several metrics based on a scientific algorithm. One of the most important metrics used in neuromarketing research is the frontal alpha symmetry, which is also called approach-withdrawal data. In these measurements, which are called hemispheric asymmetry measurements, participants with high activation in the left frontal region tend to approach, while those with high activation in the right frontal region tend to withdraw [23]. It has been observed that positive emotions such as entertainment increase left frontal activity and negative emotions such as fear and disgust increase right frontal activity. The frontal asymmetry metric has been used in marketing studies that address issues such as advertising effectiveness and purchase forecasting. It is thought that the frontal alpha asymmetry metric can be used to measure the perception of service quality. Ravaja [24] stated that there is an increase in left frontal alpha asymmetry in perceptions of comfort, safety and value. He also argued that left frontal alpha activity would increase for a high-quality product and service. On the other hand, it has been observed that left frontal alpha activity is increased in attractive products of brands such as H&M and Zara [25]. Therefore, the findings regarding frontal alpha asymmetry will denote perceptions about service quality.

Video clips will be divided into 5 parts after the participant data is imported. Considering Parasuraman et al. [21]'s model, each of these five parts represents different service quality dimensions. In this way, it will be possible to compute a frontal

alpha asymmetry metric for each service quality dimension. The Frontal alpha asymmetry metric will be determined by reference to the F3 and F4 electrodes. The data from these electrodes will be analyzed in the MATLAB software via the EEGLAB package, and frontal alpha asymmetry metrics will be obtained.

In the study, the participants will be asked to evaluate the related service delivery scenarios after watching the videos. For this purpose, they will be asked to answer the item "If you were a passenger in this video clip, how satisfied would you be with the airline's service?", using a 10-point Likert scale. Then the frontal asymmetry metrics and self-reports of the participants will be standardized using the Z scores. Finally, employing difference tests, the differences between the two measurements will be examined and the findings will be discussed.

IV. AVENUES FOR FUTURE STUDIES

This study is expected to provide valuable insights into the role of attractiveness on service quality, which is a controversial topic in literature. In future studies, the effects of some non-verbal attributes such as gender and race on airline services can be investigated by using the EEG technique. Moreover, future studies should examine whether frontal beta and gamma asymmetries can be used for service quality measurements as well as frontal alpha asymmetry. Finally, using different techniques simultaneously, the power of the other techniques to explain the service quality can be examined.

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