RECENT ADVANCES IN HUMANITIES AND SOCIAL SCIENCES

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PREFACE

Studies related to social and humanities sciences often draw inspiration from topics that reflect daily life experiences of human beings. Consequently, in all subjects that involve human element, scientists conduct in-depth and sometimes multidisciplinary research within their fields.

The current work includes examples of human-centered research ranging from history to tourism, from economics to transportation and communication.

These studies serve to fill important academic gaps within their respective fields and are believed to make significant contributions to future research. The most important academic legacy that we will leave for future generations is the research works of this kind. Through these works, new research will be led and guided.

Prof. Dr. Hasan BABACAN

CONTENTS

REVIEW OF UNEMPLOYMENT ANXIETY LEVELS OF UNIVERSITY STUDENTS WITHIN THE CONTEXT OF ATTRIBUTION THEORY

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1. Introduction

Unemployment, which has devastating effects in terms of social, economic, and psychological aspects and affects all societies today, as in the past, regardless of the level of economic and social development (Işığıçok, 2022: 129), refers to a problem that can be solved with appropriate policies for some countries (countries in minority), for some other countries it indicates a problem that has become chronic and difficult to solve. Young people are the ones that suffer the most from this problem, and it is observed that the labor force participation rate of them has been gradually decreasing on a global scale. In the "Global Employment Trends for Youth 2022" report published by the ILO in August 2022, it was indicated that, compared to adults, young people at the ages of 15-24 experienced more employment loss between 2019-2020, especially with the effect of the Covid-19 pandemic, and it was stated that, with the effect of various factors, the already existing high number of young people not in employment, education or training (NEET) has increased significantly in 2020. Besides, it was emphasized in this report that the global youth NEET rate increased by 1.5 percent in 2020, reaching its highest level in the past at least 15 years (ILO, 2022).

For a strong economic structure and healthy social development, it is important to strengthen the young population in terms of qualification through education programs and let them participate in the social arena in an active and

qualified way. Accordingly, especially universities prepare young people for the labor market with the education they provide in line with the current needs of the business world. However, limited youth employment with the effect of various factors and high unemployment brings along concerns about finding a job among university students. Unemployment anxiety, which increases as one approach to the senior year, can affect the person traumatically in different ways. At this point, being able to determine the causal attributions made by university students about unemployment can mediate the formation of different and developing ideas about the approach to the unemployment problem and the solution to this problem. Accordingly, in this study, it is aimed to determine the unemployment anxiety levels of students studying in different faculties of a university. In the study, firstly, the general view of unemployment and the youth unemployment problem has been reflected and unemployment anxiety is emphasized. Then, the concepts of attribution and reference have been examined. In the implementation part of the study, the data obtained through the surveys have been evaluated by various statistical analyzes, and it was attempted to express the concerns of university students about unemployment and with what attributions these concerns are explained.

2. General Outlook of Youth Unemployment and Unemployment Anxiety

Unemployment, which is effective in all societies regardless of the level of development, is one of the major socio-economic problems that is waiting for a solution and this solution is getting more and more difficult each day. Because unemployment is a serious phenomenon that can cause various problems for both individuals and societies in line with the results it leads to as an economic, social, and individual issue. Unemployment, in general, is the situation where the labor force that comes to the labor market to work is unable to find suitable employment opportunities. Unemployment is the situation where the labor supply is more than the labor demand rather than subjective reasons such as not having the desire to work. It can arise due to various reasons such as inadequate demand, workplace insufficiency, inability to operate existing workplaces, low wages, and mismatch of workers' skills and abilities with the job (Canbey Özgüler, 2018: 47). In light of all these, those who have the desire and ability to work, but cannot find any job that can provide a regular and permanent income are called "unemployed" and this phenomenon with a socio-economic character

is called "unemployment" (Işığıçok, 2022: 129). However, the International Labor Organization (ILO) specifies the definition and scope of unemployment as "not having a job (no job)", "looking for a job" and "ready to start a job". (Bedir, 2014: 68; Lordoğlu and Özkaplan, 2003: 65). In this framework, ILO defines people in the non-institutional population of working age (age 15 and above) as "unemployed", those who do not have a job during the reference period, those who are looking for a job and have taken an initiative in this regard, and those who can work if they find a job. (Tekeli, 2018:11; ILO, 2015). As in the definitions of unemployment, there are various definitions for youth unemployment and therefore for the concept of "youth", which constitutes the basis of this phenomenon. However, it is observed that the age factor is mainly considered in defining youth. The most common quantitative definition for youth includes people between the ages of 15 and 24. This definition is used in statistics and indicators prepared by international organizations such as the United Nations (UN), World Bank (WB), and International Labor Organization (ILO) to find a common ground globally (ILOSTAT, 2023a; OECD Data, 2023a; Altınsoy, 2020:70).

After the separation created for the scope of unemployment, it is beneficial to look at the current view of unemployment and youth unemployment. According to ILO data, the unemployment rate in the age group of 15 and above has been determined as 5.8 percent in 2022 (ILOSTAT, 2023b). As per the OECD data, the unemployment rate among OECD countries in the third quarter of 2022 was found to be 4.89 percent (OECD Data, 2023b). Similarly, the unemployment rate in Turkey was determined as 10.3 percent according to December 2022 data (TURKSTAT, 2023). However, it is the youth unemployment that has to be focused on both globally and nationally. According to OECD data covering the fourth quarter of 2022, the youth (15-24) unemployment rate among OECD countries was determined as 10.89 percent (OECD Data, 2023b). As per the ILO data, the unemployment rate for people aged 15-24 across the world has been determined as 14 percent (ILOSTAT, 2023b). This situation was also discussed in the "Global Employment Trends for Youth 2022" report prepared by the ILO in 2022 and it was stated that young people mainly experience higher levels of employment loss than adults and that the number of poor young people working and the youth working in informal jobs increased (ILO, 2022). The problems faced by the youth in the global labor market also manifest themselves in the national labor markets. When youth unemployment rates are reviewed in Turkey according to the data of TURSTAT, it is observed that, in some periods, 1 out

of every 4 young people, and in some other periods, 1 out of every 5 young people are unemployed. For instance, while the youth unemployment rate was determined as 25.3 percent for 2020, it was determined as 22.6 percent for 2021. According to the data of December 2022, this rate was determined as 18.9 percent (TURKSTAT, 2023).

Apart from the basic indicators, while talking about the concepts and scope of economic crises, increasing poverty, and youth unemployment, the vulnerability of the young population who are "Not in Employment, Education, or Training (NEET)" is increasing every day, and it is observed that the concerns of the people in these groups deepen with the increasing unemployment especially due to the pandemic (Güler, 2021: 10; ILO 2023a). In this context, the NEET concept refers to alienation from education and the labor market or a complete break from them. This situation, in return, can cause young people to be hopeless and anxious about their future/life. It should also be mentioned that the fact that the young population is out of education and the labor market may cause various problems in the social and economic field, as well as individual problems, or cause existing problems to become more unsolvable. However, it should be noted that the groups formed by those in the NEET appear far from being homogeneous. Factors such as low education level, gender, ethnic minority status, immigration issues, low household income, and living far from central places are effective in the formation of this structure (Gökçe, 2022). For instance, when the indicators related to NEET are examined, it can be stated that young women in the 15-24 age group are more disadvantaged than men. According to the ILO's 2022 report "Global Employment Trends for Youth 2022", the NEET rate of women worldwide has been at a much higher level than that of men. This situation has a parallel appearance in both developed and developing countries and the result is young women facing unequal practices in education and employment (ILO, 2022).

The situation reveals itself also in the data about the NEET ratio. According to the OECD's data for 2021, while in OECD member countries the NEET rate for young people in the 15-29 age group was 14.6 percent, this rate was 12.8 percent for men and 16.5 percent for women. In line with the same data, the NEET rate in Turkey for the 15-29 age group was determined as 28.7 percent, while it was 18.4 percent for men and 39.5 percent for women. It is observed that in OECD countries the rate of being NEET among young women (15-29) in general is much higher than that of young men, in Turkey, on the other hand, the much higher gap between the gender ratios is remarkable. (OECD Data, 2023b).

With a different and supportive approach, the level of education completed directly affects being in the status of NEET. So much so that the illiterate young population (15-24) in Turkey is in NEET status at a very high rate compared to those who graduated from other education levels. Table 1 shows the education levels of young people at NEET. Accordingly, the rate of the young population who is not in education or employment was determined as 24.7 percent in 2021. In line with the same data, 82.9 percent of illiterate people, 19.9 percent of those with less than high school education, 23.3 percent of high school graduates, 29.1 percent of vocational or technical high school graduates and 36.7 percent of higher education graduates are considered under NEET as per their education level.

Table 1: Education Level Completed by Young
Population Not in Education or Employment

Education Level	2021
Illiterate	82,9
Less than High School Education	19,9
High School	23,3
Vocational or Technical High School	29,1
Higher Education	36,7
Total	**24,7**

Source: TURKSTAT, 2023

While having higher education graduates in NEET at very high rates points to a different problem, it also creates apprehension and anxiety for students at this education level. Being that, the high rate of higher education graduates who cannot find a place in the employment structure despite their high education level indicates the existence of a serious problem for which solution/solutions have to be found for the country's labor market in terms of educated youth unemployment. At this point, university students' anxiety about finding a job and unemployment come up. Because the reflection of anxiety on the labor market is realized through the definition of an adverse emotional condition that the person has against the negative situations that may occur in the future. It can be stated that unemployment anxiety is common, especially among higher education graduates. Because the increase in the education level of individuals indicates a better job, economic return, and satisfactory improvement in the socioeconomic level. However, when both global and national data are examined,

it is observed that the expected negative relationship between education level and unemployment rates does not exist. Unfortunately, it can be inferred that having a higher education level does not guarantee employment in any job. This situation creates future anxiety/apprehension for students in higher education institutions, especially in the final years of their education life, and related to this, having a job, in other words, "unemployment anxiety" (Kaya Erdoğan, 2021; Dursun and Aytaç, 2009: 72; Statt, 1994).

3. Attribution Theory

People do not have direct and clear information about the inner feelings, thoughts, and states of other people. The available information is based on deductive information formed by external clues (Taylor, Peplau, and Sears, 2012:53). Factors that are effective in making judgments about behaviors and processes related to explaining the events we see and experience are studied within the framework of attribution studies in social psychology (Aronson, Wilson and Akert, 2012: 201). In the broadest sense, attribution theory studies the ways in which psychology explains both people's behavior and the behavior of others. Accordingly, Fritz Heider (1958) is the first social psychologist who studied how people follow a way of explaining behavior and believing that every person has a general theory that they use to explain behavior, he called it "naive psychology" (Kağıtçıbaşı and Cemalcılar, 2016: 110; Nazlı, 2019: 68-69).

According to Heider, there are two incentives that all people have. The first one is to have a consistent understanding of the world whose parts fit each other. The second one is the incentive to take the environment under control. Such a requirement is needed in order to reach such an understanding and predict the behavior of other people (Taylor, Peplau, & Sears, 2012:53). According to Heider, people may sometimes prefer to explain others' behavior based on personal traits (personality, talent, attitude, etc.). This situation is explained as "internal attribution" or "attribution based on personal traits". In some other cases, people may prefer to explain behavior based on environmental factors (social pressure, existing situation, etc.). Such causal attributions are called "external attribution" or "situational attribution" (Bilgin and Leblebici, 2013; Hogg and Vaughan, 2007). For instance, we can attribute a person's tense state to the intensity or problems related to his work, or we can express it with his tense and nervous personality. Similarly, we can see that the situation of an

unsuccessful student can be explained by his laziness, on the other hand, it is also possible to explain it based on family problems (Dursun, Yıldız Bağdoğan and Aytaç, 2021: 166).

4. Method

The current study aims to determine the anxiety levels of university students about unemployment, as well as to determine the relationship between these anxiety levels and expectations and experiences about the labor market (hope of finding a job, work experience, and problems related to finding a job) and the difference between anxiety levels in terms of gender.

In line with the purpose of the study, the survey method was used. Ethics Committee Approval (Number: 2022/6, Date: 26/10/2022) was obtained from the "Gümüşhane University Scientific Research and Publication Ethics Committee" for the questionnaire forms used in the study. The prepared questionnaires were carried out at Gümüşhane University between November and December 2022 voluntarily. In the study, in which the snowball sampling technique was used, a total of 380 questionnaires were distributed, and after removing the lost and missing data the analyzes applied were conducted using 362 questionnaires. Besides, SPSS 23.0 statistical program was used in data analysis.

4.1. Information about the Participants

Table 2 shows the frequency distributions of the participants regarding gender, faculty, grade, work experience, the hope of finding a job, and the reasons for the problems related to finding a job.

Table 2: Demographic Traits of Participants

	N	%
Gender		
Female	218	60,2
Male	144	39,8
Faculty/Higher Education		
Faculty of Economics and Administrative Sciences	116	32
Faculty of Engineering and Natural Sciences	11	3
Faculty of Theology	22	6,1
Faculty of Tourism	60	16,6
Faculty of Health Sciences	121	33,4
Higher Education	32	8,8
The hope of Finding a Job		
There is	248	68,5
There isn't	114	31,5
Work Experience		
There is	159	43,9
There isn't	203	56,1
Difficulties in Finding a Job after Graduation		
About me	75	20,7
About environmental factors	287	79,3
Total	**362**	**100**

As Table 2 shows, 60.2 percent of the participants are women (218 people), and 29.8 percent are men (114 people). When the distribution of the participants according to the faculties is examined, it is seen that the Faculty of Economics and Administrative Sciences (32 percent) and the Faculty of Health Sciences (33.4 percent) are predominant. When the participants' answers about finding a job are examined, it is seen that the majority of the participants (68.5 percent) have hopes to find a job after graduation. In another data obtained in the study, the proportion of those who stated that the problems in finding a job after graduation are mainly related to environmental factors (economic structure, limited employment opportunities, etc.) (79.3 percent) is almost 4 times those who stated that these problems are related to themselves (not attending required training/courses, not developing themselves about the field, not making an effort, etc.) (20.7 percent).

4.2. Measurement Instruments

In addition to the questions put in the questionnaire to determine the demographic information of the participants, "The Unemployment Anxiety Scale" developed by Özder et al. (2018) was used. While there are 14 statements in the scale (for example the decrease in the need for a workforce of my profession worries me), a 5-point likert-type scale was used. The questions of the unemployment anxiety scale used in the study were subjected to the safety test, and the Cronbach Alpha values are given in Table 3.

Table 3: Number of Scale Items and Cronbach Alpha Value

Scale	Number of Items	Mean	Cronbach's Alpha Value
The Unemployment Anxiety Scale	14	3,31	,846

Cronbach's Alpha value is used to determine the reliability levels of the scales. A Cronbach's Alpha value of 0.70 and above indicates that it is reliable and sufficient for studies in the field of social sciences, and a value of 0.85 and above indicates that it is highly reliable (Lorcu, 2020; Coşkun, Altınışık and Yıldırım, 2019). The result of the reliability analysis of the scale used in the study is given in Table 3. In this respect, Cronbach's Alpha values of "the unemployment anxiety" scale are above the 0.70 limit and are at a reliable level. Besides, parametric analyzes were used in the analysis of the scale data, which were found to have normal distribution as a result of the normality test.

4.3. Findings

A number of statistical analyzes were conducted using the data obtained in line with the purpose/purposes created in the study. Table 4 shows that the mean unemployment anxiety of the participants is 3.31±.72. Accordingly, it can be said that the unemployment anxiety levels of the participants are at a moderate level.

Table 4: The Unemployment Anxiety Means of Participants

Variable	N	M	SS
Unemployment Anxiety	362	3,31	,72

Table 5, on the other hand, shows the t-test results of the unemployment anxiety levels of the participants according to various demographic variables

such as gender, the hope of finding a job, work experience, and the reason for the problems related to finding a job.

According to Table 5, when the unemployment anxiety levels of the students are compared as per their gender, it is observed that the unemployment anxiety level of female students (mean= 3.39) is higher than the unemployment anxiety level of male students (mean=3.04). This difference between the unemployment anxiety levels of male and female students is statistically significant (p<0.05). When we look at the unemployment anxiety levels of the students according to whether they have hope to find a job or not, the unemployment anxiety level of the students who have hope to find a job is lower (mean=3.09) compared to the students who have no hope of finding a job (mean=3.79). The difference between these two groups is statistically significant (p<0.05).

Table 5: Comparison of The Unemployment Anxiety of Participants According to Different Demographic Variables

Demographic Characteristics		N	The Unemployment Anxiety Mean	Test Statistics	p
Gender	Female	218	3,49	t= 6,165	**,000**
	Male	144	3,04		
The hope of Finding a Job	There is	248	3,09	t=-9,336	**,000**
	There isn't	114	3,79		
Work Experience	There is	159	3,38	t=1,487	,138
	There isn't	203	3,26		
The Reason for the Problems Related to Finding a Job	About Me	75	2,96	t=-4,959	**,000**
	About Environment	287	3,41		

When the unemployment anxiety levels of the students are examined according to whether they have any work experience or not (Table 5), the unemployment anxiety level of the students with work experience (mean=3.38) is higher than the students without work experience (mean=3.26). However, the difference between these two groups was not found statistically significant (p>0.05).

Finally, when the relationship between the reasons for the problems of finding a job and the unemployment anxiety of the participants is examined, the unemployment anxiety means of the students who think that the reason for the

problems in finding a job are related to themselves (mean=2.96) are lower than the unemployment anxiety means of the students who think that the reason of the problems in finding a job are related to environmental factors(mean=3.41). The difference between the unemployment anxiety means of these two groups is also statistically significant ($p<0.05$). Besides, it was determined that the students who participated in the study mostly stated the reasons for the difficulties in finding a job by using external attribution elements.

Conclusion and Evaluation

Education is vital in today's world to ensure that individuals can build their future on stronger foundations, have happy and prosperous living standards, and have a satisfying social identity. University education, in particular, is of critical importance both in terms of acquiring academic knowledge about the chosen profession and in terms of better employability and employment conditions. However, the tremendous increase in the number of university graduates in recent years has led to a noticeable contraction in employment opportunities together with the effect of different factors. The inability of the labor market to respond to this supply results in the joining of educated young unemployed people to the unemployed army every day. This situation causes university students, who face concerns about accommodation and adaptation to the social environment in their first years, to have an employment/unemployment-related anxiety in the last year of their university education.

In the current study, the unemployment anxiety of university students has been examined, and the relationship between unemployment anxiety with different demographic variables and the attributions made to explain the current concerns have been addressed. As per the results obtained from the study, a significant difference has been found between the unemployment anxiety levels of female and male students. Accordingly, the unemployment anxiety levels of female students are higher than male students. At this point, as one of the causal explanations, it can be said that there are social gender stereotypes that make themselves felt in working life as in all parts of social life. When the other studies are examined in the literature, it is seen that there are parallel results with the results of this study (Güney and Çelik, 2019; Taşğın, Bozgeyikli and Boğazlıyan, 2017). However, despite these parallel results in the literature, some other studies have found that unemployment anxiety does not change in terms of gender (Kutlu, Çetinbakış and Kutlu, 2019; Özçelik Kaynak and Öztuna, 2020; Erikli & Sarıcı, 2021; Dursun and Şen, 2022).

As per the obtained results, it is seen that the students' hope of finding a job affects unemployment anxiety. Accordingly, the unemployment anxiety levels of the students with no hope of finding a job are higher than the students who have hope to find a job. It is seen that the results obtained in this study show parallelism with many studies in the literature (Dursun and Aytaç, 2009; Doğan and Çoban, 2009). No significant difference was found between work experience, another demographic variable discussed in the study, and unemployment anxiety. Similarly, in the studies conducted by Tekin Tayfun and Korkmaz (2016), Özçelik, Kaynak, and Öztuna (2020), and Dursun and Şen (2022), no difference was found between work experience and unemployment anxiety. However, when the literature is examined, in some studies, it is seen that there are significant differences between work experience and unemployment anxiety (Etçi, Çiçek, and Kılıç, 2019; Aba Durukan and Yurt Öncel 2013).

According to another result obtained in the study, it is seen that the causal attribution style of students related to the problems of finding a job is effective on unemployment anxiety. It was determined that the level of unemployment anxiety of the students who said that their difficulties in finding a job were related to individual factors was much lower than the students who said that they were related to environmental factors. At this point, the fact that students tend to explain problems related to unemployment by using the external attribution method is remarkable. According to another result obtained in the study, it is seen that the causal attribution style of students for the problems of finding a job is effective on unemployment anxiety. Accordingly, it was determined that the level of unemployment anxiety of the students who said that their difficulties in finding a job were related to individual factors was much lower than the students who said that they were related to environmental factors. At this point, it is noteworthy that students tend to explain problems related to unemployment by using the extrinsic attribution method. According to the attribution theory, the tendency to engage in or avoid tasks that require success depends on what individuals think about their past life experiences and how they perceive and interpret these experiences. Especially the high unemployment rates of young people and the increasing number of higher education graduates among NEETs can lead to the feeling of learned helplessness in students who continue their university education. This situation may lead to making mainly external attributions in the causal attributions of unemployment anxiety. However, it should not be forgotten that due to human nature, positive situations tend to be associated with internal attributions, and negative situations with external attributions.

Concerns about finding a job adversely affect the future of society as well as today. Therefore, it is necessary to implement policies that will reduce the unemployment anxiety of students. While the permanent solution to the problem is to prevent unemployment among the educated young population, practices that will facilitate the transition of young people in education to the labor market should be extended. Practices such as expanding internship opportunities, strengthening university-industry cooperation, and updating course curricula considering the needs of the day and the change in the labor market may be considered. Besides, the demands of the labor market and employment opportunities should also be taken into account when opening new departments and determining their quotas.

The present study has some constraints. A vital constraint of the study is that the research was conducted in a single university. In future studies, conducting it on students studying at both state and foundation universities will contribute to a more comprehensive presentation of the subject.

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CHAPTER II

NEUROACCOUNTING AS A RESEARCH FIELD WITHIN NEUROSCIENCE: AN EYE-TRACKING STUDY

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1. Introductıon

Neuroscience is a pioneering branch of science in understanding the human and especially the decision processes of the human brain and explaining how people make decisions. Neuroscience is concerned with how the human brain works. Thanks to neuroscience, a model of how the human brain works during decision making is created (Birnberg and Ganguly, 2012: 2). With the widespread use of neuroimaging techniques since the 2000s, many findings have been obtained about the human brain. All these developments have enabled social sciences to benefit from neuroscience (Carter, 2019). Especially the developments in recent years have provided the opportunity to directly observe the brain activities in the field of social sciences. Technological advances have enabled scientists to obtain empirical data on how the brain functions.

The first reflection of neuroscience studies to the field of social sciences is studies in the field of neuropsychology (Lindstrom, 2010: 18). These studies, which examine the relationships between human behavior and mental processes, have shown their influence in all other behavioral areas of social sciences. Neuroeconomic studies especially on human behavior and decision making, in the field of behavioral economics (Camerer et al., 2005), have enabled neuroscientific studies to enter the business discipline (JHealey and Hodgkinson, 2014).

These activities, which were developed to understand the brain, required cooperation with different disciplines over time. In recent years, neurological sciences have acted in cooperation with many fields of social sciences, and this situation has developed many new scientific disciplines in social sciences. Neuroeconomic research, observing how the brain behaves in the decision-making process of economic decision makers, can reveal how views on human behavior contribute to economic analysis (Dickhaut et al., 2010: 224; Camerer, Loewenstein, and Prelec, 2005). Basu and Waymire (2006) claimed that the decision-making process of the individual based on accounting data can be examined with the techniques used in the field of neuroeconomics. Through this study, Dickhaut et. al (2010) concluded that, thanks to neuroeconomic evidence, the effects of the human brain on behaviors and recognition can be consistent in accounting, too. The combined use of neuroscience, psychology and behavioral economics has revealed the development potential of neuroaccounting (Birnberg and Ganguly, 2012: 2). Neuroaccounting examines the underlying causes of the formation, development and change of accounting behaviors in terms of brain functions by using neuroscience methods in accounting (Wang, 2018: 329-330). In this context, the contributions of neuroscience methods to accounting are providing a general understanding of how people process data, information and stimuli and how people respond to positive and negative experiences (Birnberg & Ganguly, 2012: 8).

Accordingly, neuroaccounting, which is in relation with neuroscience, constitutes the scope of this study. Neuroaccounting is a sub-discipline that brings neuroscience methods to the field of accounting. Neuroaccounting evaluates how the cognitive process used in decision making in the brain changes. Thus, it is considered an evolution of behavioral accounting research. The aim of this study is to draw attention to the effects of neuroscientific research in accounting, to examine the reflections of neuroscience to accounting and to present the outputs of an applied study on the accounting information system. An experimental pilot study was conducted with 14 participants using the eye tracking method. Four different tasks were defined for each participant and eye movements were recorded. In this context, the goal is not to observe the final decision, but to analyze how people react to stimuli.

2. Cognitive Neuroscience and Neuroaccounting

Cognitive neuroscience aims to reveal the physiological, genetic, and developmental mechanisms underlying cognition and mind. In the early years of

cognitive neuroscience development, the computer was treated as a metaphor for the mind and likened the human mind to an information processor (Friedenberg and Silverman, 2006, p.17). Today, it has been understood that the human brain does not have an operating system and software like a computer. The brain is a structure with a neural network. The brain does the things that the computer does at the speed of light, at a speed of 320 km. Despite this slowness, the brain leaves computers behind because it does not have a single operating system like a computer. The brain has over 100 billion neurons that are connected and worked synchronously (Koyuncu, 2015:30). However, computer technologies and artificial intelligence are used to understand the human brain. Mental activity is depicted with the developed technologies and methods. The use of experimental data and modeling, which is also used in artificial intelligence, is important in terms of cognitive science.

Cognitive neuroscience studies various mental processes such as attention, memory, and problem solving, and while doing so, it benefits from technology (Friedenberg and Silverman, 2006:17). Thus, cognitive neuroscience studies the mind with neuroscience techniques. These techniques are grouped under the headings of neuroimaging techniques and psychophysical measurement methods. Psychophysical measurement methods are more popular in social science studies (Liang, 2012). Participants' responses to stimuli can be found by measuring psychophysical indicators such as heart rate, blood pressure, sweating in the palms, and dilated pupils (pupils dilate when aroused) (Liang, 2012). "Although these tools do not directly measure brain activity, the obtained indicators are closely related to the nervous system (Vom Brocke et al., 2011:429)". They also allow the collection of instant data. Eye tracking, which is one of the psychophysical measurement methods, can provide information about the points a person looks at, eye movements between these points, the path followed, pupil size, and blink rate (Liang, 2012). Using this technique, information about where the participant's attention is focused, his/her intention, and his/her mental state are provided. Thanks to this data, which can be obtained numerically and visually from the eye tracker, information is obtained about how users interact with the interface, and it is aimed to make the interfaces more efficient and effective with this information. The advantage of eye tracking is that nonverbal and implicit information can be revealed (Ruckpaul et al., 2014). "The view path provides additional insight into the designers' approach, thereby revealing retrospective information that the designer did not reflect and cannot reproduce." (Ruckpaul et al., 2014:2)

These devices are particularly suitable for examining the user and product relationship in real applications.

It is clear that the findings and theories developed using neuroscience methods can also provide insight for behavioral accounting research. Therefore, the contribution of neuroscience methods to accounting; (1) how people process information and stimuli (i.e., cognitive domain); (2) how people apply to and respond to positive and negative experiences (i.e., the emotional domain); and (3) how people interact with others in an organization (i.e., interpersonal space). Within this understanding, the application of neuroscientific methods in the accounting discipline can be expected to shed light on how firms' managers and external stakeholders can best structure the form and content of financial information to optimize its relevance for its intended uses.

Behavioral accounting research examines people's emotions when making financial decisions, as well as the effects of the human brain on people's decision-making methods. Ultimately, accounting is the process of collecting data on transactions expressed in money that change the assets and resources of the enterprise, determining their accuracy, recording, classifying, summarizing, presenting them to the relevant people in reports, and analyzing and interpreting them. The information provided by the accounting information system is important for both internal and external information users to make the right decisions (Mackowiak, 2018: 153). The concept of neuroaccounting has emerged from the examination of the mind and behavior of users (human) in accounting science (Mackowiak, 2018: 153). Using neuroscientific methods, neuroaccounting reveals the underlying causes of the formation, development, and change of accounting behaviors in terms of brain functions (Wang, 2018: 329–330). Under favor of neuroaccounting, it is examined how the brain evaluates the existing information and how it analyzes this information.

Neuroaccounting is characterized as a new trend based on neuronal research within behavioral accounting, which is known as an approach that draws attention to the human factor in accounting (Mackowiak, 2018: 153; Artienwicz, 2016: 9). Therefore, neuroaccounting research can be considered as the development of behavioral research. Its purpose is not to observe human decisions, but to analyze how people react to stimuli (Artienwicz, 2016: 9; Orsitto, 2017: 56). In this context, neuroaccounting research needs devices with sufficient resources and facilities that are interested in examining the accountant's accounting-related choice behavior (Birnberg and Ganguly, 2012: 8). With the development of neuroscience and the increase in studies in the field

of neuroscience, a wide variety of technological tools have emerged. The emergence of measurement tools and their interdisciplinary use has also been reflected in accounting science, providing the opportunity to directly observe brain activities in decision-making behaviors in accounting (Wang, 2018: 326–328; Birnberg and Ganguly, 2012: 4).

Dickhaut et al.; have grouped the methods that can be used in the field of neuroaccounting into two groups as non-intervention (non-invasive) methods and intervention-requiring (invasive) methods. In this direction, the method that does not require intervention; is a numerical method used to observe and measure how much the subjects respond when an external stimulus is given. The eye tracking method, which aims to observe the attention points and attention levels of the subjects, can be used commonly. In addition, the effect of brain activities can be analyzed by using technological tools such as EEG, PET film, and fMRI, which are the brain mapping methods used with the development of neuroscience technology. Thanks to these methods, it can be determined which stimuli the brain responds to (Birnberg and Ganguly, 2012: 4).

Chen et al. (2016) argue that the process of acquiring and evaluating information rather than the information itself affects the decision-making process. Thus, insights and technologies from Neuroscience research can help accountants gain a deeper understanding of how decision makers physically and cognitively process and respond to accounting information and controls.

3. Experimental Design and Methodology

3.1. Experimental Desing

Experimental design data were obtained by recording eye movements for each participant using the eye-tracking method. A pilot study was conducted to investigate whether eye-tracking can provide valuable information in understanding what participants see in financial reports. In the pilot study, the Statement of Financial Position (Balance Sheet) of a public company in compliance with national and international regulations was shown to the participants. The identity of the company whose financial information is reported is hidden. Each participant was given the same tasks. Financial statements were examined and scored in line with the tasks. Similar to the study of Dickhaut, Basu, McCabe, and Waymire (2009) titled "Consilience Between Accounting Principles and the Primate Brain", the empirical relationship between the culturally developed accounting principles and the behavior of the biologically

evolved human brain has been evaluated. International Accounting Standards (IAS)/ International Financial Reporting Standards (IFRS) and national tax regulation are within the scope of the study. Eye tracking method is used to monitor how users react to visual stimuli (financial statements) arranged according to different regulations and how they reach a choice. In other words, the way a subject arrives at a choice between two stimuli is observed. The slide sequence shown to the subjects was inspired by the outlines of the experimental design in Baldi's (2017) study.
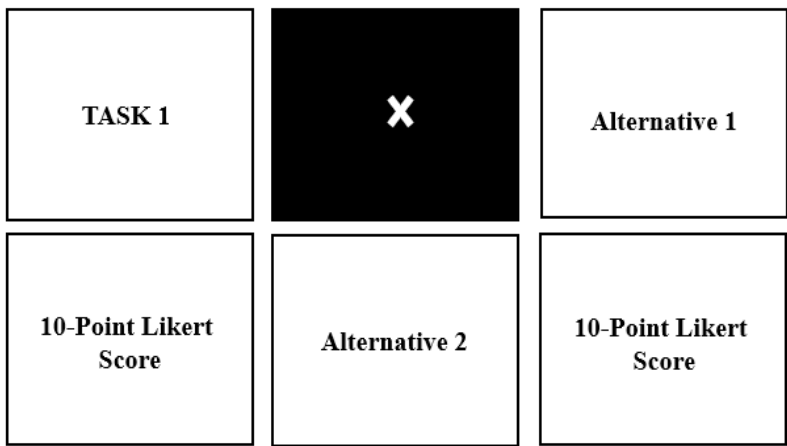
Figure 1: Each task corresponded to a set of six slides in jpg.format

1. The first fixation image with a black icon on the white screen is shown to attract the gaze.(Exposition Time: 3s)

2. The first task is shown. (Exposition Time: 17s)

3. Fixation image is shown. (Exposition Time: 3s)

4. The first of the alternative choices is shown. (Exposition time: 17s)

5. Depending on the tasks a 10-point likert score was requested for the first visual design. (Exposition Time: 17s)

6. The second of the alternative choices is shown. (Exposition Time: 17s)

7. Based on the same task, a 10-point likert score was requested for the second visual design. (Exposition Time: 17s)

Each participant was given the same four tasks and the slide flow above was provided for each task. The experiment takes 7 minutes, including fixations. Depending on the tax definitions, areas of interest (AOI) were determined on the visual profile. AOI are predefined areas of visual stimuli identified in relation to

tasks (Holmqvist et al. 2011; Orquin, Ashby, and Clarke 2016). The overall size of each stimulus is prepared in 1920*1080 visual angle. Tasks and stimuli are shown on a white background. A fixed distance was determined from the eyes of the subjects to the screen, and it was ensured that all recordings were presented under the same conditions for all subjects.

3.2. Eye-Tracking

Eye-tracking technology enables researchers to collect data that can be used as metrics or visualizations to study and understand individuals' underlying cognitive processes. In this context, the focus of the research with eye tracking method is to measure visual attention. The experiment was carried out at İzmir Bakırçay University Neuroscience and Cognitive Research Application and Research Center. Eye movements and likert responses of the participants were recorded with Neurolize Eye Tracker. Visual stimuli are displayed on a 27" × 29" LCD with a resolution of 2560 × 1440 pixels and a frame rate of 60 Hz. In addition, Neurolize Data Analysis Software was used to present stimuli, calibrate the eye tracker, record data on participant eye movements and eye fixation behaviors, and generate heat maps and scan paths. Scan paths and heat maps are types of visualization used to intuitively understand how individuals process a visual stimulus and/or better report the results of their quantitative data (Holmqvist et al. 2011).

3.3. Participants

Accounting professionals are included in the scope of this study as the parties that produce and use information. Behaviors of experienced and non-experienced users were observed through eye movements. Accounting interns were included in the inexperienced group, while professional accountants were included in the experienced group. Both experienced and inexperienced groups were required to have received IAS/IFRS training. Each participant was taken to the laboratory one by one and participated in the experiment process. The pilot study was completed with 14 participants including 7 experienced and 7 inexperienced of different age groups. Informed written consent was obtained from all participants.

4. Results

Today, under the oversight of numerous governments and professional accountancy organizations, there are a great number of regulations, standards,

and guidelines on how to report financial information both at the national and international level. Regardless of how the information should be reported, there has also been an increase in the complexity and amount of the information reported. In addition, there has been a shift towards developing a wide variety of business, performance and key indicator reports to supplement traditional financial reporting (Guthrie and Boedker 2006). The users of this abundance of financial information face a major disadvantage. The foundation of financial reporting is a set of technical documents that emerge from a process that records the financial transactions of a business. The eye tracking method, which is used to measure how attention is paid to financial statements or their readability, is intended to evaluate the ease of finding information, its accuracy and relevance from the point of information users. Attention is based on eye movement data for predefined areas of interest (AOI's) for each assignment. In this study, AOI's were defined during the experimental design phase.

Financial statements based on international (IAS/IFRS) and national regulation (Turkish tax law) were presented to the participants after each task. For the heatmaps figure (Figure 2), the first alternative is based on national regulation, and the second alternative are based on international regulation. During the experiment, the alternatives were randomly assigned.
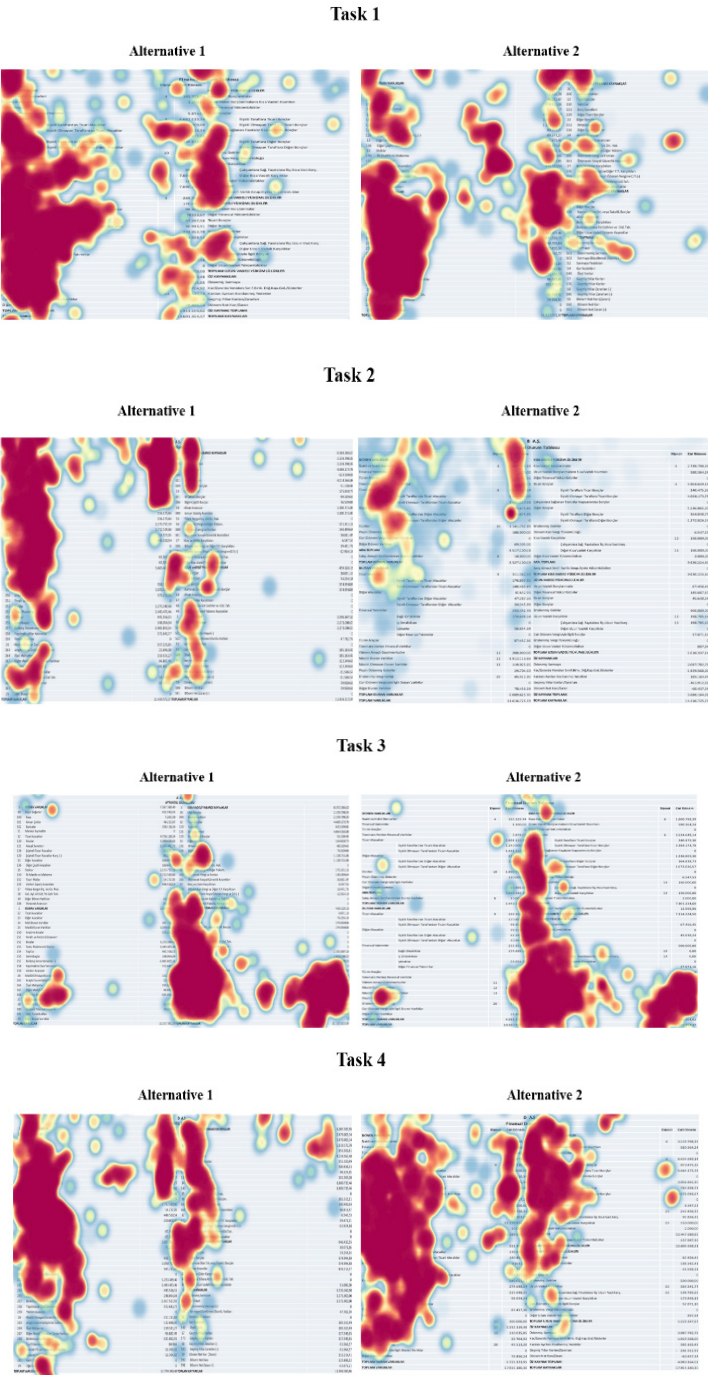
Task 1

Alternative 1 Alternative 2

Task 2

Alternative 1 Alternative 2

Task 3

Alternative 1 Alternative 2

Task 4

Alternative 1 Alternative 2

Figure 2: Heat Maps for the Participants

The pilot study data demonstrates that eye tracking is helpful for measuring and explaining the readability of financial reports and identifies several potential issues for users of these documents. Among these issues, there are the problems of the level of accuracy and relevance with the ease of finding information. As expected, experience and education are substantial. The inexperienced participant also has access to all relevant information; however, the experienced participant is more effective than the inexperienced participant. The inexperienced participants missed the whole picture by not looking at some related articles while completing the tasks. Sensation, which is the first step of the cognitive process, is defined as the comprehension of a whole ((Tunalı et al., 2016). It is advocated that sensation is a conscious act. "By its very nature, sensation is a conscious event; we perceive what we are aware of, and we do not perceive what we are not aware of (Zeki, 1999:67)". Sensation may be involved in design in two different ways. The first of these ways is the individual perception of the designer, while the second is the product perception of the user group to whom the design is addressed. The activity of the experienced participant on the financial statements is the individual perception based on education and the perception of quality financial statement presentation based on experience.

5. Conclusion

Taking into account that neuroscience shows that the brain works in a certain way, it is expected that the decision maker finds information with certain characteristics preferable. The psychology and neuroscience studies reviewed provide evidence that accounting processes are also related to the structure of the human brain (Dickhaut et al., 2010). Knowing the factors affecting the information quality in order for accounting information systems to produce quality information will support the organizations in improving the information quality of the system and increasing its efficiency and will increase the decision efficiency of the management. Considering the quality characteristics of the information produced in accounting information systems (such as IASB, FASB), "understandability" takes part as a user-specific qualitative feature in the presentation of financial information Understandability, information should be easy to understand without making the user hesitate.

The aim of pilot study examines whether eye tracking provides useful information for determining the comprehensibility and usefulness of financial

reports. Eye tracking data demonstrates that IAS/IFRS financial statements that emerge from a technical process are not particularly reporting is not easy to read. In terms of decision-making usefulness, even educated and experienced accountants have difficulty finding the most relevant information with regard to international financial reports. The results indicate that there is a perception that international financial accounting standards are of high quality, but that they are not user-oriented in practice and do not provide clear benefits in practice. In order to prevent consistent and inaccurate perceptions that may arise from a set of cultural perspectives or habits that may emerge regarding the implementation and adoption of standards, opportunities such as adequate education and dissemination of practices should be continuously supported by authorized institutions and parties.

The results also demonstrate the potential of eye tracking method to contribute to financial decision-making processes. Enhanced similar studies will contribute to improve the readability and clarity of the financial statements by identifying how accounting information users read financial statements and developing alternative user-oriented formats.

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CULTURAL TOURISTS' MOTIVATIONS FOR TRAVELING WITH HISTORICAL TIES

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1. Introduction

Culture is defined as all of the characteristics that distinguish one community or group from another and are formed through the historical process (Hofstede, 1993). The interest in richness such as handicrafts, music, traditions and lifestyles that are part of a region's culture (Jafari, 2000) has revealed the concept of cultural tourism. Because the concept of culture is so broad, it is difficult to define the boundaries of cultural tourism (Richards, 2003). Because of this aspect of the concept of culture, researchers have come up with various interpretations of the definition of cultural tourism. Cultural tourism is the commercialized expression of a desire to see how other people live, according to Jafari (2000). Cultural tourism, according to a slightly broader definition, is the visit of people to the cultural attractions of another place in order to gain new information and experiences, motivated by historical, artistic, scientific, or cultural assets from their permanent residence (Silberberg, 1995).

Motivation, which is recognized as the root cause of human behavior (Mook, 1996), has been identified as one of the most important variables that underpin all behaviors, including tourism behavior and has the forces that motivate people (Crompton, 1979). Travel motivation is defined as a set of needs that drive people to engage in tourism activities (Pizam & Mansfield, 1999). Travel motivations have long been a focus of leisure and tourism

research (Crompton, 1979; Todd, 1999), and many studies have attempted to determine consumer behavior (Gilbert, 1991). Because it has become critical to have adequate information about the motivations that influence tourist travel behavior. This information has a direct impact on the decisions tourists make (George, 2004), and effective tourism marketing is impossible without knowing the answer to the question of what motivates people to travel (Fodness, 1994). The general perspective in travel motivation studies has been on why tourists visit a particular location. This point of view has been interpreted differently by researchers. This research was necessary due to the scarcity of studies in the literature on what historical ties between two places mean in terms of people's travel motivations. The purpose of this study is to uncover the travel motivations of cultural tourists traveling with historical ties. The data for the qualitative study were collected through face-to-face interviews, and the themes and motivation factors that emerged through content analysis were revealed.

2. Travel Motivations

It has been noted in the tourism literature that the travel motivations of cultural tourists differ from those of other tourist groups. However, in the majority of studies, cultural tourists were evaluated as a group rather than as a community with various motivating factors (Tchetchik et al., 2009). According to Altunel and Kahraman (2012), the best practice in this regard is to determine the needs and various desires of cultural tourists and divide them into sections based on their various characteristics. According to Stebbins (1996), the primary motivations of cultural tourists are to learn about another region's art, music, tradition, and history. Çetin and Bilgihan (2016) state that cultural tourists leave their living spaces with the intention of temporarily becoming a part of the culture they visit, and that this type of tourist values almost everything that is part of the local culture. Art, history, entertainment, fashion, clothing, cultural events, architecture, and food are among the sources of motivation that researchers see and value cultural tourists as part of local culture. Silberberg (1995), on the other hand, took a different approach to cultural tourists' motivations and classified them into four distinct groups. These:

• The primary goal of a highly motivated cultural tourist is to experience a cultural product,

• Partially motivated cultural tourist: Partially for culture, partly for visiting relatives or friends,

• Cultural tourists are motivated by the cultural element: They see cultural activities as a supplement to their primary motivation,

• Unintentional cultural tourists: People who do not want to participate in any cultural activity but are forced to do so due to the insistence of friends.

According to Goldner and Ricthie (2012), it is incorrect to examine the situation solely through the lens of why tourists travel. According to researchers, the most important thing here is to figure out why a specific group of tourists wants to have a certain travel experience. According to Jewell and Crotts (2001), the validity of only a quantitative approach is based on the questionnaire's selection of motivational factors. Researchers have nothing to do with motivational factors that exist in the minds of tourists but are not accounted for in the survey. Dann (1981), who conducted one of the first studies on travel motivation, stated that there are two major issues that make studying travel motivation difficult. The first is that tourists' value judgments differ depending on the society in which they live, and there are individual differences among tourists. The second is that, aside from the motivation they express directly, when tourists are asked what their travel motivation is, they are likely to have different needs in their minds and things that they are not aware of at the time.

When the first studies on travel motivations were examined, nine motivational factors emerged, seven of which were socio-psychological in nature and two of which were cultural in nature. These are (Crompton 1979):

• Getting away from everyday life,
• Self-discovery and evaluation,
• Relaxation, • Dignity, • Renewal,
• Developing kinship relationships,
• Facilitating social interaction, and
• Innovations.

Dann (1981) later introduced the concepts of push and pull factors for travel motivations. Many studies have been conducted on the subject of people traveling because they are pushed by internal factors and pulled by external factors after these two travel motivation scales (Uysal & Jurowski, 1993). According to Fleischer and Pizam (2002), after reviewing studies on travel motivation, the most common travel motivations are rest, relaxation, learning, social interaction, and excitement. According to Park and Mok (1998), the primary reasons for traveling are personal satisfaction, prestige, relaxation,

cultural interest, family-kinship, and new experiences. Swarbrooke and Horner (2007), on the other hand, expanded on the commonly used travel motivation pattern and proposed six titles as a result of their research. These:

• Personal development: A desire to expand one's knowledge of the world or to learn new skills and knowledge,

• Obtaining status: Desire to conform to fashion and popular trends, as well as the desire to gain prestige,

• Cultural factors include a desire to travel, see, and learn about new cultures,

• Physical factors include relaxation, sunlight, exercise, and overall health,

• Emotional elements include nostalgia, romance, adventure, escape, fantasy, and mental renewal,

• Personal factors: the desire to see friends or relatives, form new friendships, and make their spouse or children happy.

When the studies on travel motivation in the literature are examined, it is discovered that the scale items are very similar to each other, despite the fact that the subjects of many studies differ. The scale items in these studies were, in general, mental relaxation, physical relaxation, escaping from daily life, dignity, learning new things, relaxation, seeing a new place, escaping from stress, gaining experience, excitement, having fun, escaping from work pressure, personal development, and experiencing different cultures (Seabra et al., 2016; Xu & Chan, 2016; Meng et al., 2016; Allan et al., 2015; Li et al., 2015; Maumbe & Arbogast, 2015; Nikjoo & Ketabi, 2015; Park et al., 2015; Kim & Woo, 2014; Altunel & Kahraman, 2012; Kim & Eves, 2012; Özel & Kozak, 2012; Pesonen, 2012; Prebensen et al., 2012; Siri et al., 2012; Zoltan & Masiero, 2012; Mohammad & Som, 2010; Paris & Teye, 2010 ; Jönsson & Devonish, 2008; Yüksel & Yüksel, 2008; Pearce & Lee, 2005; Yoon & Uysal, 2005; Kozak, 2002).

Aside from the studies with the aforementioned scale items, there are also studies with different scale items. According to Bideci and Albayrak (2016), to foreign tourists visiting an Antalya church; because of its religious characteristics, it is part of my heritage, I wanted to pray here, and I felt a sense of belonging there. Caber and Albayrak (2016), to tourists rock climbing in Antalya; new rocks and routes, boulders accessible, sources of information about the area, and questions about new climbing experiences. Wang et al. (2016) used a scale

consisting of questions directly related to the research focus, such as approaching Buddha, respecting Buddhism, seeking help from Buddhism, praying for family, enjoying Temple style, and enjoying religious art to tourists visiting a Buddhist mountain in China. Yan et al. (2016) conducted a study with tourists visiting an earthquake zone in China; they used the scale items of empathy with survivors, disaster prevention awareness, sympathy for people who experienced the earthquake, and sympathy for people who died. Gu et al. (2015) posed nature-related questions to domestic tourists visiting a byosphere reserve in China; they included questions about temperate forest landscape, geological landscape, seeing wildlife, unspoiled nature, and ecological environment. Kamenidou and Vourou (2015) conducted a faith tourism study with tourists visiting a religious island in Greece; they saw monasteries and churches, worshiped, repented, received God's help, and found inner peace. Lopez Guzman et al. (2014) posed scale items to tourists visiting a wine region in Spain, such as learning about the world of wine, tasting different types of wine, and purchasing wine from wine shops. To volunteer tourists visiting Ghana, Otoo and Amuquandoh (2014) asked questions such as helping others, contributing to poverty reduction, financial assistance to the community, supporting workers' efforts, and working with other volunteers. Lee (2009) conducted research on a nature-based scale with tourists visiting wetlands; they asked questions about being close to nature, watching wildlife, ecological information, watching mangroves, and learning about wetlands.

3. Method

This study is founded on a qualitative pattern. The method title is given under the sub-titles "the research area and participants," "data collection," "data resolution and analysis," and "research credibility," and the applications made under each title are detailed. National and international research and publication ethics were followed in this study.

3.1. Field and Research Participants

The subjects of the study are participants in the Complete Balkan Tour, which includes Serbia, Bosnia and Herzegovina, Montenegro, Albania, and Macedonia. Maximum variation sampling, one of the purposive sampling methods used in the qualitative design, was used to determine the study's participants. The goal of maximum diversity sampling is to keep the sample group small while reflecting the diversity of the participants as much as possible.

The data obtained by such a method may be more rich than data obtained by other methods. The goal of sampling for maximum diversity is not to provide enough diversity to generalize. It seeks common and distinct facts among various situations (Yıldırım & Şimşek, 2011). To ensure maximum diversity among Complete Balkan Tour participants, a balanced distribution was made in terms of place of birth (Balkans or Türkiye), gender, and age groups, and a total of 12 participants were determined.

3.2. Data Collection

The data for the study were gathered through a one-on-one interview technique. Interviewing is a method that sociologists frequently employ. The fact that it is based on a face-to-face relationship with the people who will provide information provides clarity and certainty in obtaining the data (Seyidoğlu, 2003). In-depth data about a phenomenon can also be obtained through interviews, which questionnaires cannot. If the interviewer and interviewee have good communication, the chances of the answers being more honest and accurate than the questionnaires increase. The semi-structured interview technique was used to ask additional questions, to be able to ask questions that were not fully explained, to give the participant flexibility, and to have in-depth answers (Altunışık et al., 2010). Semi-structured interviews give the researcher more leeway. The questions and their order are subject to change and development during the interview. Instead of forcing participants to select specific answers for ease of analysis, this method aims to collect rich and sufficient information in the research through open-ended questions (Büyüköztürk et al., 2012).

The interview questions prepared in accordance with the research's purpose were first sent to a total of 11 researchers, six of whom work in tourism, one in sociology, and four in educational sciences, and expert opinion was obtained. The questions, which were arranged based on expert opinions, were sent to three people who took part in the so-called "Balkan Tour from Head to Head" to assess their level of understanding, and the questions were finalized based on participant feedback.

Between the 5th and 12th of December, 2017, interviews were conducted in İstanbul and Eskişehir with 12 participants in the Balkan Tour from Head to Head. Before beginning the interview, participants were asked to complete a "interview information form," which included questions such as "place of birth", "place of birth of his parents", "if he is of Balkan origin, the reason for immigration from the Balkans", and "how many times he visited the

Balkans". The participants were informed that a voice recorder would be used during the interview, and the interviews with two participants who did not wish to be recorded were conducted by taking notes. The purpose of the research was explained to the participants prior to the start of the interviews. To avoid interruptions, participants were asked to turn off their phones and not accept visitors during the interview.

3.3. Data Analysis

The data collection portion of the research was completed following the one-on-one interviews, and the analysis and analysis of the obtained data began. A code was given to each participant. K(1), K(2), K(3), K(4), K(5), K(6), K(7), K(8), K(9), K(10), K(11) and K(12) are the participant code numbers. The notes taken during the interview with two participants who did not want audio recordings were typed, and 10 audio recordings were transcribed. The answers given during the interview were transcribed verbatim, with no changes to the dialogue order. The transcribed interviews were sent to the participants to avoid typographical errors and to ask clarifying questions about areas that were unclear, and the necessary locations were arranged based on the feedback received.

The 'content analysis method' was used in the researcher's analysis of the interview records, which were read one by one. Content analysis is a method of analyzing data that aims to identify data, reveal hidden truths in the data, bring together similar data within the framework of certain concepts and themes, and interpret them by arranging them in a way that the reader can understand. This type of analysis has four stages (Yıldırım & Şimşek, 2011):

- Data coding,
- Theme discovery,
- Theme editing,
- Identification and interpretation of findings.

During the analysis process, the decipherings were read twice and the meanings were underlined, revealing 280 meaningful concepts, some consisting of only one word, some of a sentence, and some of several sentences. The collected data was first coded to separate it into meaningful chunks. The researcher named the parts that together form a meaningful whole. Data from various sections that were related in terms of meaning were brought together and

related. As a result, 27 codes were generated. Following the coding of the data, the common or similar aspects between the codes were examined, and themes (categories) were formed, with the related codes grouped under the relevant theme. As a result of the coding and subsequent categorization of the research data, six major themes emerged. Nvivo package program version 22.0 was used for regular data archiving while performing content analysis.

3.4. The Research's Credibility

Some concepts guide and shape research and demonstrate the accuracy of scientific knowledge. Some of these include research generalization and reliability (Ekiz, 2009). In general, validity refers to the accuracy of research findings. The reproducibility of research results is related to reliability. Internal and external validity and reliability are defined by LeCompte and Goetz (1982) as follows:

• External validity; if the results obtained can be transferred to similar groups,
• Internal validity; if the process followed during the research is sufficient to reveal the facts,
• External reliability; if the research results are obtained in the same way in similar environments,
• Internal reliability; it is achieved if other researchers can use the same data and reach the same results.

The following practices have been used in qualitative research to ensure the validity-reliability of the research, also known as credibility-consistency:

• A qualitative research design was chosen, which is an approach appropriate for the content of the researched subject, as well as the appropriate method,
• Expert opinion was sought on the interview questions, and necessary arrangements were made in response to the opinions.
• Pilot interviews were conducted to ensure the clarity of the questions,
• The purposeful sampling method was used to select the people to be interviewed,
• The researcher has spent a significant amount of time in the field. This circumstance aided in the presentation of events, facts, and situations from the participants' points of view,
• Expert feedback was obtained throughout the process, from selecting the research design to selecting the data collection technique to analyzing and interpreting the data,

• Data sources (participants) were asked to confirm the data obtained by the researcher, as well as the results and comments reached by them.

4. Results

The findings from the content analysis are presented in this section. The written-down audio recordings were read twice, with the meanings of the concepts underlined. There were 280 meaningful concepts that emerged. The meanings of the concepts expressing similar situations were then combined and coded. As a result, 27 codes were generated. The codes were combined to create themes, and six themes emerged. Subheadings were used to examine the themes.

4.1. Belonging

When the participants' answers to the questions "What reasons encouraged you to join the Balkan tour" and "What does the Balkan countries you have visited mean to you" were analyzed, a theme called "Belonging" emerged. "Origin," "emotional intimacy," and "visiting relatives" were the main codes that revealed this theme. Table 1 lists the codes that reveal the theme of belonging.

Table 1. Belonging (Theme 1)

Theme 1	Codes
Belonging	• Visits relatives
	• Emotional intimacy
	• Origin
	• Seeing the places where he was born
	• Being regarded as ancestral land

If the participants' statements support the theme of belonging, the following stand out: "Reasons such as seeing people's sociological structures, that is, our ancient ancestors and relatives[1]." "I mean, I hadn't been there in 50 years, so we went with excitement on this occasion[2]," she says. "I was tempted to trace my ancestry back to the Balkans[3]."

"One of the things that encouraged me to go on the Balkan tour is that even though I was born and raised in Istanbul, my origin is the Balkans, my hometown is Macedonia, so my father was born in Skopje and I don't worry.

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1 Face-to-face interview with K (9) on 5 December 2017.
2 Face-to-face interview with K (9) on 5 December 2017.
3 Face-to-face interview with K (3) on 6 December 2017.

The fact that I was curious about the entire Balkans, as well as Skopje, my hometown, encouraged me to come here[4]."

"I'm going because it's my hometown[5]." "Of all the countries I've visited, Macedonia means the most to me, and as I mentioned, it's a country I've always been curious about since my grandfathers immigrated from there, so I wanted to see it[6]." "Because I was born in Macedonia, Macedonia, my ancestral homeland, our birthplace, to see the house where we were born, to see the city, village, house we live in[7]." "Because our children should see the Fathers' land[8]."

"Things that encouraged me to tour the Balkans; In the beginning, a few small photos of Skopje remained in my mind, always from my family, from my surroundings, with the Balkans, or rather Skopje, the city where I was born. The places where people are always born are very good for everyone, or so they believe; I wondered if this was true[9]."

When the expressions revealing this theme are interpreted, two distinct senses of belonging emerge in the participants' travel motivations. The first is the desire of those of Balkan origin to visit their relatives and see their ancestral homeland. Another source of motivation for those of Balkan origin whose birthplace is the Balkans is the desire to visit the region where they were born. The second source of motivation, belonging, is that those of Turkish Republic origin feel emotionally connected to the Balkans and see the Balkans as their ancient ancestral land due to the region's former Turkish dominance.

4.2. Historical Ties

When the participants' answers to the questions "What reasons encouraged you to join the Balkan tour" and "What does the Balkan countries you visited mean to you historically" were analyzed, a theme called "Historical Ties" emerged. The main codes revealing this theme were "old Turkish domination", being seen as sister countries" and "the importance of the region in terms of Turkish history". Table 2 shows the codes that reveal the theme of historical association.

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4 Face-to-face interview with K (4) on 7 December 2017.
5 Face-to-face interview with K (7) on 6 December 2017.
6 Face-to-face interview with K (8) on 12 December 2017.
7 Face-to-face interview with K (9) on 5 December 2017.
8 Face-to-face interview with K (12) on 7 December 2017.
9 Face-to-face interview with K (5) on 7 December 2017.

Table 2. Historical Ties (Theme 2)

Theme 2	Codes
Historical Ties	• Former Turkish dominance
	• Seen as ancestral heritage
	• Seen as sister countries
	• Regional significance in Turkish history
	• Having cognates in the region

If the historical unity theme is supported by the statements of the participants, the highlights were as follows: "There are traces of the old culture, we have old buildings, there are Turks living there, Muslim people, there is a living environment. I'm referring to the desire to visit one's ancestral home[10]."

"Being the lands ruled by the Ottoman Empire during the reign of his son Fatihan. Turkish influences. I went for historical and cultural reasons. Our perspective was like looking for traces of Turkish history. We began in the Balkans, following Turkish history, following in the footsteps of Turks, and visiting places where the Ottoman remnant was dominant[11]."

"Sisterhood, in the sense that we are so close that we have so many similar points. The Turks and the Balkans have an incredible bond[12]." "It is historically significant for me, and it is also significant for Türkiye[13]." "I wanted to see the Balkan countries because they also have an old Ottoman history. Very beautiful places, especially because they were left to us by our forefathers[14]."

"The fact that the Ottoman Empire was present as the main element in the Balkans, that is, that the Ottoman Empire was in the Balkans, that is, the Balkan state, rather than Anatolia. We saw them there because of 600 years of Turkish dominance in the Balkans and the establishment of a Muslim Turkish culture and civilization[15]."

"At the time, I was aware that they were all Ottoman territories. There was definitely something special about seeing something from them; it had a feeling, it had an excitement, even though I couldn't recall the history[16]." I assumed it was ancestral property. "I went knowing we had relatives[17]."

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10 Face-to-face interview with K (1) on 7 December 2017.
11 Face-to-face interview with K (2) on 7 December 2017.
12 Face-to-face interview with K (3) on 6 December 2017.
13 Face-to-face interview with K (5) on 7 December 2017.
14 Face-to-face interview with K (8) on 12 December 2017.
15 Face-to-face interview with K (9) on 5 December 2017.
16 Face-to-face interview with K (10) on 12 December 2017.
17 Face-to-face interview with K (11) on 5 December 2017.

When the expressions revealing this theme are interpreted, the Turkish domination in the Balkans for centuries and the region's importance in Turkish history, the cognates living in the region, the Balkans being viewed as an ancestral heritage, and the Balkan countries being viewed as sister countries reveal a travel motivation stemming from this historical unity.

4.3. Facilitating Factors

The responses to the questions "Which features of the Balkan countries you visited encouraged you to visit this place?" and "Can you explain the relevance of package tour offers such as accommodation, transportation, and guide services to your travel?" were analyzed to reveal the effect of economy and similar factors on the participants' travel motivations. "Facilitating Factors" emerged as a theme. "Package tour," "visa-free entry," and "economic structure of countries" were the main codes revealing this theme. Table 3 shows the codes that reveal the theme of facilitating factors.

Table 3. Facilitating Factors (Theme 3)

Theme 3	Codes
Facilitating Factors	• Cheap package tour • Visa-free entry • Country economic structure • Travel with a guide • Save time with package tour

If the theme of facilitating factors is supported by the statements of the participants, the highlights were as follows: "We did not come to the Balkans that often, so I can say that we joined the Balkan tour in this way to see the whole Balkan tour better, to travel better and to understand its history better. And with a guide to help us understand and travel[18]." "I had the opportunity to compare different things in a shorter period of time, within the same days, within the same week. That's why I went with it[19]." "Because it's a package tour, you travel quickly and can't stay in one place for long[20]." "You wouldn't be able to go to such a place if you tried to go alone; the price was reasonable, and it covered many countries; it made more sense to me

18 Face-to-face interview with K (4) on 7 December 2017.
19 Face-to-face interview with K (5) on 7 December 2017
20 Face-to-face interview with K (6) on 10 December 2017

to go with a tour, because the price was reasonable as well[21]." "The travel package was very economical, convenient, and inexpensive to me[22]."

"In a geography we do not know, it is important to get professional service here. Package tours were important in terms of the quality of the guide, the hotels we would stay in, and the restaurants that the company or guide would direct us to, or in terms of getting to cultural, historical, and cultural places in a more practical manner[23]."

"Because Balkan countries are inexpensive[24]." "When I compare it to Türkiye, I don't see much of a difference in terms of economics. For starters, it is more economically sound than other European countries[25]." "Of course, there was no visa, so things like that were simple[26]." "Because it does not require a visa[27]."

When the expressions revealing this theme are interpreted, it is clear that Balkan package tours are a separate source of motivation for travel to the region. People's travels are facilitated by the fact that package tours are less expensive than individual travels, that they save time by visiting many places in a short period of time, and that they can travel with a guide. Furthermore, visa-free entry and the low cost of living in the Balkan countries are economically motivating factors in the motivation to visit the region.

4.4. Cultural Similarity

The theme "Cultural Similarity " emerged from the answers given to the questions "What does the Balkan countries you have visited mean to you" and "What do you know about the Balkans and Balkan culture," which were asked to reveal the effect of culture on the travel motivation of the participants. The main codes revealing this theme were "Feeling close to Balkan culture", "Seeing the food culture close" and "Seeing the Balkan lifestyle close". Table 4 shows the codes that reveal the theme of cultural similarity.

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21 Face-to-face interview with K (8) on 12 December 2017
22 Face-to-face interview with K (10) on 12 December 2017
23 Face-to-face interview with K (2) on 7 December 2017
24 Face-to-face interview with K (7) on 6 December 2017
25 Face-to-face interview with K (10) on 12 December 2017
26 Face-to-face interview with K (1) on 7 December 2017
27 Face-to-face interview with K (7) on 6 December 2017

Table 4. Cultural Similarity (Theme 4)

Theme 4	Codes
Cultural Similarity	• Feeling close to Balkan culture • Observing the food culture • Observing the lifestyle

If the statements of the participants support the cultural affinity theme, the highlights were: "I participated for historical and cultural reasons[28]." "It is part of our culture and history[29]." "For instance, the culture of that location[30]." "We wanted to go because the food and places to visit are culturally significant to us[31]." "Because we know it's nearby based on what we've seen on television and in documentaries[32]." "I wanted to see them all in general because there is Ottoman culture[33]." "Their culture is similar to ours in some ways[34]." "Here are canned goods or snacks, I was always bringing things that would keep us from going hungry, but I never needed it here because their food culture is close to ours, the meatballs we ate were amazing, for example in Bosnia[35]."

When the expressions revealing this theme are interpreted, it has been determined that seeing Balkan dishes similar to their own food, seeing Balkan peoples' lifestyles similar to their own, and feeling close to the Balkan culture are sources of travel motivation in tourism movements towards the region.

4.5. Historical Monuments

"What features of the Balkan countries you visited encouraged you to visit this place" and "What do you know about the historical monuments in the Balkans? When the responses to the questions "Can you explain its relevance to your trip?" were examined, the theme "Historical Monuments" emerged. This theme was revealed by the main codes "desire to see historical artifacts", "desire to see Turkish artifacts" and "desire to see Balkan architecture". Table 5 lists the codes that reveal the theme of historical monuments.

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28 Face-to-face interview with K (2) on 7 December 2017
29 Face-to-face interview with K (3) on 6 December 2017
30 Face-to-face interview with K (5) on 7 December 2017
31 Face-to-face interview with K (6) on 10 December 2017
32 Face-to-face interview with K (6) on 10 December 2017
33 Face-to-face interview with K (8) on 12 December 2017
34 Face-to-face interview with K (10) on 12 December 2017
35 Face-to-face interview with K (6) on 10 December 2017

Table 5. Historical Monuments (Theme 5)

Theme 5	Codes
Historical Monuments	• Interest in historical artifacts • Interest in Turkish works • Interest in Balkan architecture

If the statements of the participants are to be used to support the theme of historical monuments, the following are the highlights: "There are traces of the old culture; we have old buildings and a living environment, whether Turks or Muslims live there[36]." "It was also important to see the works made by the Turks or the Ottomans there. Here are some examples of Turkish architecture from various Ottoman architectural styles, such as mosques, bridges, and inns[37]." "There are thousands of historical artifacts waiting to be discovered, so there are thousands of historical artifacts that I want to see, and I want to see the ones in the Balkans while I'm at it, so there are nearly as many historical artifacts in the Balkans as in Anatolia[38]." "Through my travel, I'm a little bit curious about history, and seeing them in place[39]."

"There were school trips to these Balkan countries, there were trips to schools, in fact, I wanted so much, other teacher friends went, I saw that bridge by looking at the pictures they were taken, I saw that bridge, it's famous, then I learned what it was like, of course, when I went, I visited the Mostar Bridge. Let's wait and see[40]."

"Seeing historical places[41]." "I had heard about the historical places in this area, perhaps on TV or something, and I wanted to see them[42]."

"The mosque, madrasah, road, and so on that the Ottomans built there increased the importance of the Balkan geography. I knew that Belgrade, for example, had the most mosques after Istanbul, that the Turkish Ottoman artifact was in Belgrade, for example, the number of mosques. We heard, learned, or saw on television that the mosque in our city had been destroyed, but that there were dozens of mosques, madrasahs, and castles in places like Skopje[43]."

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36 Face-to-face interview with K (1) on 7 December 2017
37 Face-to-face interview with K (2) on 7 December 2017
38 Face-to-face interview with K (3) on 6 December 2017
39 Face-to-face interview with K (5) on 7 December 2017
40 Face-to-face interview with K (6) on 10 December 2017
41 Face-to-face interview with K (7) on 6 December 2017
42 Face-to-face interview with K (8) on 10 December 2017
43 Face-to-face interview with K (9) on 5 December 2017

"Of course it happened, I can say that seeing something that Turks did from my own origin, seeing the architectural structures from the Ottoman era there, of course, was effective in this travel decision. So I was intrigued[44]." "Of course, there's Bosnia, Mostar Bridge plus the Martyrdom, Ottoman historical buildings, Atatürk's school in Macedonia, and many historical buildings I can't name[45]." "Seeing the Ottoman Empire artifacts. Seeing the culture and works that were created as a result of the Ottoman conquest of the Balkans and the settlement of the Turks[46]."

When the expressions revealing this theme are interpreted, it is clear that the desire to see the works left by Turks in the Balkans, other historical monuments in the Balkans, and Balkan architecture is a source of motivation for Balkan travel.

4.6. Promotional Elements

When the answers given to the question "What reasons encouraged you to participate in the Balkan tour", which was asked to reveal the general factors that affect the travel motivation of the participants, another theme that emerged was "Promotional Elements". "Family and relatives narratives," "Balkan origins in the surrounding area," and "those who shared their travel memories" were the main codes revealing this theme. Table 6 shows the codes that reveal the theme of Promotional Elements.

Table 6. Promotional Elements (Theme 6)

Theme 6	Codes
Promotional Elements	• Narratives about family and relatives • Balkan immigrants in the surrounding area • Those who share their travel memories • Documentaries about the Balkans • Balkan series/movies • Travel blogs

If the theme of promotional elements is supported by participant statements, the highlights are as follows: "Because I desired so much, I had heard a lot about Ohrid from my grandfather. Oh, if I could take you to Ohrid for a while, if I could take you on a tour there, my mother, my deceased uncle, my

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44 Face-to-face interview with K (10) on 12 December 2017
45 Face-to-face interview with K (11) on 5 December 2017
46 Face-to-face interview with K (12) on 7 December 2017

aunt, and my brother-in-law would all say[47]." "The family always told me about Skopje like this, almost street by street, and I was very curious, as were our elders' memories[48]." "They were telling a lot, my aunts were also telling, I have two aunts and they were telling too. I didn't see my grandfather or grandfather, but my grandmother mentioned it, so we went[49]." "I had a friend of Balkan origin, when I was talking to him, he would always invite me there, you know, be my guest there. It was a little effective, to be honest, because I was very curious, and he was always telling in our conversations with him[50]." "First and foremost, I decided to go because my wife is a Balkan immigrant, and I was very curious[51]." "There were a lot of Albanians in our neighborhood. I talked to the people on Sakarya Street while I was living there; they had always gone, but I had not, so I wanted it that way[52]." "Ohrid, from television programs, we had very limited information about a part of Skopje[53]." "We were watching documentaries on TV, and we wanted to go there because it is close to our culture, the promotion, the food, and the places to visit[54]." "Because we know it's nearby based on what we've seen on television and in documentaries[55]." "In Macedonia, we heard that the mosque in our city had been destroyed, but we also heard, learned, or saw on television that there were dozens of mosques, madrasahs, and castles in places like Skopje[56]." "I went there expecting to see more common local clothes that I had seen on television and in documentary programs[57]."

When the expressions revealing this theme are interpreted, documentaries, TV series and movies about the Balkans, and travel articles read on blogs about the Balkans come to the forefront, motivating the formation of the idea of traveling to the Balkans and promoting the region. Furthermore, it has been determined that the memories of those who have previously visited the Balkans, as well as the narratives of Balkan origin friends, family, and relatives in the vicinity about the Balkans, are a source of travel motivation for the region.

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47 Face-to-face interview with K (3) on 6 December 2017
48 Face-to-face interview with K (5) on 7 December 2017
49 Face-to-face interview with K (8) on 12 December 2017
50 Face-to-face interview with K (10) on 12 December 2017
51 Face-to-face interview with K (11) on 5 December 2017
52 Face-to-face interview with K (8) on 12 December 2017
53 Face-to-face interview with K (2) on 7 December 2017
54 Face-to-face interview with K (6) on 10 December 2017
55 Face-to-face interview with K (6) on 10 December 2017
56 Face-to-face interview with K (9) on 5 December 2017
57 Face-to-face interview with K (10) on 12 December 2017

5. Conclusion, Discussion and Suggestions

The purpose of this study is to uncover the travel motivations of cultural tourists traveling with historical ties. With this qualitative research, it was determined what "the travel motivations of cultural tourists traveling with historical ties" are. It has been concluded that cultural tourists traveling with historical ties are motivated by their desire to see the places where their ancestors were born or lived in the past, their desire to see their historical past in place, and their desire to see their relatives in the place where they left. This type of traveler; It was determined that their desire to visit a region with historical ties to Türkiye, which they believe is important for Turkish history, where there are Turkish artifacts, where they feel close to their culture and would like to see it, influenced their decision to visit this region.

According to Sezgin (2013), on the point of the distant characteristic of internet communication, electronic word of mouth deserves more serious attention from marketing researchers and managers. As a result of this study, it was determined that TV series and films shot about a region, documentaries broadcast, information obtained through word of mouth communication, and electronic word of mouth communication all positively affect travel motivation. Other findings of the study show that people prefer more affordable tours, that the countries they will visit have similar economic conditions to the country they live in, and that they prefer package tours to visit many places in a short period of time with a guide.

Thus, the criteria to be considered when planning tours for other regions with historical ties to the Republic of Türkiye, particularly the Balkans, where field research was conducted, as well as marketing activities for these tours, were established. It is important to consider these criteria not only for cultural tourists leaving Türkiye, but also for cultural tourists visiting Türkiye, when planning and marketing activities. Because Türkiye is a significant market for cultural tourists traveling with historical ties to both immigrations and migrations.

Many of the studies on motivation in the literature (Pearce & Lee, 2005; Jönsson & Devonish, 2008; Yüksel, 2008; Paris & Teye, 2010; Pesonen, 2012; Siri et al., 2012; Zoltan & Masiero, 2012; Kim & Woo, 2014; Saayman & Dieske, 2015; Maumbe & Arbogast, 2015; Li et al., 2015; Park et al., 2015; Assiouras et al., 2015; Allan et al., 2015; Wang et al., 2016; Xu & Chan, 2016), research part from a few questions specific to its purpose, it generally focused on general

motivational items such as relaxing, resting, getting away from home, having fun, escaping from stress, getting away from routine, seeing a different place.

According to Goldner and Ricthie (2012), it is incorrect to examine the situation solely through the lens of why tourists travel. According to researchers, the most important thing here is to figure out why a specific group of tourists wants to have a certain travel experience. Based on this, it is assumed that this aspect of this study, which aims to reveal the motivation factors in the travel experience of cultural tourists traveling with historical ties, a specific tourist group, for a specific purpose, will be successful.

Bideci and Albayrak (2016) identified "part of my own heritage" in the travel motivations of German and Russian tourists visiting the Saint Nicholas church in Antalya, while Nikjoo and Ketabi (2015) identified "part of my own heritage" in the travel motivations of Iranians visiting Istanbul and Antalya. Mlozi and Pesämaa (2013) identified "close culture" and "friends and visits to relatives" as motivational factors in the travel motivations of international adventure tourists visiting Tanzania. This situation demonstrates that motivational factors are present in more than one type of tourism, so cultural tourists traveling with historical ties differ from other types of tourists with this feature.

Taking advantage of this study, consider Turkish history and the communities that have migrated to Türkiye and lived here for many years; the travels of those who migrated from Türkiye to the Caucasus, Turkestan, Crimea, the Middle East, East Turkestan, Western Thrace, and North Africa for similar purposes, and those who immigrated from Türkiye for similar purposes. It is believed that determining their motivations and comparing them will contribute to the literature.

Given that the main motivation of the diaspora tourist is to see the places where he or his ancestors migrated, the main motivation of the VFR tourist is to visit friends or relatives, and the main motivation of the cultural heritage tourist is to see historical places or culture, the cultural tourist traveling with historical ties is a typology that encompasses these three types of tourism. It is possible to state this.

Given the effects of television series and films, documentaries, word of mouth and electronic word of mouth communication resources on motivation, tourism planners and decision makers should use these communication resources to attract tourists to Türkiye from geographies with historical ties to Türkiye, as well as a culture that travels historically through collaborations between countries. It is suggested that such studies be expanded, as it is believed that

increasing tourist visits to Türkiye will benefit the country both culturally and economically.

It is another suggestion for travel companies that organize tours to regions with historical ties to Türkiye, while planning and marketing activities and planning activities for local culture and history in the destination, taking into account the motivation factors in this study.

Information

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THE EFFECTS OF ADVERTISING ON SOCIAL STATUS DIFFERENCES: A CRITIQUE OF CONSUMER SOCIETY

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1. Introduction

Consumption is a phenomenon that has existed since the history of humanity. From primitive societies to the present, all people have been engaged in consumption activities. Consumption, which takes place directly as physiological needs, has gained a different dimension with the increase and diversification of needs in parallel with the development of societies. While the past societies were evaluated through their producer positions, consumption has come to the fore in the explanation of today's societies. Although consumption is the subject of many disciplines, it is a concept that economists, advertisers and market researchers are more interested in, rather than sociologists, social psychologists or social theorists (Bocock 1997: 11).

Consumption, which was first considered only as an economic issue, has become a cultural phenomenon with the effect of technological developments, mass media and advertising. Consumption has gone beyond the fulfillment of physiological needs and has turned into the consumption of surplus products of industrialized countries with the effect of globalization, and from there, it has gained a new dimension and turned into an indicator of people's status in society. Therefore, consumption has become a phenomenon that includes economic, cultural and psychological elements.

Essentially, consumption is the process of using goods and services produced by people to meet their needs. In this respect, while consumption

is realized as an activity based on rational reasons, it has gained a cultural dimension as an activity carried out for different reasons in the modern period. Advertising has been very effective in influencing and directing the society in the fact that consumption in modern society goes beyond just meeting the needs and carries different purposes. Consumption exceeding the limits of need has caused economic consequences for people on the one hand, and on the other hand, it has become a means of obtaining social status. In the modern era, consumption activities of people to achieve social status have emerged in different forms. First, the developments in the mass media and then the ease of access to new communication technologies made people aware of each other in their consumption behaviors. People have tried to create an identity and social status indicator with their consumption patterns in new communication environments. In this respect, the change in consumption reflects a cultural transformation.

In the study, mass media, advertising, fashion, popular culture and culture industry are discussed in the theoretical framework as the factors affecting this transformation in the consumption phenomenon. The factors that are effective in the formation of the consumer society and the process experienced are evaluated conceptually. Advertising, popular culture, fashion and consumption culture are examined in the acquisition of social status as a result of the transformation process and its reflection on societies.

2. Mass Media and Advertising in Globalizing World

Communication, which is an indispensable condition for the existence of man and society, is carried out by people or societies by natural methods or by developed technological tools. The communication activity carried out with technological tools takes shape according to the characteristics of the tool used. As a matter of fact, the communication between two people over the phone and the communication made by using radio or television are different from each other. The first is an interaction that can be evaluated in the "context for the moment". This form of communication prepared by an organizational structure and aimed at reaching potential audiences by using radio or television is called mass communication. Technological tools in which mass communication is carried out are called mass media. These are written media such as newspapers and magazines, as well as radio, television, cinema and finally internet technology (Erdoğan and Alemdar, 2002: 16-17). Mass media has two main characters. The first is that the products in the mass media are easily available to a large part of the society. The second is that their per capita costs are quite low (Mutlu, 2005: 80).

The processes that occur with the effect of developments in the technological field and communication are explained with the concept of globalization. Globalization is considered as a process in which the prevalence of services, products, money, knowledge and culture transcends national borders. In other words, it is a process that creates interdependence and awareness among economic, political and social units at the international level (Guillen 2001: 236). The increase in dependencies and the establishment of a socially solid ground with the effect of globalization have caused many activities to establish common rules and standards on a global scale (Drori, Meyer and Hwang, 2006: 1). Globalization has brought about the transfer of knowledge at the international level and, as a result, an interaction. It has laid the groundwork for the formation of global common values and a culture recognized all over the world.

Globalization, which is an important concept in the understanding of consumption culture and consumption society with its multidimensional structure, is considered as the continuation of modernity on the one hand, and on the other hand, it expresses a new situation independent of them. Globalization is considered as a standardization process wherever it reaches through the media and consumption culture. As a feature of the globalization process, global culture is the output of the consumer society with an extremely wide product variety, which spreads internationally through information and communication technologies, includes designs on a global scale (Kellner, 1998: 26-28). The relationship between globalization and consumption culture includes mass communication technologies that are effective in the spread of this culture on a global scale.

The main carrier power of globalization is the media and mass media. Flichy (2007) argues that new mass media increase globalization even more. He emphasizes that the invention of the printing press cannot be explained by a single effect and argues that it causes a standardization in the world. As a matter of fact, giving an example from the clothing industry, he states that the printing press was effective in the spread of Spanish fashion in Europe. Stating that this situation also brings a diversity awareness, he says that the printing press reveals both a new standardization and a diversity dialectic. Technological developments in communication tools also paved the way for the spread of globalization to wider segments. Technological developments that emerged in the modern world after the industrial revolution accelerated the communication processes, and communication opportunities were diversified with new communication tools.

Globalization is an effective process in the international spread of cultural values in modern life. Globalization, which is a multidimensional process beyond economic reasons, has a wide scope from the consumption of media content such as movies and television programs to the dissemination of cultural values in various fields such as human rights and environmentalism (Drori, Meyer and Hwang, 2006: 11). Developments in technology and communication tools have removed the economic, political, social and cultural boundaries between countries and have created an interaction in every field. Societies in different countries have started to learn about the living standards and welfare levels of other societies through mass media and have tended to a similar consumption activity (Çınar and Çubukcu, 2009: 278). The wealth that emerged as a result of the difference in culture, identity and language in the globalization process has revealed the idea that cultural and social objects can be sold by turning them into a commercial product in advertising. Advertising has used all international, local and original cultural opportunities subjectively to promote the product, ignoring the information and production processes of the product, and has radically changed the existing values and attitudes (Şen, 2008: 525).

The global culture, which left a deep impact on social structures and reached an international dimension, combined with consumption activities and revealed the consumption society. Mass consumption of the large-scale production supply that emerged with the industrial revolution has come to the fore. In order to achieve this, with the introduction of globalization and mass media, a cultural transfer that transcends national borders has taken place, and a consumption culture that leads to mass consumption has been formed. This culture, which spread rapidly to all parts of the world, accelerated the formation of consumer society in the regions it reached.

There are three approaches to consumption culture. The first is the increase and expansion of consumer products. The increase and global spread of consumer products has made these products accessible to more people. Although this situation creates equality individually, it has led to an increase in consumption by encouraging it. According to the second approach, the purpose of use of consumer products is based on creating social relations and differences. For this reason, he has the idea of gaining a position in the social field. The third approach is related to the emotional pleasure obtained from consumption (Featherstone, 2007).

The media has played an important role in the spread of consumption culture among societies. Media has stepped in to convey persuasive messages

in order to direct people to consumption. In terms of consumption culture, advertisements constitute the carrier power of the media. In general terms, advertising is a communication activity made by paying a fee to persuade or influence a mass of products, services or ideas by using mass media. According to a definition that emphasizes the media, advertising is defined as an activity to attract the attention of the target audience to a product, service or business through announcements made in print, visual or electronic media for a certain fee (Richards & Curran, 2002: 63-64; Khan, 2006: 248).

One of the most important features of the consumer society is the idea of being original, which makes the consumer feel special and is conveyed to the consumer through advertisements. Advertisements try to persuade people to buy products by constantly reminding them of products that will offer solutions to the problems they will encounter in their lives (Durning, 1992: 119). In the consumption culture, people are taught their needs through advertisements and purchasing suggestions are offered for these needs. Consumers act according to the consumption pattern they have learned rather than their experiences. The fact that consumption as a learned behavior has become a culture is a focus centered on consumption as a goal (Illich, 2000: 55; Goodman and Cohen, 2003: 4). The members of the consumer society motivated by advertisements enter the consumption race in order not to fall behind other people. Thus, they are included in the consumption cycle that ensures the continuity of the consumer society.

Baudrillard (2010) states that advertisements play a harmonization role by directing similar behavior patterns to persuade consumers. Accordingly, by motivating consumers to imitate the consumption patterns of others, advertisements convey the message of participating in social life as a consumer like everyone else. However, these messages lead consumers to a misleading world contrary to social reality. Although the indicators conveyed in the advertisement are identified with the objects, no information is given about their actual use. Therefore, indicators reflect an imaginary world far from reality and enable consumers to reach satisfaction by moving away from the real world.

The new consumption style has revealed new meanings in terms of its social consequences. Wagner (1993: 86-87) states that in limited liberal modernity, social differentiation occurs according to the products owned. Accordingly, owning certain products provides separation from other segments of society as a lifestyle. In this sense, a divided society is mentioned. However, although the sizes and qualities of the products owned in the consumer society of organized

modernity are different, social differentiation has lost its visibility because it is accessible to a very large segment of the society. This expansion in terms of owning products is related to the effect of mass culture and the prevalence of products on a global scale. This expansion in consumption has transformed the way of consumption, which is a differentiating factor for a certain segment of the society, into an activity possible for everyone.

Since the continuity of the global economic system is the main function of the consumption culture, the consumption culture is adopted by the society (Guzel, 2007). In order to ensure this continuity, not only the production systems but also the consumption processes have been rearranged. As a matter of fact, in the first years of the industrial revolution, workers were included in the system as producers. However, in the following years, consumption suggestions for the time outside the production process were put into effect, since their activities as a producer were not considered sufficient for the continuity of the system. The high production supply created by the industrial revolution was tried to be met with new consumption proposals, and this situation made consumption a necessity rather than a necessity. Consumption society has been expanded by adapting the productive societies that act with their own will on consumption to new consumption processes (Lasch, 1991: 71-72; Baudrillard, 2017: 96).

3. Culture Industry as a Critique of Consumer Society

Consumption processes are constantly gaining importance in modern societies. Consumption has become an activity that regulates the relations of people according to who they are and who they want to be. Consumption, which is intertwined with the phenomena surrounding the development of the sense of identity, emerges as a social, psychological and cultural phenomenon as well as an economic one (Bocock, 1997: 10). As a matter of fact, the consumption society is explained by the fact that owning products is more important than meeting the needs, shaping the identity of the person according to the products he owns and these products becoming a reflection of his personality (Wagner, 1993: 86). In modern societies, consumption is integrated with the sense of identity provided by owning a product. The individuals of the consumer society are motivated to have a product that is culturally equivalent and reflects their sense of identity.

The exchange of products and the removal of their original use values have been effective in the formation of the consumer society. In this process, while the "utility function" of products was pushed into the background, the "indicator

function" came to the fore. Products have become indicators that are tried to be reached and consumed. With the influence of mass media and advertising, images for emotions and desires have been created instead of the original use values of products. Therefore, the symbolic meanings of the products have gained importance instead of the basic function of the products in the consumer society. What is meant by the consumption society is not the participation of the individual in the production society, built on the idea of rationality and progress, into the system with his labor and thought. In the consumption society, the value used to define the individual or the individual himself is the ability to consume (Hız ve Hız, 2011: 151-152).

In the last period of the twentieth century, consumption has been evaluated not only as an economic or utilitarian, but also as a socio-cultural process that includes cultural signs and symbols. Consumption, which has ceased to be an economic issue, has gone beyond meeting needs and has turned into a lifestyle. The shaping of western capitalism has been effective in this transformation. Social and cultural aspects are at the center of this transformation process, in which economic factors are not completely ignored (Bocock 1997: 13). This change in people's consumption patterns has caused the issue to be discussed from a social and cultural point of view rather than an economic point of view. Consumption has gone beyond the limits of being an economic issue and has been handled as a social and cultural issue. The social and cultural aspects of consumption were handled critically. The concept of the culture industry, which was developed by the Frankfurt School as a critical theory in the evaluations of the consumption society, came to the fore.

Adorno uses the phrase "culture industry" instead of "mass culture" and argues that the culture industry combines familiar things in a new quality. In his criticism of the culture industry, Adorno states that consumer products are produced within a certain plan. Areas with structural similarity form a system without any gaps and consumers are combined in a plan. Thus, the difference between high culture and low culture is eliminated and the consumer is reduced to the object position. He states that the distinction between high culture and subculture dissolves in the "stylized barbarism" of mass culture. In this sense, the culture industry has produced a "reified" and "stereotyped" fake culture instead of real culture (Adorno, 2007: 109-110; Jay, 1996: 216).

The fact that there is something suitable for every person in the culture industry has also eliminated the chance of escaping it. Consumers are expected to choose a pre-prepared category at a consumption level defined as "level".

Consumers grouped according to their income status are considered as statistical material. Although categorized products are presented as difference and diversity, this is actually an illusion. Because the options that consumers consider as an advantage or disadvantage ensure the continuity of the image of competition and preference in the operation of the system (Adorno and Horkheimer, 2014: 166). In the culture industry, the exchange values of products have come to the fore. Accordingly, the exchange value surpassed the original use value of the product and thus became the most important factor that enabled the product to be preferred. Advertising, which comes into play in transferring the exchange values of products to consumers, adds images of pleasure, satisfaction, romance, beauty, social status, and good life to consumer products such as beverages, clothes, cleaning materials, and white goods (Featherstone, 2007: 14). In this way, an image of personal satisfaction and pleasure is created by creating the perception that products are special for consumers.

In the competitive production society, advertising has a facilitating function for consumers to choose from among the many options in the market, while for manufacturers it has played an encouraging role for the target audience to buy the product. On the other hand, the task assigned to advertising in the culture industry has changed and it has gained a function that makes consumers dependent on large producers in order to ensure the continuation of the system (Adorno and Horkheimer, 2014: 215). While sales continuity and consumer dependency, which are necessary for the continuation of the system, have become the most important factors, messages that will make consumers feel special have been introduced to motivate them in this direction. The main criticism of the culture industry towards advertisements is that advertisements are misleading. Promises made to consumers through advertisements create false happiness with an image of pleasure.

In order to increase consumption and ensure its continuation, basic needs were not considered sufficient on their own, in addition to this, different needs were introduced. In this process, the desires were brought to the position of desire and the desires to the position of necessity, and it was tried to ensure that the consumers consume in a cycle. Luxury products were also included in the expansion of consumption, and luxury products were presented as standard products that meet basic needs (Yanıklar, 2010: 26).

Marcuse, one of the Frankfurt School thinkers, also talks about the distinction between "true needs" and "false needs" at the point of basic needs in promoting consumption. Accordingly, false needs include needs imposed from

above by social interests using mass media. Even if consumers get satisfaction if they meet false needs, this satisfaction refers to a state of unhappiness. Marcuse states that false needs are not limited to these, and says that exhibiting the same behavior with others, such as loving what everyone loves and hating what he hates, are also among false needs (Marcuse, 1990: 4). In this respect, consumption creates a situation related to social acceptance and self-expression in social life. Individuals who are conditioned to exhibit similar consumption behaviors realize their integration and existence in society through consumption behavior.

4. Popular Culture and Fashion

Popular culture, which is considered as the culture that dominates daily life, is the culture that the ruling classes offer to individuals whose traditions and cultural values are made dependent in new ways in accordance with the ideology they dominate (Coşgun, 2012: 840). Fiske states that popular culture cannot be explained by the buying and selling of products alone and therefore cannot be considered as consumption. According to Fiske, popular culture expresses the production and distribution of pleasure and meaning within a social system rather than being a consumption (Fiske, 1989: 23).

There are two different approaches to popular culture, positive and negative. The positive approach defends the view that what the public wants, popular and common is right. On the other hand, the negative approach, by emphasizing the cheapness and mediocrity of the popular, argues that the individuals who are captive to this culture do not have any distinctive features and that they are "standardized" and "degenerate". People with this approach think that popular culture imposes false consciousness on the masses (Şahin, 2005: 165). The negative approach to popular culture emphasizes the deterioration of cultural values. It is argued that the consumption and lifestyle-oriented transformation in social values creates a misleading situation that is far from reality.

Solomon (2017) states that some people or groups that make up the culture production system contribute to popular culture. These individuals or groups involved in the creation and marketing of cultural products are also effective in product diversity, competitiveness and product selection. Culture production system; It consists of three subsystems, each with a different role: the creative, management and communication subsystem. The creative subsystem takes part in the production of new products and symbols and ensures product diversity within the cultural system. The management subsystem regulates the production,

distribution and management of new symbols and products. Thus, it manages the necessary operation from the production of the product to its transportation to the consumer. The communication subsystem creates a set of symbolic attributes for new products and provides meaning production. Solomon gives an example of an artist releasing a new album. Accordingly, the production and distribution of the album constitutes the creative subsystem, the production and distribution of the album constitutes the subsystem, and the sponsor and advertising activities that are activated to announce it to the target audience constitute the communication subsystem.

One of the most important factors in the formation of popular culture is globalization. The circulation of the products, images and ideas of capitalist culture on a global scale with mass media and information technologies has been realized thanks to globalization. In this circulation, fashion and cultural phenomena have spread around the world by using international cultural distribution tools and "global popular" has been created. In this way, a cultural product has become a common value of the whole world by going beyond the borders of a certain geography. Global culture has ensured that every gap is filled by categorizing the expanding target audience and introducing different products and services suitable for each category. The distribution of popular culture on a global scale was carried out by commercial institutions (Gans, 2008: 31).

The effects of popular culture also appear in postmodern identity construction. Kellner (2001) explains the effects of popular culture on the identity construction of individuals through the identity models presented in mass media and advertisements. Accordingly, personality models and images that people can see themselves as identical are presented in advertisements. Various behavioral patterns that characterize these models and images are tried to be transferred to the members of the society. People think that they have a socially accepted identity through a model they identify with themselves. Various fashion icons are shown to the members of the consumer society as an example in television shows, serials and movies. In modern society, individuals' identity creation models continue to accelerate in all media today, especially in the internet and social media. Numerous examples of new images and personality models are presented to consumers in these channels.

Three functions of these products are utilized in the use of consumer products as identification indicators. First, these products help one create and reflect a sense of self. The second function is to be used as an indicator of

individual power and status. Third, it represents social integration and individual differentiation in social life (Millan and Reynolds, 2014: 552). The meanings attributed to the products are effective in the use of consumer products as an indicator of identity and social status. Consumption of a product that corresponds to a value in social life is presented to the consumer through advertisements. The messages conveyed in the advertisements try to motivate the person that he/she will get an additive response when he/she uses that product.

The continuity of consumption is one of the most important distinguishing features of the consumer society. In order to ensure this continuity, a product must be consumed quickly and replaced by a new one. Accelerating consumption is not always possible by consuming only one product. It can also occur in the form of replacing a product with a new one. In the consumer society, fashion is used for this change. It tries to persuade consumers to switch quickly to new products through popular culture, fashion and advertisements.

Every field where change is necessary encounters the influence of fashion. Fashion is the natural result of a dynamic culture and common changes in consumption preferences. The perception of fashion in the minds of consumers and its role in their lives presents the perspective of consumers' spirit world (O'Cass and Frost, 2002: 68). Fashion also comes into play in the consumer society, which needs to ensure the continuity of consumption. Fashion is defined as "temporary innovation that enters social life with the need for change or the desire to adorn" or "social taste that is active for a certain period of time, excessive fondness for something" (TDK, 2005: 1404). Fashion, which is a social behavior depending on certain patterns, has an effect on social categories. Fashion comes across as an imitation involving competition rather than an imitation of admiration. It affects the consumption structure of society by displaying an innovative approach similar to other trends that dominate fashion, culture and society. In order to follow fashion, people tend to consume different versions of the existing product or new products, even though the products they have have not lost their functions (Çınar and Çubukcu, 2009: 283). Although the benefit of a product continues, it is necessary to switch to new products quickly in order not to fall behind other people and to act like them.

Material and aesthetic aging has an important place in the consumption culture in terms of the function of increasing consumption in order to turn to new products or replace the existing product with a new one. In order to increase consumption, products are changed rapidly with the effect of fashion. For this purpose, new products are introduced to the market and consumers

are motivated to replace old products with new ones. Although the benefits of new products continue, they are pushed to their former position and become insignificant before they can be used fully. The way of life, which is considered to be "elegant" today, can be considered old and become an object of ridicule (Bauman, 2005: 193-194). This situation, which points to the rapid change in fashion, contributes to the acceleration needed by the consumption cycle.

Success in the consumer society is measured by exceeding one's own consumption and comparing it with the consumption of others. In other words, it is not enough to surpass others in consumption for individual happiness, and the person must exceed the consumption that he/she has made in the previous year. Scitovsky states that this is due to the addictive nature of consumption and that all kinds of consumption have become a necessity. He says that when the products are consumed, a new one must be found immediately, and this consumption behavior is valid both in all parts of the society and all over the world (Durning, 1992: 40). As a matter of fact, a low-income person changing their phone and a high-income person changing their luxury car can be an example of this situation. The point that draws attention here is that the product change takes place in a short time rather than the level of financial power required for product change. Therefore, the orientation of each income group to this change within the framework of their own financial power reflects the basic characteristic of the consumer society. What is important for the consumer society is that every segment of the society is included in the consumption chain in proportion to their power.

5. Perception of Advertising as a Tool to Gain Social Status in Consumer Society

Social class or social status can be defined simply as "the grading of individuals in a social hierarchy according to certain criteria" (Odabaşı, 1986: 142). According to Hauser (1998:5), social status is expressed as "a brief summary of variables that characterize the position of individuals, families, households, censuses or other aggregates in relation to their capacity to produce or consume goods considered valuable in society". Many factors can be mentioned in determining social status. Educational status, occupational position, income level, wealth or poverty, and the tools owned by the individual can be counted among these factors. Therefore, tangible properties such as education, occupation, income, wealth, house and car are among the elements that make social status visible.

As Festinger states in his theory of social comparison, when people want to evaluate their own thoughts and abilities, they go to a comparison with other people's situations. This provides an objective reality for them (Festinger, 1954). In today's society, people's consumption habits have the feature of obtaining a social status rather than meeting basic needs. People have the idea that they can gain a position between the amount or form of consumption and other people in the society. The influence of advertising and mass media in the formation of this thought is at a level that cannot be ignored (Çınar and Çubukcu, 2009: 285). Mass media and today, especially social media, are widely used for the advertisements of consumer products. Promises and messages about products in these advertisements convey the idea that the consumer will be included in a certain group in social life. The use of a particular brand and product is distinctive because it has a meaning that appeals to the taste of the customer. This situation offers the consumer the assurance of being included in a distinctive social class (Beeman, 1986: 64). Promises made through advertisements create a perception of status in the minds of consumers. The use of the same products by people from different income groups and different social statuses provides an image of equality at the social level in terms of consumption.

The image of equality based on consumption in the consumer society is a result of mass production brought by the industrial revolution. As a matter of fact, with the industrial revolution and technological progress, production has reached mass dimensions, and products that can be purchased for the people in the upper part of the society are offered to all segments of the society. With the mass production, product abundance has been achieved and every income group has been able to reach these products (Odabaşı, 2017: 43). In this respect, the consumption society includes people with low income as well as people with high income. Therefore, consumption-based life has spread to all segments of the society, not only for the high-income group, but also for low-income and poor people. Those who avoid consumption activities for the continuity of the economic system are devalued by the system (Illich, 2000: 11). Access to consumer products has been facilitated for the low-income group at the economic level and the environment covered by the consumer society has been expanded. In terms of social status, each group has its own function in the consumption chain. As a matter of fact, what is important in the consumer society is the continuation of consumption. People who disrupt this continuity or do not contribute to it are pushed out of the system.

Although consumption is an activity based on income, technological advances and mass production made products cheaper and easier to access, enabling all classes of society to buy products. Veblen also drew attention to this situation and stated that with the cheapening of the products, the products representing the upper class group could be bought by the lower classes as well. Thus, products representing the upper class have lost this quality (Waller, 2009: 567). Veblen explains that the lower class people try to imitate the consumption behaviors of the upper class with the concept of emulation. According to this, people in the lower part of the society try to give a similar image to rich people as a way of gaining status in social life by imitating those in the upper income group. For this purpose, they tend towards consumption behaviors that are similar to or thought to reflect the upper income group. The imitation provided by the consumption style provides an image that hides the social status difference for the lower income group. Veblen states that the easiest method in terms of giving a message to the environment with its consumption style is with clothing and clothing. Since the clothes are always visible, they are very convenient in reflecting the financial situation. Veblen states that people seek a reputation in the society with the expenditures they have made for clothing (Veblen, 2007: 22-26).

One of the efforts to provide social status in social life is to turn to luxury consumption. People try to hide the social class difference by turning to expensive products. Branding is an important factor in luxury consumption. Consuming luxury products, buying luxury houses, buying luxury appliances, going to luxury places to eat, shopping at luxury places is valid for the rich segment of the society as well as for large masses of people. It is used to project an image of status by turning to brand products or going to brand places. The secret of the luxury product is to make the consumer feel special, in other words, to give the illusion of being privileged. The determining factor in the orientation towards luxury consumption is the concern of social status. The more focus is placed on the difference in status in a society, the more importance will be given to the symbolic products that will reflect these differences. On the other hand, the behavior of gaining status based on consumption causes the consumption standards to increase. The dissatisfaction created by the increase in consumption standards also raises the definition of appropriate living standards. For example, a child who couldn't get the latest game may hesitate to invite his friends to his house, or a young person who does not own a car may see himself as inferior to his peers (Hız ve Hız, 2011: 153-154). For this reason, people in search of social

status feel the need to raise a consumption limit that is sufficient for them when they start to compare it with other people.

In the pursuit of status, the boundaries are far from being clearly drawn. Because in the consumption society, people are constantly directed to consumption in line with new needs with the influence of fashion and popular culture. To achieve this, the line between needs and desires is removed. In the process of transforming desires into needs, preferences are given new meanings. In terms of persuasion, advertisements place images of good life such as love, exoticism, beauty and desire in ordinary consumer goods that we buy as soap, dishwasher and automobile. With these messages, advertisements direct individuals to a sense of corresponding to a position in social life. For example, the preferences revealed when buying a mobile phone can be a symbol of participation in social consumption behaviors rather than just having a product identified with communication. Likewise, the choice of furniture or glasses can be seen as a means of expressing identity. As a matter of fact, consumer products are considered as a lifestyle indicator and a social status sign used in the expression of monetary power (Yanıklar, 2010: 30-31).

Essentially, it is a free state to desire for the consumer. Only when this act of desiring turns into buying the good is money needed. However, people may not always have the financial power necessary for purchasing activity. In this case, credit cards come into play for the consumer. If the required money cannot be found when the credit card payment day comes, other credit cards, debt deferral or other financing tools are activated. Thus, the money paid for the purchased product increases several times in a short time (Hız ve Hız, 2011: 155). When the consumption of the individual for the purpose of obtaining status begins to exceed his/her financial power, the necessary financial solutions for the continuation of consumption help to solve the problem. While the person continues to consume and provides individual satisfaction, the consumption cycle continues on its way.

Baudrillard states that it is an illusion for consumption to become an instrument of status in society. According to him, the tendency to consume for the purpose of gaining status or social acceptance can be read as an expression of a deficiency and to overcome this deficiency. Baudrillard says that the basis of a systematic and unlimited understanding of consumption is the frustration of not having all of the offered objects. He claims that it is impossible to control consumption behaviors built on a sense of lack (Baudrillard, 2010: 246-247).

The allure of the consumer society is strong, even irresistible, but equally superficial (Durning, 1992: 38). The individuals of the consumer society constantly think about consumption and see consumption as a lifestyle and social status indicator. Therefore, consumption has become a necessity rather than a necessity. The consumption race, which includes all segments of the society with the influence of popular culture and fashion, activates the motivations to create difference for the high income group, while serving the purpose of hiding the difference for the lower income groups. However, although this situation is misleading for the lower income group, it functions in providing individual satisfaction.

6. Conclusion

In the study, the basic elements in the formation of the consumer society were investigated, the effect of fashion on the consumption understanding that emerged on the basis of capitalism and globalization and the reasons that lead people to consumption were examined. Advertising plays an important role in the spread and homogenization of consumption, as well as the mass media and advertising as its carrier power. It is seen that the creation of consumption habits is not considered sufficient for the continuity of consumption and the power of the media is used to diversify it.

The increase in production due to technological developments required a consumption suitable for this increase. The inadequacy of consumption at the point of meeting production has led to the necessity of crossing national borders. With the effect of globalization, these limits have been overcome and it has become easier for people all over the world to access the goods and services produced. However, in order to achieve this situation, the necessity of establishing a common consumption culture has emerged. At this point, mass media has been activated and a universal lifestyle that brings everyone's lifestyles closer to each other is presented through advertisements.

In the continuity of the consumption-based social order, there is a situation created by fashion and social status. People see the way and amount of consumption as a means of gaining status. This situation also brings an economic burden for people who enter the consumption race with the effect of fashion. Encompassing advertising activities, which prevent people from thinking, hide the fact that excessive consumption proceeds with spending more than one's earnings. The financial inadequacy resulting from unconscious consumption is overcome with credit cards, but the true fees paid to the product are replaced by fake fees, as the products evolve from true needs to fake needs.

In today's society, where the perception that it corresponds to a social status is formed, consumption has turned to a consumption style in which insatiable desires based on pleasure are effective. At this point, we have to see the fact that we are talking about a society where "rights" and "pleasures" are mixed. In the civilization of "pleasure" and "speed", the opportunity of individuals to be socially responsible individuals is prevented. Therefore, in a society where the "pleasures" presented under the title of "rights" are adopted, the ability of people who are dragged into the magical world of consumption to get out of the misleading situation depends on their ability to regain the reflex of being a conscious consumer.

It carries a function that eliminates the sense of individuality, social responsibility and belonging beyond the level of selfishness. On the basis of this lies the "problematic freedoms" bestowed on a systematically besieged human, in which consciousness is disabled. As a member of society, it is inevitable for individuals to have a common consciousness that considers others before themselves. The starting point can be to consider the way out in the current system within the framework of "responsible freedoms" with a consciousness that moves from individuality to sociality.

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NEUROGASTRONOMY AS A NEW TREND IN THE FIELD OF GASTRONOMY

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1. Introduction

Neurogastronomy is a multidisciplinary field that combines elements of neuroscience, psychology, and gastronomy to better understand how we experience and enjoy food. The field has been increasing in recent years and has been gaining growing attention in both academic and popular literature (Small, 2014). The main aim of neurogastronomy is to understand the neural mechanisms underlying taste perception, appetite regulation, and food intake (Drewnowski, 2015).

Research in the field of neurogastronomy has been expanding to include more areas of study, such as the role of emotions, culture, and the environment in food perception and intake. Studies have shown that the perception of taste is mediated by specialized receptors on the tongue, gut and nose, and that these receptors send signals to the brain, where they are processed and integrated to create the perception of taste (Small, 2014; Drewnowski, 2015). Additionally, some researches have also shown that the hypothalamus, insula and the prefrontal cortex play a critical role in regulating hunger and satiety (Murphy, 2018; Pelchat, 2011).

In this study, the meaning of neurogastronomy and its place in the field of gastronomy are mentioned. In addition, within the scope of neurogastronomy, the effect of the five senses that people have on the taste experience is mentioned. This study aims to contribute to the growing literature on neurogastronomy by examining the neural mechanisms underlying taste perception, appetite

regulation, and food intake. Through this research, we aim to gain a deeper understanding of how the brain processes and interprets information related to food, and how this information affects our behavior and decision-making.

2. Understanding Neurogastronomy

Neurogastronomy is a relatively new field of study that examines the relationship between the brain and the perception of food and taste (Rolls, 2016). It could combines elements of neuroscience, psychology, and gastronomy to better understand how we experience and enjoy food. In recent years, there has been a growing interest in this field and a number of studies have been conducted to explore the neural mechanisms underlying taste perception, appetite regulation, and food intake (French, 2016).

One key area of research in neurogastronomy is the neural basis of taste perception. Taste is a fundamental aspect of our relationship with food, and scientists have been working to uncover the neural mechanisms underlying this experience. Studies have shown that taste perception is mediated by specialized receptors on the tongue that respond to different chemical compounds found in food. These receptors send signals to the brain, where they are processed and integrated to create the perception of taste (Small, 2014). Research has also shown that taste perception is not limited to the tongue, but also involves other areas of the body such as the gut and nose (Drewnowski, 2015).

Another important area of research in neurogastronomy is the role of the brain in regulating appetite and food intake. The hypothalamus, a small but critical region of the brain, plays a central role in regulating hunger and satiety. Studies have shown that the release of certain hormones and neurotransmitters in the hypothalamus can stimulate or inhibit appetite, leading to increased or decreased food intake (Pelchat, 2011). Research has also shown the role of other brain areas such as the insula and the prefrontal cortex in regulating food intake (Murphy, 2018).

In addition to these basic research areas, neurogastronomy also has important implications for the food industry and for public health. For example, understanding the neural mechanisms underlying taste perception can help food scientists develop new flavors and textures that are more appealing to consumers (Rolls, 2016). Additionally, studying the brain's role in regulating appetite and food intake may lead to new strategies for preventing and treating obesity and other eating disorders (French, 2016).

In conclusion, neurogastronomy is a multidisciplinary field of study that aims to understand the relationship between the brain and the perception of food and taste. The literature review revealed that studies have been conducted in this field which deepened our understanding of the neural mechanisms underlying taste perception, appetite regulation, and food intake. The field has also been expanding to include more areas of research, such as the role of emotions, culture, and the environment in food perception and intake. As the field continues to grow and evolve, it is likely that new insights and discoveries will continue to emerge that will deepen our understanding of the complex relationships between the brain and food. Neurogastronomy explains the link between food and beverage products and the human brain (Fried, 2017). In this respect, a meaningful visual image related to neurogastronomy is shown in Figure 1 (Advanced Neurosurgery Associates, 2023).

Figure 1: Neurogastronomy: The Science of How and What We Eat

Source: (Advanced Neurosurgery Associates, 2023).

2.1. The Relationship between Gastronomy and Neurogastronomy

The relationship between neurogastronomy and gastronomy is a complex and multidimensional one (French, 2016). Neurogastronomy is a relatively new field that combines elements of neuroscience, psychology, and gastronomy to better understand how we experience and enjoy food. Gastronomy, on the other hand, is the study of food, including its history, culture, production, and consumption (Rolls, 2016).

One key area where neurogastronomy and gastronomy intersect is in the study of taste perception (Kringelbach, 2015). Gastronomy has traditionally focused on the study of flavors and ingredients, while neurogastronomy focuses on the neural mechanisms underlying taste perception (Delwiche, 2004). However, the two fields are complementary, as understanding the neural mechanisms of taste can provide insights into how different flavors and ingredients are perceived, and how this knowledge can be used to create more appealing and enjoyable food experiences.

Another area where neurogastronomy and gastronomy intersect is in the study of food choice and consumption (Spence & Shankar, 2010). Gastronomy has traditionally focused on the cultural and social aspects of food choice, while neurogastronomy focuses on the neural mechanisms underlying appetite regulation and food intake (Kanval, 2016). However, both fields can provide valuable insights into why people make certain food choices and how these choices can be influenced by factors such as emotions, culture, and the environment.

In addition, neurogastronomy also can provide insights into the role of emotions in food perception and intake. Studies have shown that our emotional state can influence food preferences, taste perception, and appetite regulation, and that these effects are mediated by specific neural mechanisms (Kringelbach, 2015; Rolls, 2016).

In conclusion, neurogastronomy and gastronomy are two distinct but related fields that have the potential to provide a more comprehensive understanding of the complex relationships between the brain and food. By combining insights from both fields, we can gain a deeper understanding of how we experience and enjoy food, and how this knowledge can be used to create more appealing and enjoyable food experiences.

3. Five Senses on Taste in Concept of Neurogastronomy

The concept of neurogastronomy is a multidisciplinary concept in which the elements of gastronomy are tried to be understood in the context of the brain and individual behavior. Neurogastronomy is a field that studies the human brain. In this context, science and cuisine are examined by discovering how the eating and drinking experience of individuals is affected (Delwiche, 2004). In this field, food preparation biochemistry, olfactory imager, the molecular biological structure of olfactory receptors and brain well-being system are examined (Pérez-Rodrigo & Aranceta-Bartrina, 2021). Neurogastronomy is a field that focuses on how the

brain perceives the taste of food and beverage products. This field also focuses how important the relationship between the brain and behavioral patterns is and five senses. In this field, a new perspective is given to the perception of taste. It is not discovered in the field of neurogastronomy that any food or drink could be redesigned to change its taste. Rather, it focuses on how the brain could be reinvented to perceive food differently (Spence & Shankar, 2010). In this direction, it focuses on the five senses of human beings such as smelling, tasting, touching, seeing and hearing. The taste values of all these senses are studied. Taste perception is generally shaped by the unified information system of the five senses. This system consists of retronosoal odors, orthonosal odors and the perception of other senses (Kanval, 2016). Our perception of flavor system with five senses is shown in Figure 2.
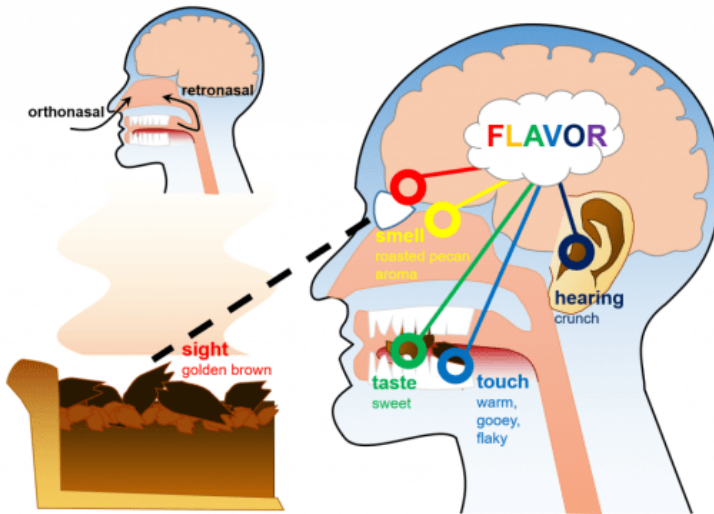
Figure 2: Our Perception of Flavor Depends on Five of Our Senses

Source: (Kanval, 2016).

Sense of Sight on Taste

Individuals generally choose any food product primarily by paying attention to its visual appearance. In this context, it could be said that the appearance of food and beverages is an important factor. Appearance plays an important role in the formation of our desire to buy food and beverage products (Hutchings, 1977). It is said that one of the elements that highlight the attractiveness of food and beverages is visual. From this point of view, Roman Apicius, known as the first cookbook author, emphasized the importance of the sense of sight by using the phrase "the

first taste is always taken with the eyes" (Spence & Piqueras-Fiszman, 2014). A meal or cocktail prepared by taking into account the cooking techniques suitable for the characteristics of the product should be prepared in a way that appeals to the eye. Thus, before the taste, smell, hearing or touch senses of the food or beverage product are activated, information about the product can be obtained. At this stage, the presentation of the product can play an important role. This may affect the judgment in the minds of individuals regarding food or beverage products. As a result, it could be said that the sense of sight is effective in the formation of the sense of taste. The anatomy of the eye, which has an effect on the formation of this condition, is shown in figure 3. As seen in Figure 3, the eye consists of elements such as ciliary body, ciliary zonule, cornea, iris, pupil, aqueous, humor (in anterior segment), lens, scleral venous sinüs (canal of schlemm), vitrreous humor (in posterior segment), sclera, chronoid, retina, fovea centralis, optic nerve, central artery and vein of the retina and optic disc (Belleza, 2021).
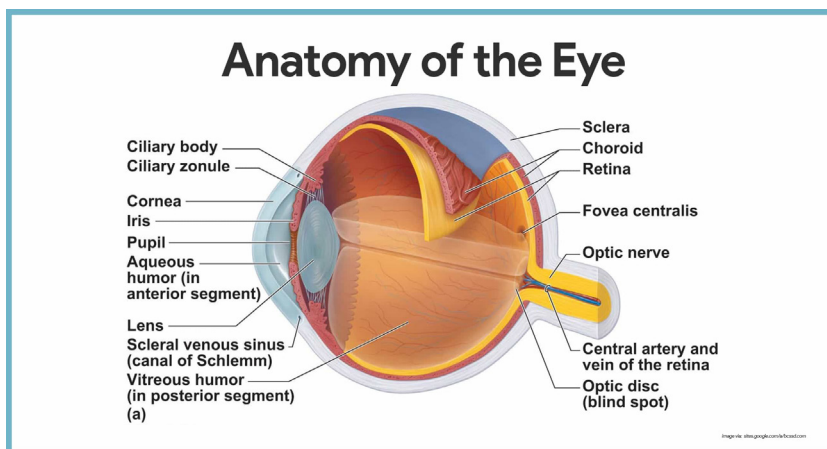
Figure 3. Anatomy of the Eye
Source: (Belleza, 2021).

3.1. Sense of Smell on Taste

It is known that the sense of smell is another sense that is effective on the sense of taste. 80% of the sense of taste comes from the information transmitted to the brain through the olfactory receptors in the nose (Spence, 2015). From this point of view, it can be said that there is a strong link between the sense of smell and the sense of taste of individuals. The most determining factor in taste is the sense of smell (Delwiche, 2004). When the role of the sense of smell on the perception of taste is examined, it can be said that both senses constitute

a system. It is known that the first of these senses is the "orthonasal system", which is related to the external odors we acquire when we smell something. As to the second of these senses is the "retronasal system", which leads to the perception of odors or aromas released from the foods we chew or the drinks we drink (Spence & Piqueras-Fiszman, 2014).

Various factors could play a role in the formation of the effect of the sense of smell on taste. Some of them are facial, glossopharyngeal and vagus, which form the sensory innervation part. Another part is circumvallate papilla and fungiform papilla (Doyle et al. 2021). The last part is the taste bud, which consists of Type 1 (salt), Type 2 (sweet, bitter and umami), Type 3 (sour) and stem cell. All these are shown in figure 4.
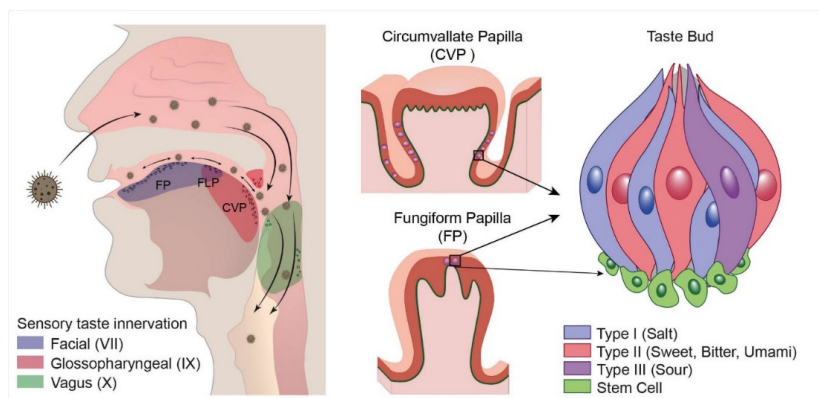
Figure 4: Various Effecting Elements of the Sense of Smell on Taste
Source: (Doyle et al. 2021).

The ability to perceive orthonosal odors is an innate ability to individuals. As to retronosal perception ability expresses sensitivity to smells learned from later experiences by living (Spence, 2015). Retronasal odors could give rise to taste differences in food and beverage products. Chemical molecules released in sensing by chewing food or drinking beverages activate olfactory receptor cells. In this situation signals send to the brain. These signals combine with the signals from the other senses in the brain to form taste consciousness (Dhini & Astrianoor, 2022). It is known that there are more than 400 receptors in the human nose (Bruno et al., 2013). Each of these receptors could respond to more than one odor molecule. Thus, each odor molecules could activate more than one odor receptor. When a food product is bitten or any beverage product is sniffed, some molecules stick to the taste buds, which are the taste buds on the tongue. Then, some volatile odor molecules belonging to the food or beverage product are released

from the back of the mouth to the nose (Spence, 2015). These odor molecules could activate the olfactory receptors in the nose. Thus, the signals received by these receptors could be transmitted to the brain via the nervous system. These transmitted signals combine with signals from other senses in the orbitofrontal cortex of the brain to produce flavor (Bruno et al., 2013).

3.2. Sense of Flavor on Taste

The sense of taste has a significant effect on the perception of taste. In this direction, a food or beverage product prepared by choosing suitable materials and cooking methods could appeal to the visual, tactile, auditory and olfactory senses. However, it is not possible to create flavor without tasting these products (Şahan, 2022). Although the five basic senses play an active role in perceiving tastes, it is mentioned that there is a unique connection between the senses of taste and smell (Delwiche, 2004). It is known that the sense of taste is divided into groups as sour, sweet, salty, umami and bitter. It is claimed that metallic and oily flavors could be added to this list at a later stage (Şahan, 2022).

The concept called "the taste bud" plays a role in the sense of taste. It contains elements such as oral cavity, taste pore, lingual epithelium, taste receptor cell, basal cell, connective tissue and afferent nerve (Witt, 2019). The taste bud and its contents, which plays a major role in the emergence of the sense of taste, is shown in figure 5 (Wikipedia, 2023).
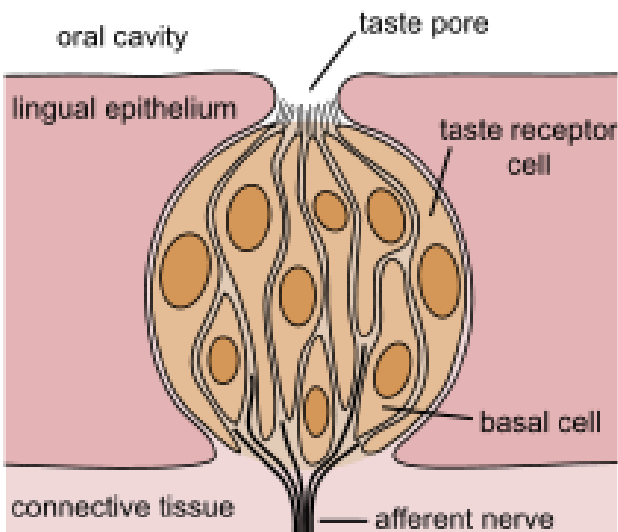
Figure 5: The Taste Bud
Source: (Witt, 2019; Wikipedia, 2023).

Taste is produced through the stimulation of taste receptors in the tongue (Spence, 2013). Thus, it could be said that the tongue has a great role in tasting. It is known that when any food is chewed or tasted in the mouth, it is broken down by the enzymes in the saliva. These food or drink particles could come into contact with the tongue papillae on the tongue. These products are recognized by sensory cells in the taste buds, also known as true taste organs, located in each papilla on the tongue. As a result of the analyzes made by the sense cells, the information about the product is transmitted to the brain via nerve cells. Thus, the signals in the orbitofrontal region of the brain combine with the signals from other senses to create taste consciousness (Kurgun, 2017).

3.3. Sense of Hearing on Taste

It is known that the sense of hearing contributes to the sense of taste, even not as much as the other senses (Spence, 2015). In parallel with this, Heston Blumenthal, the chef of three Michelin-starred Fat Duck restaurant, stated that the food or cocktail tasted should appeal to all senses in order to achieve an effective dining experience (Spence, 2013). Famous chef Blumenthal has created a restaurant menu called "Sounds of the Sea". The chef has designed this menu to appeal to all senses and presented it to his customers. In this aforementioned menu, Heston Blumenthal has placed food and beverage products in a glass-lined wooden box with sand and seashells. Famous chef; offered its products to its customers by using earplugs hidden among foam, seaweed and seashells. He carry out all this so that his guests could hear the sound of seagulls and waves while they were eating. In addition, by means of these methods, it keeps the fish fresher and generally aims to make its products better perceived by its customers (Shepherd, 2012). It can be said that Heston Blumenthal's method is a successful method both in terms of product management and marketing.

Spence and Shankar (2010) claim that the sounds we make while chewing food cause the food to be perceived as fresh and tasty. In other words, the authors state that the sounds made while eating are appetizing. According to Shepherd (2012), on the other hand, he states that high-frequency sounds that occur at the time of consumption give rise to foods to be perceived as sweeter. The author claimed that low frequency sounds are associated with bitter taste. Based on all these, it can be said that auditory elements contribute to taste formation. The anatomy of the ear, which mediates the perception of auditory elements and consists of many elements such as external (outer) ear, middle ear, internal (inner) ear, auricle (pinna), external acoustic meatus, auditory ossicles [hammer

(malleous), anvil (incus), stirrup stapes], vestibulocochlear, semicircular canals, oval window, cochlea, vestibule, round window and pharyngotympanic (auditory) tube, is shown in figure 6 (Belleza, 2021).

Figure 6: Anatomy of the Ear
Source: (Belleza, 2021).

3.4. Sense of Touch on Taste

It is known that another sense that affects the perception of taste in food and beverage products is the sense of touch. All elements such as the weight of the tablecloth, the weight of the food, the weight of the menu and the weight of the cutlery set used are factors that could be determined by touch sense and affect the palate (Spence, 2015). On the other hand, when eaten with a light spoon, even the taste of yogurt is perceived as more intense and expensive than it is (Harrar & Spence, 2013). It could be said that another factor affecting the concept of taste, which is determined and perceived through the sense of touch, is texture. It could be said that texture is an element that serves to emphasize the mechanical, structural and surface properties of food and beverage products. In addition to touch, hearing, vision and kinesthetic senses could be determined by tissue selection (Szczesniak, 2002). All of these informations could appear as sensory indicators. Based on this, it could be said that the sense of touch is a side sense that affects the sense of taste like

other senses. Accordingly the receptors involved in the perception of touch, which individuals use to obtain taste data on food and beverage products, are shown in figure 7. These receptors; are touch receptor, heat receptor, pressure receptor and cold receptors (Silbernagl & Despopoulos, 2007).
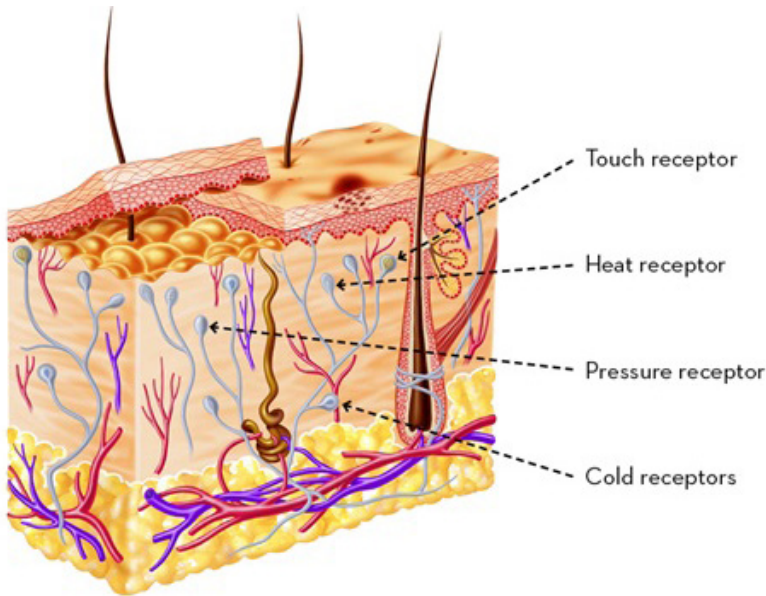
Figure 7: Receptors Involved in the Perception of Touch
Source: (Silbernagl & Despopoulos, 2007).

4. Conclusion

In this study, it is aimed to explore the concept of neurogastronomy, which is a new trend in gastronomy. Besides it is aimed to explore its potential benefits on the field of gastronomy. This research reveals that neurogastronomy is a multidisciplinary field that combines neuroscience, psychology and gastronomy to better understand how we experience food and how we enjoy eating. Thus, it could be said that neurogastronomy is a field that brings together many disciplines.

In the study, it has been emphasized that the neural regions underlying taste perception, how and what we eat, various effecting elements of the sense of smell on taste, the taste bud, receptor regulation and food intake have a complex structure and have an important place in our sensory perceptions. In

previous studies, it has been concluded that taste perception is mediated by specialized receptors on the tongue, mouth and nose, and these receptors are operated and integrated to form the perception of taste by sending signals to the brain (Small, 2014; Drewnowski, 2015). Previous studies also emphasized that cells of the hypothalamus, insula and prefrontal cortex play a critical role in the formation of satiety (Murphy, 2018; Pelchat, 2011). In addition to these, it has been concluded in this study that the five senses of individuals have important effects on the taste experience. The functions of each sense in this respect are mentioned in detail.

As a result of the result obtained from this study, it has been emphasized that neurogastronomy has an important power on the food industry and public health. It is foreseen that this field will be expanding day by day. For example, understanding the neural patterns underlying taste perception could help food scientists develop new flavors and textures that are more appealing to owners (Rolls, 2016). In addition to all these, new strategies could be developed to prevent and treat control, placement and other eating patterns in regulating brain maintenance and food intake (French, 2016). As these strategies are developed, contributions to the field of gastronomy could be increased.

In conclusion, it can be said that the field of neurogastronomy is a new trend in gastronomy that has the potential to deepen our understanding of the complex explanations between the brain and food. This area has a significant impact on the food industry and public health. Therefore, investing in this field could provide several benefits to food and beverage manufacturers and science. In addition, in the future, it could be provided to explain in detail the situations such as how individuals get pleasure from food and beverage products and what factors play a role in the formation of these pleasures. Thus, individuals can be provided with more pleasure from food and beverage products.

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A SITUATION ANALYSIS ON REVERSE LOGISTICS POLICIES AND PRACTICES OF LOGISTICS COMPANIES

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Introduction

The logistics sector is expanding its scope day by day and updating its activities. These updating processes are in a chain relationship with different disciplines within the scope of sustainability. All sectors in the world that are subject to international trade have logistics links.

In the 21st century, with the effect of globalization, logistics embarked on a new journey within the scope of the "green" symbol. This "green", which has existed for years, has been positioned as one of the most important parts for sustainability over time. The concept of green logistics has expanded with sub-disciplines and gathered around the concept of sustainability. Green logistics basically; green supply chain, green production, green purchasing, green marketing, green packaging, green advertising, green ergonomics and negative stock, cross distribution, combined transportation, third party logistics, fourth party logistics and reverse logistics. Especially reverse logistics has come to the fore in recent years with the advantage of cost and ease of production. Reverse logistics has arisen from the need to protect resources by recycling and the lack of raw materials, which decreased with the increase in the needs of the world population and the living creatures. The reuse of resources, which have passed to the last stage in the life cycle, has become important. Recently, reverse logistics has become very important.

This study was conducted by taking the opinions of senior logistics managers about whether individuals, institutions and affiliated institutions implement reverse logistics practices in their logistics activities with the state obligation or consciously, on the basis of benefit and efficiency, which includes the contribution of these concepts. This study aims to scan the research topic for a statistical analysis to be applied in the future. It is believed that presenting the current views will shed light on future studies on making some advanced statistical modeling in the light of the data obtained.

1. Some Related Concepts

Reverse Logistics: Reverse logistics; It is a set of activities that operate as the opposite of the process in supply chain management. In other words, reverse logistics has a flow from the customer to the manufacturer. Reverse logistics is a type of logistics where recycling and reuse are important. Reverse logistics activities consist of the movements of products returning to the vendors at the point of production. In this context, reverse logistics activities of products that are defective, malfunctions in products, returned products and products that cannot be used for various reasons are the reverse logistics movements. The goals in reverse logistics are to minimize costs, ensure customer satisfaction, and continue operations by acting in accordance with the law. In other words, in reverse logistics, it is essential to fulfill the necessary issues for the business to survive in the competitive environment and to be sustainable. Applicability in reverse logistics is not easy. The reason for this is the lack of clear data in terms of time and amount. Uncertainties in time and quantity also prevent accurate cost calculations. It is understood that if reverse logistics applications are implemented correctly in product returns, significant advantages are provided in terms of cost. For this reason, it can be said that reverse logistics has a strategically advantageous structure.

Negative Stock: The concept of negative stock can also be encountered under the name of guarantee cost. In this approach, the supplier sends the product to the purchaser and allows this product to be sold within the scope of the purchaser's own stocks. In the negative stock understanding, the person who supplies the goods gets his money only when these goods are sold (Gümüş, 2014: 23). It can be accepted that the goods sent to the buyer in negative stock remain on the lease until the moment of sale. Because the person who supplies the goods cannot get his money before the goods are sold. One of the advantages

of this system is that the buyer pays for the amount of goods used. In this way, there will be no shortage of stocks. The advantage for the supplier is that he has the opportunity to sell his product by being under the influence of an effective marketer. The most common problem in negative stock applications is the tracking of purchased stocks. In the follow-up of stocks, the supplier cannot keep the process under its control. In addition, the buyer may not show the necessary sensitivity to the goods because he does not pay. For this reason, it can be said that the buyer has more say in negative stock understanding (Derinalp, 2012: 263).

Cross Distribution: Cross Distribution; It is defined as a logistics activity used in order to increase the efficiency in logistics and to ensure the flow of products quickly. In cross distribution, the goods are sent without stocking from the places where the distribution is started. In places where cross distribution is made, these goods are separated in the way and amount desired by the people who will receive the goods (Öz, 2011: 147). Storage activities are not used in the cross distribution technique. This technique is an effective system for controlling loading operations between delivery vehicles and transport vehicles. In cross distribution, no stock is made and the cross distribution process takes place in a very short time. The main point to be considered within the scope of cross-delivery practices is to provide timely information to customers by tracking logistics vehicles.

Green Logistics: One of the most important tools for sustainability is green logistics (Dinçel, 2019). It is a new managerial approach that combines product development and environmentally friendly product/service production strategies. Green logistics activities are needed in order to produce, purchase and distribute products and services in an environmentally friendly manner, to recycle and reuse products that have expired, and to resell returned or defective products in different sales channels. Green logistics practices especially enable more efficient use of resources (Yanginlar & Sarı, 2014: 7).. Green logistics aims to minimize the damage to the environment, especially in the transportation step of the logistics process. Showing the necessary sensitivity about the use of natural resources and carrying out innovative practices with an environmentalist understanding can be considered within the green approaches of enterprises (Chopra and Meindl, 2017: 499).

Lean Logistics: Businesses that have reached a certain level of maturity in sales and marketing activities have focused on the effectiveness of their supply chains in order to gain competitive advantage, respond to variable customer

expectations and survive in the challenging business world (Ateş, 2018). At this point, simplicity is important for development (Süzen et al., 2017). In today's world, where speed and flexibility are the determining variables, lean is a key factor to gain competitive advantage, and it is also important for sustainability. One of the lean management application areas of enterprises is logistics activities. If businesses want to take their products and services to their destination in the shortest time and at the least cost, they should adopt a simple understanding in their logistics applications. For this, businesses should get rid of all unnecessary actions that do not create added value in logistics applications. Avoiding wasteful practices in order to adopt a lean logistics approach is one of these actions. Only in this way will businesses be able to take on a competitive structure (Jewel, 2021). The aim of Lean Logistics is to deliver the right materials to the right places, in the right quantities and with the right presentation efficiently (Artıışık, 2008).

2. Finding

This research was carried out by asking questions to 24 people who are senior managers in the logistics sector. The study questions were taken from Dirik's thesis titled "Reverse Logistics and an Application for the Evaluation of Reverse Logistics in the Food Sector in Karaman Organized Industrial Zone" written in 2012.

In the study, the assumption is made that the statements of the relevant managers are correct. The universe of the study was evaluated over the managers of 24 different logistics companies. One-on-one interviews were conducted with 24 managers.

In the study, the survey questions in Table 1 and Table 2 were conveyed. Since the statistical method was partially used in the research, the questions asked about demographic factors were not included in this study. While the first survey included questions about the businesses that managers work for, questions based on the opinions of managers were asked in the second survey.

Table 1. Questions and Data about Logistics Businesses

Survey Item	Answers	Odds	
"Concept evoked by the phrase Reverse Logistics " ?	My return	f	12
		%	50
	Used of products again use of for production to the process TRUE backwards stream	f	6
		%	25
	Collection of products for the purpose of destruction in order to minimize the damage to the environment	f	2
		%	8.3
	Back dead products between can be used case of those by evaluating raw materials use of reduce and economic in terms of earning to ensure	f	4
		%	16.6
In your business logistics in the processes backwards logistics service walk from my death available manager?	Yes	f	21
		%	87.5
	No	f	3
		%	12.5
In your business logistics in the Processes backwards logistics activities how to is being carried out ?	Via specialized reverse logistics providers (recovery specialists etc.)	f	13
		%	61.9
	Through organizations that seize opportunities (charities, foundations, etc.)	f	4
		%	16.6
	Own through your business	f	4
		%	16.6
In your business back can be earned horses it evaluates do you ?	Yes	f	20
		%	83.3
	No	f	4
		%	16.6

In your business backwards logistics in the process you evaluated _ _ _ the horse clarifies which ones? (Suddenly more You can mark)	Glass Bottles	f	4
		%	5
	Plastic packaging	f	24
		%	30
	Aluminum	f	7
		%	8.75
	Electronic Waste	f	2
		%	2.5
	Textile	f	5
		%	6.25
	Battery -Battery	f	11th
		%	13.75
	Paper	f	24
		%	30
	Organic Waste and Others	f	3
		%	3.75
Backwards logistics process with back have won of materials again in the distribution which methods you are using	Secondary sales in markets	f	13
		%	54.1
	Outlet sales	f	2
		%	8.3
	Donation to Institutions	f	9
		%	37.5
In your business to your products _ about back my return process available manager ?	Yes	f	19
		%	79.1
	No	f	5
		%	20.9
Backwards logistics as long as including you will products What in the way you collect ?	Directly from the area we serve taken at source	f	24
		%	82.7
	Consumer collection from the centers by taking	f	0
		%	0
	Using external resources	f	5
		%	17.2

Back my return drink in collected to materials backwards logistics from activities which you are applying ?	Repair Process	f	2
		%	4.7
	Product Renovation	f	1
		%	2.3
	Indirect Reproduction	f	12
		%	28.5
	Incineration and Burial (destruction)	f	1
		%	2.3
	Separation	f	24
		%	57.1
	Partial Use of the Product	f	2
		%	4.6

When the answers given were examined, the following conclusions were reached.

1. It is seen that the concept of "Reverse Logistics" is considered as recycling by 50% of the logistics managers.

2. Logistics managers stated that 87.5% of the businesses they are affiliated with have units that provide reverse logistics services.

3. To the question of "How should reverse logistics activities be carried out", 61.9% answered "Through specialized reverse logistics".

4. Logistics managers answered "yes" at a rate of 83.3 to the question "Do you evaluate the recyclable wastes in your business" in the company they are affiliated with.

5. Logistics managers stated that they use 30% of "Plastic Packaging and Paper" waste in reverse logistics.

6. They stated that they used the "sales in the secondary market" method at a rate of 54.1% and the methods of "donation to institutions" at a rate of 37.5% in the redistribution of materials recovered through the reverse logistics process.

7. In response to the rate of 79.1%, the answer to the question "Is there a recycling process for your products in your business?" was answered.

8. The answer to the question "How do you collect the products that you will include in the reverse logistics process" was answered by 82.7%, "from the area we serve, directly from the source".

9. For recycling, it was stated that "separation" was used with 57.1% of the reverse logistics activities and indirect reproduction was used with 28.5%.

Table 2. Reverse Logistics Questions and Analysis For Managers

Survey Item	Answers	Average	Standard deviation
Also down given back return shapes I use frequency of see. Please rate it. 1: Never 2: Rarely 3: Usually 4: Mostly 5: Pretty Much	Of materials use of end turns	1.66	
	Guarantee covered by turns	1.49	
	Commercial turns	1.23	
	Incorrect production as a result of materials back relapse	2.83	
	Your product waste to the location arrive results back relapse	2.12	
Backwards logistics its activities application reasons between below to expressions do not join your degree. Please specify. 1: I strongly disagree 2: I do not agree 3: I am undecided 4: I agree 5: I completely agree	Backwards logistics activities legal it is a must.	4.05	
	Economic in terms of value increment provides.	4.80	
	Source to reduce provides.	4	
	Entry (raw materials etc.) amount of reduces.	3.80	
	Social responsibility in its place fetch in terms of it is moist.	3.50	
	Productive a investment to be backwards logistics its activities important makes it.	4.35	
	with the environment friend image creates.	4.50	
	To businesses rivalry advantage provides.	4.40	

Backwards logistics in the process materials back come back to me in winning come face to face power trils don't join to your degree see. Please rate it. 1: I strongly disagree 2: I do not agree 3: I do not agree 4 : I agree 5 : I completely agree	Back will die of materials amount about definite knowledge absence process makes it difficult.	3.78	0.835
	What time back what will happen is uncertain.	3.62	0.988
	Of materials diversity activities makes it difficult.	3.62	1,104
	to watch your rotan uncertain to be process time in terms of negative effects.	3.86	0.793
	Back brought in your product market of your request not knowing process slows down.	3.62	0.972
	Economic in terms of value increment to ensure for new markets required.	3.62	0.953
Also down backwards with logistics relating to expressions do not join to your degree see. Please rate it. 1: no I do not agree 2: I disagree 3: I'm undecided 4: I agree 5: Totally I agree	To products value train.	3.46	1,127
	Of waste to evaluate provides.	3.95	0.823
	Of waste to the environment damage to give they prevent.	4.63	0.882
	To businesses environmentalist image it pays off.	4.83	0.805
	Your costs to the reduction contribute is found.	3.63	1,069
	Profitability increases.	4.15	0.961
	Strategic importance has.	3.86	1,231
	Business economy in terms of it is moist.	4.15	0.856
	Businesses environmental in terms of more effective to be provides.	4.19	0.756
	Customer satisfaction provides.	3.35	0.933
	Maximum snow over intensifies.	3.17	1,216
	Material in the production process number of reduces.	2.76	0.853
	From sources future of generations to take advantage of facility recognizes.	3.88	1,151
	Energy savings provides.	4.16	0.964
	Natural resources productive way to use provides.	4.52	0.895

When the answers given were examined, the following conclusions were reached.

1. forms that occur in the reverse logistics processes of the enterprises are given. Each of the recycling forms has been evaluated according to the frequency of use in itself. According to this, one of the criteria for scoring between 1 and 5 points is " Incorrect ". production as a result of materials back return" was found in the highest average with 2.83.

2. Some applications related to the reasons for the companies to implement reverse logistics activities are given. The averages are ordered from largest to smallest, and given your expressions averages " I agree" around is changing. This According to this, the statement " It provides an economic increase in value" is expressed as " I agree" with the highest average. is, " It is important in terms of fulfilling social responsibility" expression has the lowest mean.

3. In other words, back my transformation _ in the process difficulties they faced expressed. The averages of the respondents' degree of agreement were calculated. According to this "To be followed your rotan uncertain to be process time in terms of negative effects. "I agree" with the highest percentage. In addition, the averages of the other expressions are closer to the expression "I agree".

4. Reverse in final analysis logistics activities of waste to the environment to harm prevent " expression most high to the average owner whether " Totally I agree " has come close. " Your waste to the environment damage to give they prevent. " expression also a other to high average has expression. At the same time, its expression is closer to the expression " I strongly disagree" with a lower rate among other judgments.

4. Conclısion and Recommendations

Today, it is thought that the life curves of businesses that only earn profit and sales income are low. In this case, it is important for businesses to draw an image that protects the environment and to create a process for this. This situation enables customers to feel belonging and trust towards businesses. On the other hand, the destruction of nature is increasing day by day. It is known that this destruction has been on the rise since the 1900s. The protection of nature is thus considered important in terms of giving life light to future generations. For this, it is necessary to protect the ecological balance, reduce waste capacities and raise awareness of consumers about waste. In other words, both producers and consumers have important duties. Therefore, active recycling is required.

Reverse logistics started to develop after the 1980's and took its place in the life policies of businesses in these years as we entered the year 2023. In this respect, the healthy and economical removal of environmentally harmful wastes, the economically valuable substances in the waste. It is also important for businesses to contribute to the economy by recycling. Many arrows used in the industry plastic packaging, pine bottle and paper like return of substances Harvesting the environment will be prevented and natural resources will be used more efficiently. Backwards logistics from their activities somebody the one which back my transformation, production It consists of a number of processes such as the systematic collection, classification and separation of unused products in order to use the defected products and wastes in the environment as a new material.

Today, reverse logistics operates in many different sectors. However, the situation in the logistics sector is not well known. In the recycling map of a factory that produces iron and steel, it is known that the scraps turn into production again, but cardboard boxes, packages, plastic bottles, etc. in the logistics sector. It has been observed that there is no direct research on how wastes are evaluated by logistics enterprises.

In this study, some of the questions observed in Table 1 and Table 2, as a preliminary interview about reverse logistics, were conveyed to 24 logistics senior managers performing International Logistics service through a questionnaire and the current situation was presented.

Accordingly, the process was supported by the comments below.

1. Reverse logistics does not simply mean recycling, it includes a broader scope. In this regard, logistics managers need to approach reverse logistics with a broader expression.

2. Reverse logistics activities do not mean a certain time, with a system to be created, lifelong reverse logistics activities should continue their activities within logistics companies.

3. The reverse logistics process needs to continue its activities with a department within each logistics company.

4. At the point of collection and recycling of products, it is necessary not only to the secondary market, which is sold to recycling companies, but also to their own units.

5. Employees and managers need to be made aware of reverse logistics.

6. Perceptions of relevant company executives regarding the difficulty of the recycling process in reverse logistics should be changed.

7. Legal governmental obligations should be introduced regarding the reuse of products to be included in the reverse logistics process.

8. The concept of adhocracy should also be included in the reverse logistics process. Adhocracy is a concept that supports individual initiative (Erdil Polat, 2017). In other words, it adopts a leadership model in which risk taking, personal progress is at the forefront and hierarchy is kept at a minimum level (Polat, 2017). Processes that do not support recycling should be rejected or the process should be investigated.

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MODELING AND FORECASTING OF DAILY TRAFFIC ACCIDENTS: THE EFFECTS OF RELIGIOUS HOLIDAYS

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1. Introduction

Each year, hundreds of people die and are injured in traffic accidents. It is important to take safeguards against road accidents because they are one of the main issues in every nation. A safe traffic system is established, accidents are decreased, and efforts are made to increase citizen safety in traffic.

Road transportation has many advantages over other modes of transportation since it provides non-stop travel between the starting and destination points, moves people and goods quickly and cheaply, especially over small distances. In the United States, roads carry 89 percent of passengers and 69.5 percent of freight, compared to 79 percent of passengers and 45 percent of freight in EU countries (95.2 percent in Turkey) (76.1 percent in Turkey). Making the

most preferred mode of transportation safer is one of the state's most important responsibilities.

One of the ten nations that account for nearly half of all fatal traffic accidents worldwide is Turkey. Traffic accidents must be prioritized in the public health agenda due to their frequency, health effects, and financial consequences. From an epidemiological standpoint, the person (driver, occupant, or pedestrian) (99.12%) makes up the majority of the vehicle, person, and environmental components that cause traffic accidents. The statistics on accidents show that drivers account for 95% of all defects. Speed, drug and alcohol usage, lack of sleep and weariness, failure to utilize a safety belt, child safety seat, and helmet are the primary contributors to driver error. Although Turkey has produced related legislation, it is not being used as it should be (Sungur et al. 2014).

27810 road incidents occurred in Turkey in 2016, which resulted in 1276 fatalities and 54618 injuries. In 2017, there were 28440 road incidents, resulting in 54098 injuries and 1891 fatalities. There were 28559 incidents in 2018, resulting in 54830 injuries and 1235 fatalities. Last but not least, there were 26704 accidents in 2019 that resulted in 51177 injuries and 1445 fatalities. In Turkey, traffic accidents resulted in the deaths of 5847 persons in 4 years.

These accidents not only result in injuries and deaths but also in billions of dollars in economic losses throughout the years. As a result of traffic accidents, places such as highways, road guards, curbs, bridges, vehicles, traffic signs, etc. are damaged. This situation damages the country's economy financially. Material losses can be regained over time. However, the expenditures made on this cause a restriction on the appropriation allocated for the construction of new institutions such as schools, cultural centers, sports facilities, and hospitals that the society needs and for completing the deficiencies. For this reason, minimizing traffic accidents contributes to the increase in production and welfare by reducing the economic losses in the country.

Traffic accidents that occur bring a high burden to the national economies to a large extent and to the city economies to a small extent (Özen et al. 2013a). In addition, the burden of traffic accidents on global economies in the world corresponds to 1 percent to 2 percent of the goods and services produced in a year. This rate is very high. According to Turkish National Police 2019 records, the cost of damage related to traffic accidents in Turkey is around 39 billion Turkish Liras. This amount shows the entire damage cost. Although the repair of the damaged vehicle, including the original parts, is completed after traffic

accidents, there will be a loss of value in second-hand sales since it will be recorded in the accident records.

To avoid possible losses in both economics and human health, it is vital to model and predict such events. A developing nation's economy may be harmed by these losses in economic output. The modeling and forecasting efforts might help in averting these mishaps, raising welfare levels in these developing nations while saving their economies.

When traffic accidents, annual fatalities, and injuries are taken into account, it becomes clear that there is a serious issue with the loss of many lives. Traffic accidents, one of the most critical problems in the nation, cause tens of thousands of fatalities, catastrophic injuries, and enormous monetary losses each year. Avoiding traffic fatalities and maintaining traffic safety are essential. Accurate analyses must be done, and steps must be taken to prevent traffic accidents, in order to reach this goal.

The prevention of traffic accidents has been the subject of numerous academic research, many of which have been modeled using time series analysis-based techniques, as can be seen in the literature. This study's main focus is on the durations of hidden cycles in road accidents and the causes of these periodicities. The compensations that insurance companies are required to pay are equally significant to traffic accidents. When taken together, both cash loss and human life loss significantly hurt the economy of the nations.

The daily statistics on road accidents in Turkey from 2015 to 2019 were used in this study. Identifying the times when accidents occur can help the relevant government agencies make decisions about how to take action to make the public's transportation safer. In this study, the periodogram-based time series analysis method proposed by Okkaoğlu et al. (2020) was employed to identify the periodic structure of the time series. Many fields, including weather-related time series (Akdi et al. 2021), energy markets (Akdi et al. 2020c), air pollution (Akdi et al. 2020a), and finance, have used this methodology (Akdi et al. 2020a).

The listed aims can be accomplished by identifying the hidden cycles of traffic accidents:

- Reducing the number of fatalities or injuries from traffic accidents;
- Improving road safety for both drivers and pedestrians;
- Regularly determining the occurrence of traffic accidents;
- Creating efficient and better traffic control plans;
- Preventing financial losses in the economy.

The paper is organized as follows: the third part contains the technique, the fourth section gives empirical findings, and the last section summarizes up the research.

2. Literature

The literature has a large number of studies on traffic data. Below is a summary of a few of these researches, particularly those done for time series analysis.

With 1606 observations over a three-year period, it estimated the frequency of daily traffic accidents in Central Florida by negative binomial (NB) model. According to its findings, it showed that the major contributing factors to accidents are speeding, a large number of lanes, heavy traffic volume, narrow lane width, urban roadway sections, and narrow shoulder width. Results also showed that while male drivers are more likely to be engaged in accidents when speeding, female drivers are more likely to be involved in accidents when there is heavy traffic (Abdel-Aty and Radwan 2000).

In Denmark, it was investigated how frequently accidents happened at urban intersections and road links using a generalized linear model with the information encompassing 1036 junctions along 142 km of roads. It was demonstrated that the employed model was able to explain 60% of the systematic variation of the data and the motor vehicle traffic flow was the most significant variable to predict traffic accidents (Greibe 2010).

Several NB models were used to study the relationship between winter road conditions and the incidence of auto accidents in Canada. According to the study's findings, generalized NB has the best predicting ability, and the most important explanatory factor is the state of the roads (Usman and Miranda-Moreno 2010).

To categorize the seriousness of injuries in Spanish road accidents, the Bayesian Network was used. Rural areas of the nation saw an investigation of 1536 accidents. According to the findings, the most important factors that contributed to fatal or badly injured accidents were driver age, lighting, accident type, and the number of injuries (De Oa et al. 2011).

Genetic Algorithm (GA) and Artificial Neural Networks (AAN) were applied to forecast traffic accidents in Iran for the data set including twelve accident-related variables with 1000 observations for 2007. The results showed that the highest performance was achieved by ANN with the coefficient of determination, R^2 of 0.87 (Ali and Tayfour 2012).

The causality of traffic accidents in Sudan was investigated for the data containing the period between 1991 and 2014 with ANN and regression analysis. Their findings demonstrated that ANN outperforms regression analysis in predicting the frequency of accidents. Driver error, flaws in the road system, a fleet of cars that travel at excessive speeds and in adverse conditions, a lack of traffic enforcement, and a failure to buckle up were identified as the main causes of the accidents. (Kunt et al. 2011).

Traffic accidents recorded by police in Jilin Providence in China were analyzed to compare with Bayesian networks and regression analysis. The severity indicator was based on the number of fatalities, injuries, and property damage. Their conclusions showed that the Bayesian network performs better than regression analysis (Zong et al. 2013).

In order to model traffic incidents in Abu Dhabi between 2008 and 2013, data-mining techniques were used. The primary objective of the study was to develop a classifier model that categorizes accident severity and identifies the primary causes of auto accidents. The results showed that gender, age, collision type, accident year, nationality, and casualty status were the most significant predictors of fatal severity. It was also demonstrated that male drivers are more likely to be engaged in traffic accidents than female drivers (Taamneh et al. 2017).

Korea's traffic accidents between Seoul and Busan were investigated, and big data analysis based on Hadoop was used to classify and cluster the data (Park et al. 2016). A separate investigation on traffic accidents in Seoul, Korea, was also conducted (Lee et al. 2018). The study's aim was to investigate the weather-related causes of traffic accidents from 2007 to 2015, particularly those related to rain. With the Structural Equation Modeling (SEM) as the primary statistical method in the study, four explanatory variables reflecting the state of the road, factors of environmental, traffic, and human impact, water depth factor, and rain were taken into consideration for analysis. The data show that female drivers, young drivers, compact automobiles, deep water, severe rain, roads with extensive drainage lengths, and deep water all contribute to the severity of accidents. As part of a literature assessment on modeling traffic accidents, we advise the reader to the study of Yannis et. al. (2017).

An extensive analysis of the effects of real-time packed information is possible thanks to the expanded dynamic public transportation simulation model that Drabicki et al. created. In order to make further en-route decisions, passengers need real-time packed information that is generated

and transferred over the network in the model. A case study using the algorithm on a model of the metropolitan public transportation system in Kraków, Poland, demonstrates how instantaneous real-time packed information has the potential to improve passengers' journey experiences but is also prone to inaccuracies. Real-time information providing during a typical PM peak hour can lead to a 3% increase in overall travel utility and a 30% decrease in the worst overcrowding outcomes (in terms of rejected boarding and in-vehicle travel disutility in congested situations) (Drabicki et al. 2021).

3. Methodology

Periodograms are being used to investigate into the cycles or hidden behavior of time series. The seasonal pattern is distinct from this periodic behavior. Typically, seasonal patterns alter at set intervals of time, such as six months for temperature data with a seasonal pattern. This is not the situation in the hidden cycles. For instance, Okkaoğlu et al. (2020) demonstrated that a daily particular matter in London has cycles of 7 days, 25 days, 6 months, a year, and 15 months; Akdi et al. (2020a) discovered that a particular matter in Ankara has hidden cycles of 6 months, 12 months, and 300 months; and Akdi et al. (2020c) shed light on Turkey's electricity consumption cycles, which have cycles of 3.5 days, 7 days Sometimes these hidden cycles line up with the data's well-known seasonal pattern, as when Akdi et al. (2021) discover that Turkey's monthly temperature and precipitation cycles line up with the seasonal pattern over the course of six months and a year.

The methods of Okkaoğlu et al. (2020) shall be used to find the hidden cycles of Turkey's daily traffic accidents in this study. In this section the methodology should be outlined for the interested reader, who should then be directed to the literature referenced above. The periodograms are applicable only on the stationary time series. For that reason, analyzing the stationarity of the time series is the first stage in this process. Any unit root test can be applied, but in this investigation, the periodogram-based Augmented Dickey Fuller (ADF) test (Fuller 2009) and (Akdi and Dickey 1998) was used. Trigonometric transformation of the time series produces periodograms. Trigonometric functions are employed used as the periodic functions. Consider the model given in Equation 1.

$$Y_t = \mu + R(cos wt + \phi) + e_t, \qquad t = 1,2,\dots,n \qquad (1)$$

where μ, R, ϕ and w represents mean, amplitude, phase and frequency, respectively. While e_t is an independent and identically distributed random variables. Equation 1 can be changed into the following by using the features of the cosine function:

$$Y_t = \mu + a\cos(w_t t) + b\sin(w_k t) + e_t, t = 1, 2, \dots, n \qquad (2)$$

The parameters μ, a and b can be estimated by using least square estimation as

$$\hat{\mu} = \bar{Y}_n, \qquad a_k = \frac{2}{n}\sum_{t=1}^{n}(Y_t - \bar{Y}_t)\cos(w_t t) \ and \ b_k = \frac{2}{n}\sum_{t=1}^{n}(Y_t - \bar{Y}_n)\sin(w_t t)$$

The estimated parameters a_k and b_k are called the Fourier coefficients and they are invariant of mean because

$$\sum_{t=1}^{n}\cos(w_t t) = \sum_{t=1}^{n}\sin(w_k t) = 0 \qquad (3)$$

The Fourier coefficients can be used to calculate periodograms ordinate as

$$I_n(w_k) = \frac{n}{2}\left(a_k^2 + b_k^2\right) \qquad (4)$$

If $f(w_k)$ represents the spectral density function, then $I_n(w_k)/f(w_k) \xrightarrow{D} \chi_2^2$ as $n \to \infty$, where $\xrightarrow{D}$ indicates convergence in distribution (Fuller 2009; Wei 2006).

Define the following test statistics in order to test the time series' unit root test using periodograms (Akdi and Dickey, 1998):

$$T_n(w_k) = \frac{2(1 - \cos(w_k))}{\sigma_n^2}I_n(w_k) \qquad (5)$$

Under the assumption that the time series has unit root the distribution of the test statistics is

$$T_n(w_k) \xrightarrow{D} Z_1^2 + 3Z_2^2 \quad as \ n \to \infty, \qquad (6)$$

where Z_1 and Z_2 are independently distributed standard normal random variables. The distribution given in Equation 6 can be represented as

$$T_n(w_k) \xrightarrow{D} \chi_1^2 + 3\chi_1^2 \quad as \ n \to \infty. \qquad (7)$$

Critical values are derived in [20] and given for 1%, 5% and 10% significant level. These are

$$P(T \leq 0.034818) = 0.01$$

$$P(T \leq 0.178496) = 0.05$$

$$P(T \leq 0.369089) = 0.10$$

If $t_n(w_1) < c_{0.01}$, it can be concluded that time series is stationary under 1% significance level. The test of Akdi and Dickey (1998) brings many advantages over the classical unit roots test. For that reason, the test is applied as an alternative.

In order to check the periodic structure of the time series consider the Equation (2). If the null hypothesis of $H_0 : a = b = 0$ is rejected then it can be said that the underlying time series has periodic components. Since the frequency (w_k) is not known, the F-test can be used to test the hypothesis (Akdi and Dickey 1998). The following test statistics for this hypothesis defined in Wei (2006) as:

$$V = I_n\left(w_{(1)}\right)\left[\sum_{k=1}^{m} I_n(w_k)\right]^{-1} \qquad (8)$$

here $I_n(w_{(1)})$ represents the highest periodograms value while m represents the greatest integer.

The critical values for the null hypothesis can be calculated as $c_\alpha = 1 - (\alpha / m)^{1/(m-1)}$ and α represents the significance level. If $V > c_\alpha$, the null hypothesis is rejected and conclude that the time series has periodic components.

It is possible to modify test statistics to examine the possibilities of more than one periodic component as

$$V_i = I_n\left(w_{(i)}\right)\left[\sum_{k=1}^{m} I_n(w_k) - \sum_{k=1}^{i-1} I_n(w_{(k)})\right]^{-1} \qquad (9)$$

Now, if it is assumed that the investigated time series has periodic structure of p_1 and p_2, then the following harmonic regression can be used to model a forecast the data.

$$Y_t = \mu_1 + A_1 cos\left(\frac{2\pi t}{p_1}\right) + B_1 sin\left(\frac{2\pi t}{p_1}\right) + B_2 sin\left(\frac{2\pi t}{p_2}\right) + B_2 sin\left(\frac{2\pi t}{p_2}\right) + e_t, \qquad t = 1, 2, ..., n \quad (10)$$

The model shown in Equation (10) takes into account the data's hidden cycles; as a result, it is more effective when the data has such cycles. Additionally, because the time series under investigation is stationary, a simple t-test can be used to test the parameter estimates.

4. Empirical results

The data set used in this study includes the daily traffic accidents that were observed between 2015 and 2019. The data collection contains observations for the year 2020, but they are not included because Covid 19 lockdowns, interstate travel limits, and weekend curfews have reduced the number of accidents. We think that the drop in traffic accidents during this particular time period is artificial and does not accurately reflect the statistical characteristics of the entire process. Because of this, the data is not taken into account for 2020.

Tables 1 and 2 provide the daily and monthly averages of the observations of road accidents.

Table 1: Daily average traffic accidents.

Day	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
Observations	72,24	71,13	72,08	71,08	76,29	83,77	94,64

As Table 1 implies, there are more accidents on the weekends than during the workweek. The same situation, in which there are more observations during the summer, is depicted in Table 2. It should be mentioned that accidents tend to occur more frequently on religious holidays. The data analysis will take these periodicities into account.

Table 2: Daily traffic accidents of each month.

Month	Jan.	Feb.	Mar.	Apr.	May	June
Observations	47,25	45,39	52,79	67,13	78,14	101,70
Month	July	Aug.	Sep.	Oct.	Nov.	Dec.
Observations	116,51	115,85	100,17	79,18	67,28	54,46

The daily observations are to be taken into consideration as identify any periodicities. Harmonic regression is to be used to model this event if periodicities exist. Figure 1 displays these data as time series with auto-correlation functions (ACF) and specific auto-correlation functions (PACF).
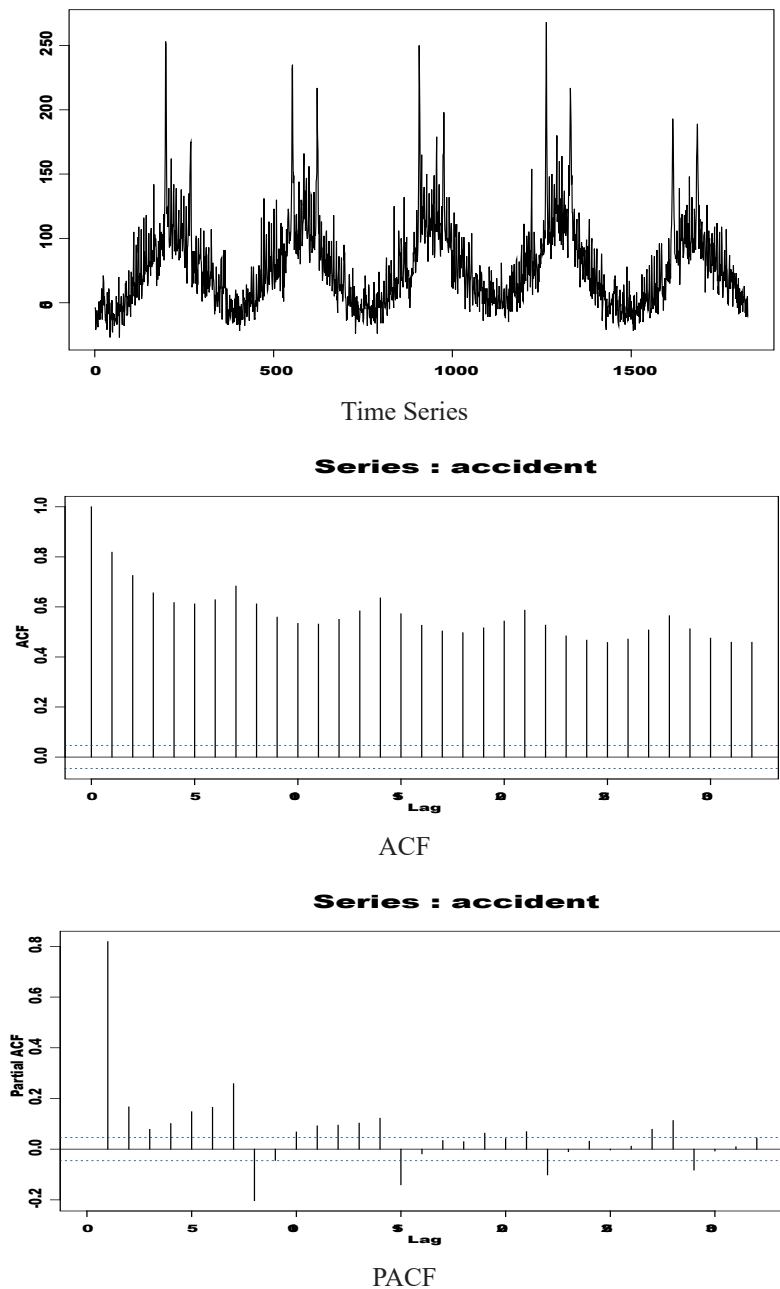
Time Series

ACF

PACF

Figure 1: Time series of traffic accidents with ACF and PACF

Time series must be stationary in order to draw conclusions about them that are significant. It is clear by looking at the time series of Figure 1's ACF

that it is gradually decreasing. ACF may show stationarity by decreasing. The cycles are also represented by the PACF figure. ADF test is employed following the initial studies, and the test results are provided in Table 3.

Table 3: ADF test results

	t-Statistics	Probability
ADF test statistics	-3,959335	0,0017
Critical values		
1%	-3,433759	
5%	-2,862932	
10%	-2,567558	

Table 3's findings led to the conclusion that the time series is stationary at a 1% level of significance. Additionally, the stationarity of the time series is examined using the unit root test based on periodograms [19], with the findings shown in Table 4.

Table 4: Periodogram based unit root test results

$I\ (w\ )$	$\hat{\sigma}_n^2$	$t\ (w\ )$
12012,24	283,779	0,000501189

When the table values are compared with the critical values

$$P(T \leq 0{,}034818) = 0{,}01$$

$$P(T \leq 0{,}178496) = 0{,}05$$

$$P(T \leq 0{,}369089) = 0{,}10$$

It can be easily seen that $t_n(w_1) < c_{0.01}$, thus the time series is stationary under 1% significance level. The results of the two-unit root tests show that the time series is stationary. The test statistics provided in Equation 9 can be used to further evaluate the probability of periodicities in the following step. Table 5 lists the top five periodogram values.

Table 5: Highest periodograms values with related test results

I	$I_n(w_i)$	V_i	Period	5% Critical Value	Result
1	1100455,5	0,57619	365,00	0,01070	Sig.
2	76286,0	0,09425	7,00	0,01070	Sig.
3	26210,3	0,03527	70,00	0,01070	Sig.
4	24926,8	0,03527	58,90	0,01070	Sig.
5	23166,4	0,03397	182,60	0,01070	Sig.

The critical values given in Equation 8 is given in Table 6.

Table 6: Critical values of test statistics V_i

α	0,01	0,02	0,03	0,04	0,05
c_α	0,01245	0,01169	0,01126	0,01094	0,01070
α	0,06	0,07	0,08	0,09	0,10
c_α	0,01050	0,01033	0,01019	0,01006	0,00995

The data shown in Tables 5 and 6 show that there are hidden cycles of 7, 70, 58, 182 and 365 days, respectively. A simple way to determine if a period of 365 days equals a year is to look at the data's time series graph. Weekly cycles correlate to periods of 7 days. The daily average number of traffic accidents shown in Table 1 might be used to illustrate this phenomenon.

Compared to weekdays, there are more accidents on the weekends. The 70-day cycle, which falls between religious holidays, is the other intriguing periodicity cycle During religious holidays, the intercity traffic load typically increases when people typically spend time at holiday resorts or visit family who lives in different cities. The time between the religious holidays is therefore also important. The other two periods are two and six months, respectively. These periods are taken into account, and the model in Equation 10 is used to fit the harmonic regression as follows:

$$X_t = \mu + A_1 cos\left(\frac{2\pi t}{365}\right) + B_1 sin\left(\frac{2\pi t}{365}\right) + A_2 cos\left(\frac{2\pi t}{7}\right) + B_2 sin\left(\frac{2\pi t}{7}\right) + A_3 cos\left(\frac{2\pi t}{70}\right) + B_3 sin\left(\frac{2\pi t}{70}\right)$$
$$+ A_4 cos\left(\frac{2\pi t}{58.9}\right) + B_4\left(\frac{2\pi t}{58.9}\right) + A_5 cos\left(\frac{2\pi t}{182.6}\right) + B_5 sin\left(\frac{2\pi t}{182.6}\right) + e_t, \qquad t = 1,2,...,1826$$

The parameter estimations of the model mentioned in Equation 11 given in Table 7.

Table 7: Parameter estimation of the Model 11

Variable	Estimate	Error	t-Value	P>|t|
μ	77,31834	0,44511	173,71	<0,0001
A_1	-29,97000	0,62932	-47,62	<0,0001
B_1	-17,67074	0,62965	-27,96	<0,0001
A_2	-9,47632	0,62965	-15,05	<0,0001
B_2	-0,23192	0,62930	-0,37	**0,7125**
A_3	4,487838	0,62879	7,76	<0,0001
B_3	-0,26805	0,63039	-0,43	**0,6707**
A_4	-5,15183	0,62953	-8,18	<0,0001
B_4	0,25794	0,62960	0,41	**0,6281**
A_5	3,08286	0,62949	4,90	<0,0001
B_5	3,93188	0,62948	6,25	<0,0001

The parameters B_2, B_3 and B_4 are not statistically significant according to the result of Table 7. The model given in Equation 11 is modified to exclude these parameters, and the revised harmonic regression shown below is then fitted:

$$X_t = \mu + A_1 cos\left(\frac{2\pi t}{365}\right) + B_1 sin\left(\frac{2\pi t}{365}\right) + A_2 cos\left(\frac{2\pi t}{7}\right) + A_3 cos\left(\frac{2\pi t}{70}\right) + A_4 cos\left(\frac{2\pi t}{58.9}\right) + A_5 cos\left(\frac{2\pi t}{182.6}\right)$$

$$+ B_5 sin\left(\frac{2\pi t}{182.6}\right) + e_t, \quad t = 1,2,\dots,1826$$

In Table 8, parameter estimations of the model in Equation 12 is given.

Table 8: Parameter estimation of the Model 12

Variable	Estimate	Error	t-Value	P>|t|
μ	77,31807	0,44480	173,83	<0,0001
A_1	-29,97055	0,62888	-47,66	<0,0001
B_1	-17,60778	0,62921	-27,98	<0,0001
A_2	-9,47624	0,62922	-15,05	<0,0001
A_3	4,87910	0,62835	7,76	<0,0001
A_4	-5,15083	0,62909	-8,19	<0,0001
A_5	3,08224	0,62906	4,90	<0,0001
B_5	3,93114	0,62904	6,25	<0,0001

All of the factors are statistically significant, according to Table 8, hence the model supplied by Equation 12 is used to forecast the observations. Apply the model provided in Equation 12 to the analysis now. Figure 2 shows the observed values with the expected values.
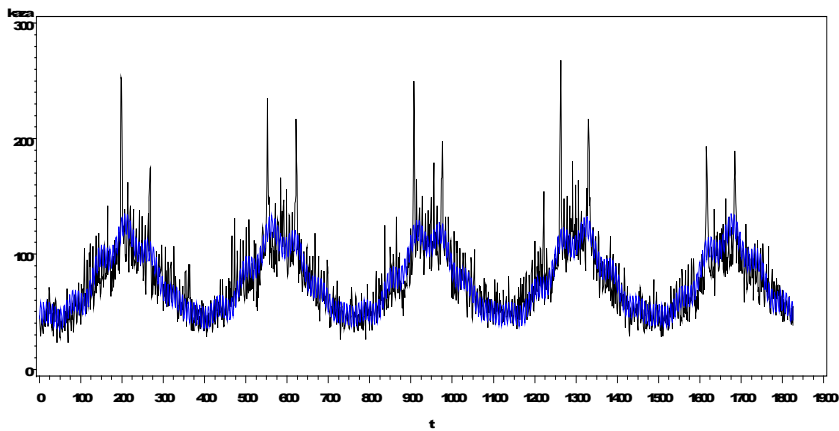
Figure 2: The observations (in black) and the predicted values (in blue)

Additionally, the harmonic regression predicts an annual average of traffic accidents, which is provided in Table 9 along with the observations.

Table 9. Daily average observations of each year with predictions

Year	Observations	Predictions
2015	76,19	77,32
2016	77,71	77,23
2017	78,24	77,32
2018	81,30	77,38
2019	73,16	77,35

Tables 10 and 11 include daily and monthly average observations, forecasts, and predicted values. The tables show that the models are able to capture the main influence of the observations with the aid of significant periodicities. Weekend values are greater than weekday values as predicted and observed in the data.

Table 10: Daily average observations with their predictions and forecasts

Day	Observations	Predictions	Forecasts
Mon.	72,24	79,41	79,44
Tue.	71,13	71,39	71,42
Wed.	72,08	67,93	67,31
Thu.	71,07	71,39	70,87
Fri.	76,29	79,41	79,45
Sat.	83,78	85,84	85,87
Sun.	94,64	85,84	85,87

Finally, forecasts and predictions are established for monthly average values. Once more, the cyclical behavior of the data can be captured by the model. The time series figure shows that the data values are higher in the summer, and the model also predicted and forecasted these values to be greater than in the other months.

Table 11: Daily average observations of each month with their predictions and forecasts

Month	Observations	Predictions	Forecasts
Jan.	47,25	48,58	40,08
Feb.	45,39	47,63	47,47
Mar.	52,79	52,38	55,19
Apr.	67,13	63,62	59,88
May.	78,14	82,07	88,26
Jun.	101,70	102,06	97,19
Jul.	116,51	114,84	119,62
Aug.	115,85	114,23	110,02
Sept.	100,17	100,63	103,29
Oct.	79,18	81,83	78,67
Nov.	67,28	63,99	65,36
Dec.	54,46	53,99	52,23

5. Conclusions

On data from daily traffic accidents that occurred between 2015 and 2019, a time series analysis was done. The existence of patterns in Turkey's road accidents was looked into. It has been shown that the periods' periodicity and lengths exist. The fact that the study's data collected by law enforcement agencies is the most significant part. Traffic fatalities can be prevented and drivers and pedestrians can use transportation in a safer environment if there are any repeat traffic accidents on highways and identifying variances. It is possible to avoid financial damages to the national economy by using more efficient techniques by the government agencies in charge of traffic safety.

Considering the economic losses of traffic accidents, the importance of accidents increases even more. General Cost Average of Insurance and Traffic Damage Files in 2018 are given in Table 12.

Table 12: General Cost Average of Insurance and Traffic Damage Files (Karaoğlu 2019)

Total Number of Files	6759
Average Reporting Time (Days)	24,33
Spare Parts Amount (TL)	28.096.755
Labor Amount (TL)	12.108.473
Total Amount (TL)	40.205.228
Average Amount (TL)	5.949

In the light of all the data in the insurance sector at macro level in 2018, considering the sector average cost of damage per vehicle as 6.048 TL, since 1 million 230 thousand accidents occur annually, the material losses incurred only in vehicles as a result of traffic accidents are approximately 8 billion 880 thousand Turkish Liras per accident. This is the part that is reflected in the insurance.

It has been calculated that the cost of traffic accidents in Turkey in 2012 is over 4 billion USD. It is estimated that the cost of traffic accidents occurring in low- and middle-income countries per year is 1-2% of the gross national product (Özen et al. 2013a).

When the deaths due to injuries are examined in the world, it is seen that approximately one fourth of them are caused by traffic accidents (Özen et al. 2013b). In Turkey, according to the data of the Ministry of Health, "death as a result of traffic accidents" ranks third among all causes of death (Pek and Pınarcı 2010). By age, in general, the highest number of deaths and injuries since 1995 has been between the ages of 25 and 64. Deaths and injuries in passengers, pedestrians and drivers are also higher between the ages of 25-64 (Karaoğlu 2019). Considering the age ranges of people lost in traffic accidents, the impact of the loss of educated people in traffic accidents on the economy cannot be measured.

It is observed that traffic accidents in Turkey increase especially during the religious holidays. During these periods, when traffic density (the number of passengers transported) increased 400-500 times, it is observed that the number of daily traffic accidents increased approximately 1.5 times (TUIK 2019). For this reason, the religious holidays are the periods when measures to increase traffic safety should be increased. In determining the place, time and type of measures to be taken in these periods, it is of great importance to carry out analyzes to determine the common characteristics of traffic accidents that took place during the holidays in the past years, the times and places where they occur frequently.

By considering the series' probable periodicity and the advantages of the periodogram-based unit root test, the stationarity of the series was examined using this method. The parameter estimates of the model can be achieved when a model like the daily accident rate is adequate and the harmonic regression model discovered by considering the periods is taken into consideration. These predicted values show that Thursday and Friday have greater traffic accident rates than Sundays, Mondays, and Tuesdays.

The study revealed that there are cycles with lengths of 7, 70, 58, 182, and 365 days. A simple way to determine that the period of 365 days corresponds to a year is to look at the data's time series graph. The 365-day cycle suggests that the time series' structure has essentially not changed over the years. This demonstrates that regular traffic restrictions have not been substituted for a structural measure. Highway renovations and advances in automotive technology are insufficient to reduce traffic accidents. The importance of traffic education should be extensively encouraged in order to lower these figures. Additionally, raising traffic awareness is crucial for preventing accidents. 7-day periods correspond to weekly cycles. According to the study that the number of accidents is higher on weekends than the weekdays. The other interesting cycle is the 70-day. This timeline falls in between the religious holidays, which often see an uptick in intercity traffic. Turkey's population typically spends these kinds of holidays at resorts or takes advantage of the occasion to visit relatives who live in different cities. As this situation taken to be seriously, the period between the religious holidays is to highly significant.

A number of initiatives have been implemented during the past ten years to ensure traffic safety in Turkey, where driving is the most popular means of transportation. The opening of new bridges, extending already-existing roadways, and utilizing technology more extensively on highways are the four most important among them. In this arena, where the human element is critical, statistical studies are essential to alert of how, when, what sort, and how frequently traffic accidents occurred in addition to all other efforts. It is anticipated that the data gathered and examined will advance both literature and transportation safety for the benefit of humanity.

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WORKING CONDITIONS OF FEMALE LABOR IN TURKEY WITH QUESTIONS WITHIN THE SCOPE OF LABOR LEGISLATION

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1. Introduction

Women are among the disadvantaged groups in the labor market. Their physiological and biological structures, as well as the social understanding in traditional structures, put women workers at a disadvantage. A female worker can be defined based on an employment contract. While pregnancy and maternity situations lead to loss of income, it is also an issue that affects the retention of female workers in working life. The protection of the mother is extremely important in terms of social order. The protection of mothers is essential for the healthy growth of future generations. Pregnancy, taking care of a child is a difficult and tiring process for women. This situation necessitates making special arrangements about maternity for women's working conditions.

The regulations made in the Labor Legislation provide significant advantages for women workers to be present in the labor market. These regulations, with the permissions given before and after the birth, have a protective nature in establishing the bond with the mother and the child's health, and in preventing the loss of income. Regulations are made within the framework of many Regulations, especially the Labor Law No. 4857.

The aim of this study is to make the issues that are curious about maternity in terms of Turkish Labor Law practical in the form of question and answer.

Maternity status, paid and unpaid leave, part-time work leave, transition to part-time work, breastfeeding leave, night work are among the main topics of this study.

1.1. What is milk permit?

Breastfeeding leave, which is one of the important regulations made for lactating female workers, is regulated in Article 74 of the Labor Law No. 4857. Article; *"Female workers are allowed a total of one and a half hours of breastfeeding a day to breastfeed their children under the age of one. The worker herself determines between which hours and how many divisions this time will be used. This period is counted as the daily working time."* is in the form. How the female worker will use the one-and-a-half hour maternity leave is left to the initiative of the worker. The specified time is a time counted from the working time. This situation is especially in terms of workers' receivables depending on the working time, such as severance pay, notice pay, etc. becomes important in terms of receivables.

1.2. Can the use of milk leave be at the initiative of the employer?

This condition is sufficient for a female worker who has a child who has not yet completed one year of age to be entitled to milk leave. A female worker does not need to get permission from the employer to use this leave. The choice of when and how to use the leave is left to the female worker. (Süzek, 2018: 846). It is not possible for the employer not to use the permit. Therefore, the employer has no initiative. The 2013 Regulation on Working Conditions of Pregnant or Nursing Women, Nursing Rooms and Child Care Dormitories is quite enlightening on the subject. According to the 6th article of the regulation, *"The employee informs the employer in case of pregnancy and breastfeeding."* The provision states that it is sufficient for the employee to inform the employer. (Erener Yılmaz, 2020: 386). It should be emphasized that there is no breastfeeding requirement for a female worker to use the breastfeeding leave. It is sufficient to have a child under the age of one.

It should be emphasized that if the child of the female worker dies during the breastfeeding leave, the right to breast-feeding leave disappears. The employee must notify the employer of this situation, otherwise using the leave will constitute a violation of the duty of loyalty. In this case, the employer may terminate the contract with just cause (Ekonomi, 2015: 45).

1.3. Can the duration of the milk leave be changed in the employment contract?

One of the important principles of labor law is relative mandatory provisions. These provisions are the rules that can be decided on the condition of being in favor of the worker. The legislator sets a minimum limit for these rules. If this minimum requirement is exceeded, arrangements can be made with individual or collective labor agreements. In that case, milk leave is also a relative imperative provision and it is possible to bring provisions in favor of the worker. To give a clearer example, breastfeeding leave that is 1.5 hours can be arranged as 2.5 hours.

1.4. Can only female workers use the maternity leave?

According to the 7th paragraph of Article 74 of the Labor Law No. 4857, breastfeeding leave is a leave and right used only by women. However, breastfeeding, which is known as the natural way of feeding babies, can be realized by the mother, or it is possible for the baby to be fed with a bottle. At this point, in establishing a healthy and safe bond between the baby and the father, it may be necessary for the father to take a maternity leave (Bakırcı, 2014: 72). In the case of adoption, the regulation regarding milk leave is not made in the relevant article.

1.5. Which laws should be subject to in order to use the milk leave?

In order to benefit from the milk leave, it is necessary to be in the status of a worker. An arrangement has been made in the 8th paragraph of the 74th article of the Labor Law No. 4857 and the provision of *"The provisions of this article are applicable to all kinds of workers who work with a labor contract and are within the scope of this law or not"* and working with an employment contract is essential. Women workers covered by the Maritime Labor Law, the Press Labor Law, and the Turkish Code of Obligations have the right to breast-feeding leave (Çelik, Caniklioğlu ve Canbolat, 2019: 773).

1.6. How does the use of milk leave take place?

Nursing leave is given to the worker for a total of one and a half hours per day. The use of this period is determined by the worker in terms of the parties to the employment contract. In other words, the female worker decides by herself between which hours and how many times she will use the maternity leave.

However, at this point, it should be emphasized that it is necessary to act in accordance with the rules of goodwill and honesty. It is stated that it is necessary to establish the necessary connections with the employer's representatives within the scope of the duty of loyalty, which is one of the debts of the worker arising from the employment contract, and that the work is carried out without interruption (Ekonomi, 2015: 45). The worker will be able to use the daily milk leave at once during the day as well as by dividing it. However, it is also possible for the worker to use this period by adding it to the rest period, in other words, by combining it. In another option, it is possible for the female worker to arrive an hour and a half late to the working time or to leave the work hour and a half earlier (Demir, 2008: 21). At the same time, this type of leave can be combined in the application and used as paid leave for approximately 40 days, or it can be used as absenteeism for one day a week. There may be many reasons for this, for example, the workplace is far from the woman's home (Yılmaz, 2020: 390).

1.7. Will the wage of the worker using the milk leave be paid?

Nursing leave period is counted as working time (4857 sayılı İş Kanunu). Although the worker does not actually work during the breastfeeding leave period, she will continue to receive her wages. Therefore, no deduction is made from the salary during the leave period. However, there are significant employee receivables due to working hours. For example, severance pay. All employee receivables due to seniority are included within the period to be included in this period.

1.8. When does the use of milk leave start?

Breastfeeding leave of the woman giving birth does not start immediately. The reason for this is that the woman primarily uses maternity leave after giving birth. After the end of at least eight weeks of leave, the right to maternity leave arises. The right of leave can be used until the child of a female worker reaches the age of one. If the worker requests an unpaid six-month leave after the end of the paid maternity leave, there is no obligation to give the worker a maternity leave. In this process, the worker has the opportunity to breastfeed her child whenever she wants (Ekonomi, 2015: 39).

1.9. What is the right of the female worker in the case of not allowing the employer to use the nursing leave?

Nursing leave of a female worker is one of the important maternity leave. The employer is obliged to use the leave of the female worker who requests milk

leave. The woman does not have to obtain permission from the employer to use this leave. If the employer does not fulfill the demand of the female worker, the worker can terminate the employment contract for just cause, basing it on Article 24 of the Law No. 4857. In this case, the worker is entitled to severance pay even if she terminates her contract voluntarily (Ekonomi, 2015: 44). If the employer terminates the employment contract based on the woman worker's use of leave, this termination will result in invalid or unjustified termination. However, the employee's absence from work as a result of informing the employer that he or she will use the milk leave will not be considered as the employee's absence (Yargıtay 9 Hukuk Dairesi, 2009).

1.10. How is the breastfeeding leave of women working with a part-time employment contract arranged?

In the Labor Law No. 4857, there is no milk leave regulation for employees with part-time employment contracts, and there is no regulation stating that employees with this type of contract do not have milk leave. At this point, the Principle of Equal Treatment, which is the 5th article of the Law, states that *"Unless there are fundamental reasons, the employer cannot treat a part-time worker against a full-time worker, or a fixed-term worker against an indefinite-term worker."* provision must be taken into account.

However, it should be noted that it is stated and regulated in the 2nd paragraph of Article 74 of the Labor Law that the right to breast-feed will not be granted to the female worker who uses the right to half-time work. If the father's right to work part-time due to childbirth is used by the father, the female worker can use the milk leave (Caniklioğlu, 2016: 196). There is no regulation in the legislation stating that a total of 1.5 hours of breastfeeding leave per day cannot be applied to an employee who benefits from part-time work in the classical sense to breastfeed his child under the age of one, and it is necessary to include the opinion in the doctrine. This view is that the breastfeeding leave of a part-time female worker should be used in proportion to the weekly working time of the worker. Accordingly, while the milk leave of a worker working for forty-five hours is one and a half hours, it can be expected to be one hour for a worker working for thirty hours (Ulusoy, 2017: 758).

1.11. What is a breastfeeding room?

The Regulation on Working Conditions of Pregnant or Nursing Women, Nursing Rooms and Child Care Dormitories explains breastfeeding rooms.

However, it is necessary to specify the purpose of this Regulation, which was issued in 2013. *"Taking measures to support the provision and improvement of the health and safety of pregnant, newly delivered or breastfeeding employees in the workplaces, what kind of jobs these employees are prohibited from working in, what conditions and procedures to be followed in the jobs where they can be employed, how to establish breastfeeding rooms or child care dormitories and which conditions is to determine what he will carry."* Breastfeeding rooms refer to rooms reserved for employees to breastfeed their children under one year old. According to the 4th and 13th articles of the Regulation, regardless of their age and marital status, in workplaces with 100-150 female employees, employees who are breastfeeding must have the conditions specified in ANNEX-IV[1], apart from their workplace and at a maximum distance of 250 meters from the workplace, in order for them to breastfeed their children. Establishment of a breastfeeding room is mandatory.

Within the scope of the regulation; employers can jointly establish rooms and dormitories, and they can fulfill their obligation to open rooms and dormitories through agreements they will make with dormitories authorized by public institutions (m. 13/3). While determining the obligation to open rooms and dormitories, the total number of female employees in all workplaces within the boundaries of the employer's municipality and adjacent areas is taken into account, not only the number of women working in that workplace (m. 13/4). In the calculation of the number of female employees required for the establishment of a nursing room, among the male employees, those whose mother has died or whose custody has been given to the father are also included (m. 13/5). The children of female employees and the children of male employees whose mother has died or whose custody has been given to the father benefit from the rooms (m. 14/1).

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1 An example of Annex IV conditions is given.

It can not be in the basement and in places that do not open directly to the open air.

The windows are in such a way that they receive direct sunlight.

At least 10% of the number of female and male employees with custody rights have beds, a sufficient number of observation rooms and a breastfeeding place. A sufficient number of beds, compartments and other tools and equipment are added according to the need.

The floor areas of the rooms where children will be accommodated should be at least 3 square meters for each child, and the volume should be well lit, with at least 8 cubic meters of air per child.

The base must be laid with a material that will not harm the health of children and can be easily cleaned.

Walls and partitions must be painted or coated with an easily cleanable substance to a sufficient height.

1.12. Is it possible to use milk permit in case of half working?

With a paragraph added to Article 74 of the Labor Law No. 4857 in 2016, *"...the wishes of female workers and female or male workers who adopt a child under the age of three for the care and upbringing of their child after the end of the postpartum maternity leave, and on the condition that the child is alive, In the case of the first birth, sixty days, one hundred and twenty days in the second birth, and one hundred and eighty days in the following births, half of the weekly working time is given."* during this period, the provisions of milk leave are not applied to the female worker benefiting from the provision. It should be noted that after the end of the right to half-time work, the female worker will be able to use the breastfeeding leave until the child is one year old (Çelik, Caniklioğlu ve Canbolat, 2019: 776).

1.13. How is the leave right of a female worker arranged in the case of pregnancy?

The female worker and the baby should be protected against the dangers they may be exposed to during pregnancy (Sözer, 1982: 1053). This protection is regulated in the 4th paragraph of the 74th article of the Labor Law No. 4857. *"During the pregnancy, the female worker is given paid leave for periodic check-ups."* With this regulation, it is ensured that measures are taken to protect the health of both the mother and the baby (Tuncay Senyen Kaplan, 1999: 104). Although there is no regulation in the legislation regarding the duration of periodic controls, the situation of each woman and baby varies. It is essential that the controls be at the frequency specified in the physician's report (Ulusoy, 2017: 749). Periodic control is before birth and does not include mother and baby controls after birth. Therefore, it refers to the controls in the process from the notification of the pregnancy status of the female worker to the employer until the birth (Çalışkan, 2018: 50-51).

1.14. What is maternity leave or maternity leave?

It can be defined as the leave given for the period when the female worker is not employed due to childbirth, arranged in order to protect the health of both the mother and the baby and to ensure the emotional bond between them before and after the birth. In the use of this leave, the female worker must inform the employer about her pregnancy (Tuncay, 2005: 39).

Maternity leave is regulated in Article 74 of the Labor Law under the title of Working and Breastfeeding Leave. *"It is essential that female workers not*

be employed for a total of sixteen weeks, eight weeks before birth and eight weeks after birth. In case of multiple pregnancy, two weeks is added to the eight-week period of not working before delivery. However, if the health condition is suitable, with the approval of the doctor, the female worker can work at the workplace for up to three weeks before the birth if she wishes. In this case, the hours worked by the female worker are added to the postpartum period. If the female worker gives birth prematurely, the non-working periods that she cannot use before the birth are added to the postpartum periods. In case of death of the mother at birth or after birth, the periods that cannot be used after birth are given to the father. One of the spouses or adopters of a child who has not completed the age of three is given maternity leave for eight weeks from the date the child is actually delivered to the family."

Due to the relative imperative nature of the terms in the specified Law article, it is possible to increase them through individual or collective labor agreements. For example, determining the eight-week period before birth is ten weeks. However, it is forbidden for the employer to employ a female worker on maternity leave, and it is also prohibited for a female worker to work in another job (Akyiğit, 2008: 2053).

1.15. How long can a female worker work before giving birth?

With maternity leave, the female worker has the opportunity to spend more time with her child after giving birth. If the health status of the female worker is suitable, it is possible to work up to the last three weeks with the approval of the physician. In this case, the employer's approval is not expected. The three-week period is a maximum period and cannot be increased with a physician's report (Akyiğit, 2008: 2050). In the stated case, the unused five-week period is added to the eight-week leave period after the birth.

1.16. Is it possible to use maternity leave by the father?

With the Law No. 6663, an amendment was made in the Law No. 4857, and it was regulated that the maternity leave periods that could not be used after the birth could be used by the father in case of the death of the mother at or after the birth. In other words, if it is not possible for the mother to use it, the father is also given the right to maternity leave in case of certain conditions (Aydın ve Demirkaya, 2017: 81).

One of these conditions is that the mother must have died during the maternity leave period that the female worker will use after giving birth. In this

case, maternity leave can be used by the father. The important point here is that the father's leave is limited to the period when the mother cannot use it after the birth due to death (Caniklioğlu, 2016: 139). In accordance with the honesty rule, it is necessary for the father to inform the employer in the use of this leave. However, the father's use of this leave is not dependent on the employer's consent. If the employer does not use the leave despite the fact that the employee is informed, the employee can start using the leave. If the worker who is not allowed leave, he/she can terminate the employment contract with just cause pursuant to 24/II-f of the Labor Law No. 4857, on the grounds that the employer does not comply with the working conditions.

1.17. Is it possible to use maternity leave in the case of adoption?

With the Law No. 6663, one of the spouses or adopters of a child who has not completed the age of three has the right to maternity leave for eight weeks from the date the child is actually delivered to the family. In the presence of the adoptive mother, the adoptive father is entitled to leave if certain conditions are met (Şahin, 2016: 39). Therefore, workers who have adopted a child who has not completed the age of three can benefit from this right (Caniklioğlu, 2016: 140).

1.18. What is a half work permit?

Half work permit is an arrangement that allows the use of more leave if the legal maternity leave of the female worker is not sufficient. In the Law No. 6663, the right of unpaid leave for sixty days for the first birth, one hundred and twenty days for the second birth, and one hundred and eighty days for the following births, up to half of the weekly working time, has been granted to the female worker who has given birth after the end of maternity leave, and to the female or male worker who has adopted a child who has not completed the age of three. In multiple births, 30 days are added to these periods. If the child is born with a disability, these periods are applied as 360 days (Şakar, 2022: 135). This regulation is also important in terms of not withdrawing female workers from the labor market. In accordance with the Unemployment Insurance Law, an income support called half-time work allowance is provided to the worker who takes unpaid leave up to half of the weekly working time. The female worker works half of the weekly working time and is on leave in the other half.

The change in the working time of the worker using the half work permit will not create a change in the contract of the full-time worker. In other words,

the employee's contract will not be a part-time employment contract. The full-time employment contract continues to exist (Ekonomi, 2017: 40). There is only a temporary change in the working order. On the other hand, there is no difference in the half-work permit in terms of whether the employment contract is for a definite or indefinite period. However, in order to use this leave, the employee must make a request from the employer (Ekonomi, 2017: 31). From the end of the maternity leave, it would be appropriate for the female worker to make a request within thirty days, although there is no deprivation of rights.

It should be noted that a total of one and a half hours of breastfeeding leave per day will not be applied for a female worker who uses unpaid leave for half of the working time and benefits from half working allowance to breastfeed her child under the age of one (Analık İzni veya Ücretsiz İzin Sonrası Yapılacak Kısmi Süreli Çalışmalar Hakkında Yönetmelik).

1.19. How is the wage of the worker regulated in the use of half work permit?

The weekly working time at the workplace is important in the use of this leave. It is used as half of the working time applied in the workplace. It is not possible to combine permissions. For example, it is not appropriate for a worker who uses ninety days of a hundred and eighty days to spend the remaining ninety days working. Since it is possible for a female worker to breastfeed her baby during the half-time work permit, she will not be able to benefit from the breastfeeding leave based on the 74/2 clause of the Labor Law (Köseoğlu, 2016: 107). However, if the child of the worker has not completed one year after the half-work permit has expired, the female worker has the right to use the milk leave until the child completes one year of age.

Due to the lack of regulation regarding the use of half work permit and the difference in working hours of each workplace, the parties can decide on their own half work permit (Ocak, 2017: 189-190). In other words, it would be appropriate for the parties to decide on the days and hours to work for half of the working time. For example, an employee can work for three days and not work for three days in a workplace that works six days a week and has a working time of forty-five hours per week, or he can work half a day for six days and use half work leave (Çelik, Caniklioğlu ve Canbolat, 2019: 749).

The wage of the worker who uses the half work permit will be calculated in proportion to the time she worked, based on the second paragraph of the

13th article of the Labor Law. Therefore, the employer is not obligated to pay the employee the wage during the half-time work permit. However, the same applies to the insurance premium (Ekonomi, 2017: 36). However, half-time work allowance will be paid to the worker who meets the conditions in the Unemployment Insurance Law No. 4447.

1.20. What happens if half work permit is not accepted by the employer?

In the second paragraph of Article 74 of the Labor Law, it is regulated that *"... unpaid leave is given for half of the weekly working time after the end of the postpartum maternity leave"*. The employee does not need to obtain the consent of the employer in order to use the half-work right. In other words, the negative response of the employer does not adversely affect the exercise of the employee's right. If the employer does not accept the half-time work request of the employee who meets the conditions specified in the law, the employee may terminate the employment contract with just cause. On the other hand, if the employer has terminated the employee's employment contract due to half-time work, the termination will be considered as invalid termination. Invalid termination will have consequences (Değer Ermumcu, 2017: 2014).

1.21. What is half working allowance?

After the end of the maternity leave, people who have been given unpaid leave for half of the weekly working time are paid half-time work allowance if they meet the required conditions. In order to be eligible for the benefit, unemployment insurance premium has been declared on behalf of the worker for at least 600 days in the last three years prior to the date of birth or adoption, actually working half of the weekly working time (4447 Sayılı İşsizlik Sigortası Kanunu), the child subject to entitlement is alive, 30 from the date of maternity leave. It is necessary to apply to the nearest İŞKUR unit with a half-employment certificate after birth and adoption.

Half-time work allowance is maximum 30 days in the first birth, 60 days in the second birth, maximum 90 days in subsequent births, maximum 180 days in case of birth of a child with a disability.

The daily amount of half-time work allowance after birth and adoption is equal to the gross amount of the daily minimum wage, regardless of the wage of the person at the job. Half working allowance is not subject to any tax and deduction except stamp duty (İŞKUR, Yarım Çalışma Ödeneği).

1.22. What is free leave entitlement?

It is a type of leave that can be used after the birth that allows the child of a female worker to be taken care of. This type of leave is regulated in the 6th paragraph of Article 74 of the Labor Law No. 4857. *"A female worker is given unpaid leave for up to six months, upon her request, after the completion of the sixteen-week period or after the eighteen-week period in case of multiple pregnancy. This permission is given to one of the spouses or the adopter in case of adopting a child who has not completed the age of three. This period shall not be taken into account in calculating the entitlement to paid annual leave."* This arrangement has been expanded in terms of persons with the Law No. 6663. One of the spouses or the adopter of a child under the age of three can also benefit from the six-month unpaid leave right based on the 6th paragraph of Article 74 of the Labor Law. In the case of adoption, the right to leave can be used by male workers, while in the case of a male worker's spouse giving birth, the right to leave can only be used by the worker who is the mother. (Çil, 2007: 3055). The six-month period that the worker may demand may also be determined for a shorter period in line with the worker's request. The reason for this is that the regulation in the Law has a maximum period of six months.

There is an important point to be noted here. This issue is related to how to use the rights to maternity leave, part-time work, part-time work. Following the completion of the maternity leave period after the birth, a request can be made for part-time work after either the right to unpaid leave for half-time work allowance or, if the female worker requests, the right to unpaid leave for up to six months. To put it more clearly, within the scope of Article 74 of the Labor Law No. 4857, it is necessary to have used at least two of the right to maternity leave and half-time work allowance or unpaid leave for up to six months (Uğur ve Yiğit, 2017: 82).

1.23. Is it mandatory for the employer to accept the unpaid leave request?

The employee's request to use unpaid leave after birth is at her own initiative. When the worker requests to use this leave, it is obligatory for the employer to use it. In other words, it is not left to the discretion of the employer. In this case, if the employer does not give permission despite the employee's request, the employee will have the right to terminate the employment contract with just cause. There is also a Judicial decision in this direction (Yargıtay 9 Hukuk Dairesi, 2008). On the other hand, the worker can use her leave after

notifying the employer of her request. If the employee's contract is terminated by the employer on the grounds of this situation, the termination will be considered as invalid termination. In addition, the employer has an obligation to pay an administrative fine. (Andaç, 2018: 152).

1.24. When does the right to free leave begin?

The right to use six-month unpaid leave may be requested by the worker as of the end of sixteen weeks or, in case of multiple pregnancy, eighteen weeks of maternity leave. However, the working hours of the female worker as regulated in the 1st paragraph of the 74th article of the Labor Law No. 4857 and the leave periods that she could not use in case of premature birth If it is added to the postpartum period or if the postpartum periods are increased with a doctor's report pursuant to paragraph 3 of Article 74, the period of unpaid leave starts from the end of the specified periods. In the case of adoption, maternity leave can be requested as of the end of the period -eight weeks - from the date of actual delivery of the child to the family, based on paragraph 1 of Article 74 of the Law (Narmanlıoğlu, 2013: 733).

1.25. What is parent's right to part-time work?

Part-time work is an important practice in terms of ensuring the harmony of child care and working life of female workers. Part-time work is a form of work that can be paid on the one hand and is realized by reducing the working time on the other (Uğur ve Yiğit, 2017: 73). With the Law No. 6663, an addition was made to the 13th article of the Labor Law and a regulation was made regarding part-time work in the 5th and 6th paragraphs. As of the expiry of the permissions in Article 74, which regulates the work and breastfeeding leave in case of maternity "...... *According to this article, one of the parents may request part-time work until the beginning of the month following the start of compulsory primary education. This request is met by the employer and is not considered a valid reason for termination. A worker who has started to work part-time within the scope of this paragraph may return to full-time work for the same child, not to benefit from this right again. In the event that the employee who is transferred to part-time work starts working full-time, the employment contract of the employee who is hired instead of is automatically terminated. The employee who wishes to benefit from this right or to return to full-time employment shall notify the employer in writing at least one month before. If one of the parents is not working, the*

working spouse cannot request part-time work. Those who adopt a child who has not completed the age of three together with their spouse or individually, also benefit from this right from the date of actual delivery of the child". "Within the scope of the fifth paragraph, in which sectors or jobs partial work can be done and the procedures and principles regarding the implementation are determined by a regulation to be issued by the Ministry of Labor and Social Security" provision has been made in an explanatory and concrete manner. With the regulation, part-time work of parents whose children have not reached the age of primary education has become applicable (Caniklioğlu, 2016: 63). However, in the exercise of this right, there is no distinction as to whether the employment contract is for a definite or indefinite period. An employee working with a fixed-term employment contract can also make a claim. In addition, only workers working in workplaces included in the Labor Law can benefit from the right to switch to part-time work due to birth or adoption (Ocak, 2017: 56).

In order for one of the spouses to benefit from the right to work part-time, both spouses must be working. The spouse of a person who works full-time due to birth or adoption must be working in order to switch to part-time work (Ekonomi, 2017: 50). As for the payment to be made to the worker, as regulated in the Labor Law, it is appropriate to pay the divisible benefits of the part-time worker in terms of wage and money in proportion to the time he or she works (Uğur ve Yiğit, 2017: 74).

1.26. Is it possible for the worker who uses the right to work part-time to work in another workplace?

It is an obligation based on Article 13 of the Labor Law that one of the parents can switch to part-time work and that this request is met by the employer. According to this, if the employee who has switched from full-time work to part-time work, works part-time with another employer in the remaining time, the employer Article 25 of the Labor Law No. 4857 will be able to terminate the employment contract with just cause, on the grounds of *"Conditions that do not comply with the Rules of Ethics and Goodwill, and the like".*

1.27. Is it possible for the father to use the part-time work right?

Both male and female workers can benefit from the right to work part-time due to birth or adoption. Its basis is according to the 5th paragraph of the 13th article of the Labor Law, *"After the expiry of the permissions stipulated in the 74th article of the Labor Law, one of the parents may request part-time*

work until the beginning of the month following the start of the compulsory primary education age.'' included in the provision. Parent is mother and father (Caniklioğlu, 2016: 118). In addition, adoptive or individual adopters will also be able to benefit from the right to switch to part-time work.

1.28. How does the process of making a claim work before starting part-time work?

Part-time work can be expressed as the work done at the rate of two-thirds of the weekly work of the employee working with a full-time employment contract. The employee must notify the employer in writing one month in advance, in order to benefit from the right to switch to part-time work or to return to full-time work. However, this is not a state of approval. In other words, the employer's approval is not required. The specified time should be evaluated in terms of the employer's preparation and honesty rule (Çelik, 2019: 202). Parents will be able to benefit from this right until the beginning of the month following the start of the child's compulsory primary education. When the worker makes a request, it would be appropriate to indicate the date on which he wishes to start part-time work, the starting and ending times of work if he will work on all working days, and the working days he prefers to work if he will work on certain days of the week (Analık İzni veya Ücretsiz İzin Sonrası Yapılacak Kısmi Süreli Çalışmalar Hakkında Yönetmelik). However, the employee must attach the document stating that her spouse is working to the request for part-time work.

1.29. Is it possible to quit part-time work?

The 5th paragraph of the 13th article of the 4857 Labor Law has been regulated and it is possible. *"A worker who starts working part-time may return to full-time employment for the same child, not to benefit from this right again. In the event that the employee who is transferred to part-time work starts working full-time, the employment contract of the employee who is hired instead of is automatically terminated. The employee who wishes to benefit from this right or to return to full-time work shall notify the employer in writing at least one month before.''* According to the provision, there are two important points. The first is that the employee notifies the employer one month in advance, and the second is that he or she cannot benefit from this right again for the same child. It should also be noted that if the employee returns to full-time work, the employment contract of the replaced employee will also expire (Çelik, Caniklioğlu ve Canbolat, 2017: 186-187).

The request to switch to full-time employment must be notified to the employer in writing one month in advance, and the employer must accept this request (4857 Sayılı İş Kanunu, Madde 13/5). If the worker's request is not accepted, the worker may terminate the employment contract for just cause.

1.30. Can a pregnant or breastfeeding female worker work in the night shift?

Night work is more tiring than day work. A regulation has been made in the Regulation on Working Conditions of Female Employees in Night Shifts. According to Article 9 of the Regulation, female employees are prohibited from working in night shifts for a period of one year, from the date of their pregnancy detection by a doctor's report, until delivery, and breastfeeding female employees, provided that the provisions of their own legislation are reserved (Uğur ve Yiğit, 2017: 80). However, for women who are breastfeeding, this period may be extended for another six months if it is documented with a report from the workplace doctor in charge of the workplace that it is necessary for the health of the mother or child.

1.31. What is the daily working time of a pregnant female worker?

In accordance with Article 9 of the Regulation on Working Conditions of Pregnant or Nursing Women, Nursing Rooms and Child Care Dormitories, pregnant and breastfeeding female workers cannot be employed for more than seven and a half hours a day. Otherwise, the employer has the obligation to pay an administrative fine in accordance with Article 104 of the Labor Law. Despite the provision, even if the weekly working time of 45 hours has not been exceeded, overtime wages must be paid to the worker for works exceeding seven and a half hours a day (Yargıtay 22 Hukuk Dairesi, 2019). If a female worker works for several employers, the working hours should be calculated by taking into account the time she worked for all employers.

1.32. Does the workplace have to open a nursery?

Paragraph 2 of Article 13 of the Regulation on Working Conditions of Pregnant or Nursing Women, Nursing Rooms and Child Care Dormitories *"Regardless of their age and marital status, in workplaces with more than 150 female employees, an employer who fulfills the conditions set forth in Annex-IV*

2, separate from their workplace and close to the workplace, for leaving and caring for children aged 0-6, and for breastfeeding employees to breastfeed their children. The establishment of the dormitory is mandatory. If the dormitory is more than 250 meters from the workplace, the employer is obliged to provide a vehicle." In the event that the conditions within the scope of the article occur, there is an obligation to open a nursery.

1.33. If the workplace doesn't fulfill the obligation to open a nursery, can the employee terminate the employment contract with justified reason?

If a female worker does not have someone to take care of the child after using her post-natal leave rights and cannot afford the day-care center, it becomes difficult for a female worker to be in working life. "*Based on the Regulation on Working Conditions of Pregnant or Nursing Women, Nursing Rooms and Child Care Dormitories, if the employer does not open a nursery despite the conditions for opening a nursery, the female worker has the right to terminate the contract".* There is a Judgment on this situation (Yargıtay 9 Hukuk Dairesi, 2016). According to the decision, if the employer does not fulfill the obligation, depending on the regulation in the Regulation, the employee may terminate with just cause due to the non-implementation of the working conditions in accordance with subparagraph 24/II – f.

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2 An example of Annex IV conditions is given.

It can not be in the basement and in places that do not open directly to the open air.

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The floor areas of the rooms where children will be accommodated must be at least 3 square meters for each child, and the volume must be sufficiently lit, with at least 8 cubic meters of air for each child.

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SOCIAL MEDIA USE BY NON-GOVERNMENTAL ORGANIZATIONS: KADEM EXAMPLE

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1. Introduction

Non-governmental organizations (NGOs), which are gradually increasing their weight in the social field with globalization, undertake an important role both in the solution of social problems and in terms of their impact on the political field. Non-governmental organizations, whose importance is felt more and more day by day depending on the development of democracies, carry out activities in a wide range of areas from environmental issues to women's problems in Türkiye. In this context, as Engiz (2013:3) pointed out, non-governmental organizations that are in close ties with the media as the fourth force of democracy, have to carry out an effective communication activity through media tools to maintain their existence, to collect the necessary donations, and to convey their goals and activities to the society. Today, NGOs make use of new media tools as well as traditional media. As Bozkanat (2020:151) points out, the social media, which offers platforms for non-commercial organizations to reach large masses quickly, effectively and directly, has become an important communication tool used by today's non-governmental organizations with its interactive structure. The aim of the study is to show how new media technologies are used by non-governmental organizations. In this study conducted for this reason, first of all, civil society and non-governmental organizations were examined conceptually, and then, the place of social media in public relations

activities and the use of social media by non-governmental organizations were discussed. The Women and Democracy Association, which has an important place among non-governmental organizations with its activities, was selected as a sample of the research. After giving information about the association, the official Twitter account of KADEM as a social media tool was examined using the content analysis method.

2. Civil Society and NGOs

Civil society philosophically goes back to Aristotle's concept of '*politike koinonia*', which describes the order governed by the participation of the citizens living in the city in the decisions (Tosun, 2007:2). In ancient times, it was seen that the civil and the political were gathered in the same pot without distinction in the understanding of civil society, which was seen as the tool of the art of living together (Alyakut, 2013:19). This understanding put forward by Aristotle continued its influence until the 18th century. As Yılmaz (2018:251) points out, the terms civil society, state and political structure are used in the same sense. 18. After the middle of the century, the concept of civil society was separated and started to be used in the same sense as the state or political structure. Civil society, which began to represent a conceptually different meaning with the state in the 1750s, was seen as a field where citizens had some rights and responsibilities in the public sphere and became the building block of organizations independent of the state (Şahin and Öztürk, 2008:11-12). Today, the concept of civil society represents the segment of society outside the political sphere or the state (Tosun, 2007:4). According to İdris Küçükömer, who refers to civil society as a society where needs are met, the term was used to describe the bourgeois sector formed after the Industrial Revolution and continued its development with capitalism by seeing it as an alternative order to the feudal order (Aktaran Duman, 2004:48). Although civil society was a concept that attracted the attention and was interpreted by many intellectuals in the 18th century, it could not continue its effectiveness in the same way until the beginning of the 20th century (Turgaylı, 2013:15). The concept of civil society, which came to the agenda again in the changing world order with the end of the Cold War, has begun to represent its meaning today. As Aslan points out (2010b:202), the reintroduction of this concept began in the process of democratization in the countries that emerged after the collapse of the Soviet Union. Civil society, which has become a popular concept especially in Eastern European countries (Çaha, 2007:113), has become the center of attention again to adapt to the globalizing world conditions in

Western Europe and to overcome the problems faced by states under these conditions. It has been used as an important tool in the Western world, especially in the transition from representative democracy to participatory democratic order (Aslan, 2010a:363). Although there is no universally agreed definition of the concept of civil society (Keyman, 2004), which plays an important role in the transition from citizen rights to the democratic system, in the construction of a democratic society and in the establishment of a democratic plane of the relationship formed on the state-society-citizen axis, a general opinion has been formed that it is a non-state structure. According to Özbudun (1999:113), civil society, which is related to the state but does not aim to seize the political space, is expressed in the broadest sense as an organized social life space independent of the state within a legal order with its voluntary, autonomous financial structure (Hira and Şan, 2009:389). In the words of Kongar (1991:109), civil society, which "consists of voluntary structures developed with the awareness of citizenship outside the official organization of the state", has the desire to solve the existing problems with their participation in the local and national fields instead of solving them from a single center in parallel with the development of societies (Özer, 2008:91). As a result of the transformations it has undergone, civil society (Aslan, 2010b: 210), which has become a balancing power point for the state, is carried by non-governmental organizations. In its most general definition, "NGOs are organizations that work for the benefit of society and form public opinion in this direction, are non-profit, contribute to the solution of problems and develop the pluralism and participation group, have a democratic functioning, lack bureaucratic equipment and come together voluntarily" (Aslan and Kaya, 2004:216). The scope of the fields of activity of non-governmental organizations, which have become an important tool of today's participatory democracy, is very wide. Formed by civil society to express themselves, the non-governmental organizations operate locally, nationally and internationally by means of spreading in a wide range of areas such as environmentalism, health, population planning, human, women, children's rights, migrant rights, social assistance, and animal rights (Karakuş, 2006:25-105). Non-governmental organizations, which started to stand out in our country in the post-Cold War period, started to be popular in parallel with the political, social, military and technological developments in Turkey, and hundreds of non-governmental organizations started to operate in many areas (Yılmaz, 2018: 256-257). In recent years, non-governmental organizations, which have spread from economy to politics, culture to a wide cross-section of social life in our country, have

become an important part of the system by becoming the center of attention (Talas, 2011:388).

3. The Place of Social Media in Public Relations Activities

Public relations activities, which are "a continuous and organized method that a business, institution or organization has established or may establish in order to obtain and maintain the understanding, sympathy and support of those with whom it has established or may establish contacts" (Altaş, 2011:3) assume the role of intermediaries between institutions and society. In today's world where the competitive environment is increasing, public relations activities have gained importance day by day to create a positive bond between the institutions and the target audience and to improve the brand value and image of the institution instead of advertising, which is focused on sales to promote their products and services in the most effective way (Yeniçıktı, 2016:97). Public relations, which undertakes the management of the communication of institutions with society, as stated by Daraa (2011:7), are carried out through the function of introducing institutions, their services and goods to the public and the recognition of institutions, which is the function of understanding the public, their wishes and demands. Institutions use communication tools to reach the public to fulfill these functions of public relations. Developments in communication technology have also closely affected the field of public relations. "The network, which is constantly open, always accessible, has changed the concept of 'space' and the sense of distance and distance by connecting private localities on a global scale" (Varnelis, 2008:26). As Alikılıç (2011:5) stated, the new media environment, where billions of users regardless of race, religion, language, gender and education status can share simultaneously in a short time and connect with close or distant circles through social media tools, has become the center of attention of public relations. Social media channels, which are "commonly used for on-line tools and websites that create mutual interaction by giving users the opportunity to share information, thoughts, interests and information" (Sayımer, 2008:123), are increasingly consolidating their place in today's world. Institutions and organizations perform the functions of recognizing and promoting public relations through social media applications such as Blogs, Micro-blogs, Social Networks and Forums (Daraa, 2011:13). The fact that social media tools provide measurable, traceable and rapid spread of information sharing is the most important features sought in the communication tools selected for the public relations activities carried out by the institutions

(Onat, 2010:104). Thanks to this new environment offered by communication technologies, two-way communication opportunities have been provided and users have become active instead of their passive positions in traditional media and as Yeniçıktı (2016:97) indicates, they have moved from the position of receiving and consuming information to producing information or content. Institutions that want to keep up with this new era have started to use social media platforms effectively in their public relations activities (Leo, 2011:53). In the social media environment, institutions offer an opportunity suitable for the two-way symmetrical communication model, which is shown as the ideal model in contemporary public relations activities with its structure that allows two-way communication, and is open to sharing and participation, where they can communicate one-to-one with their target audiences (Onat, 2010:104). Thanks to social media, institutions and organizations can follow the comments, requests, demands and expectations of their target audience, return to their messages instantly and intervene in a short time in moments of crisis (Yeniçık, 2016:99). Thanks to the opportunities provided by the Internet environment, the fact that users are in interactive communication has brought them to a more effective position on the one hand and on the other hand has pushed public relations experts to use social media channels in this new environment in the dimension of communicating effectively with the target audience in this new environment. Not only private or public institutions, but also non-profit non-governmental organizations based on voluntariness have been closely affected by this situation. Today, many institutions and organizations, from private to public associations to trade unions, choose to strengthen their communication channels with their target audience through social media accounts.

4. Social Media Usage by Non-Governmental Organizations

Today, social media, which allows users to communicate interactively, has given organizations the chance to communicate directly with their target audiences and to give feedback (Ryan, 2017:279). In addition, the fact that social media can reach large masses regardless of time and space has provided significant advantages to non-governmental organizations, allowing them to promote themselves, announce their activities and gather more volunteers (Demir, Tarhan and Görkemli, 2019:126). Non-governmental organizations, which have the responsibility of gaining the support of the public and building trust to maintain their own existence, have gained significant gains in this context by offering the opportunity to show the masses in detail who they

are and what activities they carry out through social media (Özgen et al., 2020:105-108). Non-governmental organizations that need to show their efforts to achieve the common good for society to the public and to be understood (Kılıç, 2012:2) should pay attention to some awe while benefiting from social media at this point. In the content prepared for official social media accounts, it should be encouraged to prepare visual shares such as audio-visual sharing with a professional understanding with original design in accordance with the goal of non-governmental organizations and to share the prepared content by their members and followers (Mansfield, 2012). Matthews (2010:17), who stated that the target audience also has a say in the content produced by non-governmental organizations in a controlled manner, pointed out that this audience produces ideas and asks questions. At this point, non-governmental organizations act together with their target groups and direct their institutions. In accordance with the dynamic structure of social media, non-governmental organizations that have the opportunity to constantly communicate with their target audience have the opportunity to constantly renew themselves while strengthening the bond between them and their audience. Alikılıç (2011:17-19), who summarized the benefits of social media to non-governmental organizations under ten headings, stated these as follows: for institutions to gain new stakeholders through new accounts they create in social media; to be in direct communication and interaction with social stakeholders; to spread the messages they produce quickly; to be more effective in the news spread through social networks with traditional media; to establish an interactive communication with their target groups through social networks; to complete or take measures, if any; to learn the wishes and demands of the target audience through social networks; to be able to organize its activities accordingly; to establish a continuous connection with its target audience through social networks; to create transparency and trust in institutions as a result of non-governmental institutions constantly informing through social networks. Today, social media is used as an effective tool in the organization of civil initiatives or actions and in the discussion of social issues as well as non-governmental organizations (Onat, 2010:104). This interest in social media, whose popularity is increasing day by day, is confirmed by the report prepared by the Marketing agency, *We are Social*, for January 2023. According to the report, 73.1% of the total population in Turkey, that is, 62 million people, use social media. The intense interest in social media has closely affected the non-governmental organizations that defend women's rights in our country and pushed them to use social media effectively. To draw

social attention to violence, discrimination and injustices against women, they share through their social media accounts and try to bring this to the agenda. The Women and Democracy Association (KADEM) has also become one of the prominent non-governmental organizations with the content it produces for women's problems.

5. Women and Democracy Association (KADEM)

The Women and Democracy Association, which was founded on March 8, 2013 with the aim of finding solutions to women-oriented problems, is a non-governmental organization that aims to raise awareness about gender justice and to adopt it (Durmuş and Akbulut, 2019:7). KADEM, which has been carrying out its women-oriented activities in all areas of social life at both national and national levels since the day it was founded, has also been one of the non-governmental organizations that took part in the W20 summit under the roof of the G20, of which Türkiye holds the rotating presidency. Stating that its aim is to build a safe and fair society where women can live with dignity, KADEM has announced to the public that it struggles to produce feasible, permanent solutions to women-oriented issues and to strengthen the representation of women in social life (Durmuş and Akbulut, 2019:6-7). KADEM, which has 52 representative offices throughout Turkey, works not only for national but also for local women's problems.

6. Methodology of the Research:

In this chapter of the study, the subject, purpose and importance, and scope limitation and method of the study are included as sub-titles.

6.1. Research Subject

Developments in the political and social field in Türkiye have brought civil society organizations to the agenda especially since the 1990s. The point reached in communication technology has also affected non-governmental organizations closely. In parallel with the spread of social networks, non-governmental organizations use social media channels both to introduce themselves and to recognize and analyze the public. In this study, the use of social media by the Women and Democracy Association, a non-governmental organization operating on women's rights, was examined, and the one-month time frame of the association's official Twitter account was analyzed.

6.2. Purpose and Importance of the Research

The aim of the study is to reveal how social media is used in the public relations activities of non-governmental organizations. With this goal, the official Twitter account of KADEM, which stands out with its activities for women in Turkey, was examined for a period between January 5 and February 5, 2023. The data from the study will guide how non-governmental organizations can better use social media in line with public relations activities. It is also an important study in terms of showing how non-governmental organizations reveal themselves in the social media environment to gain the support of the public and build trust.

6.3. Scope and Limitation of the Research

Within the scope of the study, the Women and Democracy Association was examined because it has a wide network with 52 representative offices in Türkiye and is one of the women's associations with the highest number of followers on Twitter. The study is based on the shares made by KADEM from its official Twitter account. The one-month shares made by KADEM between January 5 and February 5, 2023 and the interaction of these shares were taken into consideration.

6.4. Research Method (Universe-Sample and Research Questions)

The universe of the study consists of non-governmental organizations in Türkiye and the sample of KADEM, which is a women's non-governmental organization. In the study, KADEM's shares from the official Twitter account within the limited one-month period were examined. In the study, content analysis method, which is 'a research method that is used to draw reproducible and valid conclusions about the content of the data' (Krippendroff, 1980:25), was used. According to another definition, the content analysis is a research technique that uses a series of procedures to reveal the necessary results from the text (Öztek et al., 2021:1068). In the study, the general appearance of KADEM's Twitter account, the types of shares, their contents, the number of likes and comments of the organization's followers and shares and the number of responses to comments were discussed.

In the study, in the context of public relations activities, sharing types were categorized as text, photo, and video. The contents of the shares are grouped as the organization's event/project/seminar/campaign news, call for volunteering,

informative content about the institution, special day/commemoration/award/ thanks sharing within the scope of the public relations promotion function. In the study, within the scope of the recognition function of public relations, KADEM's shares were grouped and examined as the number of responses given by the organization to likes, and comments. The research questions are as follows:

Which type of sharing has KADEM preferred to use on the social media platform Twitter in the context of its public relations activity?

How did KADEM perform the promotion function of public relations through the social media platform Twitter?

How did KADEM perform the recognition function of public relations through the social media platform Twitter?

6.5. Research Findings

Within the scope of the study, the @kademorgtr address, which is the official Twitter account of KADEM, was examined. The number of followers of KADEM, which joined Twitter in June 2013, reached 59 thousand 700 people on January 5, 2023. KADEM, which followed 262 people on this date, used the logo of the institution as a profile photo and included the link to the web address.

Table 1: Share Type (January 5-February 5, 2023)

Post Type	KADEM
Photo	30 72%
Video	6 14%
Text	6 14%
Total	42 100%

According to Table 1, it was seen that KADEM shared the most photos through its official Twitter account in a month. KADEM, which made a total of 42 shares, shared 72% of photos and 6 shares each in 14% of video and text types. Considering the 30-day period, there is a photo share every day.

Table 2: Share Content (January 5-February 5, 2023)

Content of the Post	KADEM
Event-Project-Seminar-Campaign	20 48%
Call for Volunteering	2 5%
Information about the Institution	14 %33
Special Day-Commemoration-Award-Thanks	6 14%
Total	42 100%

According to Table 2, KADEM shared the most event-project-seminar-campaign content with the count of 20. After this content, which constitutes 48% of the total shares, informative shares about the institution were included in 14 messages with a rate of 33%. The most striking point is that KADEM made 2 posts calling for volunteering at a rate of 5%. While not sharing special days, commemorations or awards during this period, the NGO thanked the institutions, organizations and state authorities that supported KADEM in both its projects and campaigns with 6 shares at a rate of 14%.

Table 3: Likes, Number of Comments

	KADEM	
Content of the Post	Number of Likes	Number of Comments
Event-Project-Seminar-Campaign	4700 58%	171 49%
Call for Volunteering	169 2%	11 3%
Information about the Institution	2699 33%	152 43%
Special Day-Commemoration-Award-Thanks	519 7%	17 5%
Total	8,087 100%	351 100%

According to Table 3, the number of likes by the followers of the shares made by KADEM within a month period is 8,087. The most popular event/ project/seminar/campaign sharing content of the institution accounted for 58% of the total likes with 4700. In second place was the share containing information about the institution with a rate of 33% and with 2699 likes. Posts containing special days-commemoration-reward-thanks received 519 likes, accounting for 7% of the total number of likes, while calls for volunteering were the most recent-behind content with 2% and 169 likes. Another data that was important in terms of interaction was the number of comments. While a total of 351 comments were made on KADEM's shares, the most interest among them was seen by 171 comments, which constitute 49% of the total number of comments, and the shares in the content of the event/project/seminar/campaign. In second place was the informational post about the institution with a rate of 33% and with 152 comments. The special day/commemoration/award/thank you content ranked third with 5% and 17 comments, while the one with the lowest interest was the call for volunteering with 3% and 11 comments. Another striking point in the study was that none of the follower comments were answered by KADEM. There was no response to the questions and suggestions asked by the followers through the official Twitter account of KADEM.

7. Conclusion

New communication technologies have closely affected public relations activities as well as in all areas of life. Whether commercial or non-profit, institutions and organizations have had to adapt their public relations activities to this new situation to adapt to new communication channels and reach their target audiences through these channels. Today, an increasing number of non-governmental organizations have started to use the social media channels brought by this new period. In the study, the Women and Democracy Association was selected as a sample because of the number of women's rights representatives in Türkiye throughout the country and because it is one of the women's associations with the highest number of followers on Twitter with 59 thousand 700. It was examined how KADEM uses social media in its public relations activities. Within the framework of the recognition and promotion function of public relations, KADEM's official Twitter account was examined between January 5 and February 5, 2023. When KADEM's Twitter account was evaluated within the scope of the study, interesting results emerged. In the official account of KADEM, which uses its own logo as a profile photo and shares the link of the

web page in its profile, the most photo type has been shared. KADEM, which published a total of 42 messages in a month, shared 30 of them with photos, namely, 72%. 14% of them was posts with 6 videos and in text types. The organization, which prefers the photo sharing type in the news of the event/ project/seminar/campaign, has also preferred video and text type sharing in its informative messages about the campaign. The institution generally preferred photo frames including volunteers in its photo shares and gave the message to its followers that it is a reliable institution that receives the support of volunteers who are part of the public. KADEM's shares were examined including event/project/ seminar/campaign news, call for volunteering, informative messages about the institution, special day/commemoration/award/thanks sharing within the framework of the public relations promotion function. In this category, KADEM shared 20 event-project-seminar-campaign content, which accounted for 48% of the total shares, while 33% of the informative messages about the institution were included with 14 messages. KADEM is seen to use Twitter effectively in this respect by giving wide coverage to event-project-seminar-campaign news and informative messages about the institution, which is an important pillar of the public relations promotion function. Despite this, it is noteworthy that the call for volunteering, which is another pillar of the promotion activities and which is extremely important for the continuation of the existence of the institution, has been given very little space by publishing 2 messages equivalent to 5% of the total sharing. In the special days-commemoration-award-thank you type, 6 shares were made only to thank the support given to KADEM by state and private institutions. By making these shares, KADEM has underlined its 'reliable' corporate image by showing its followers that important institutions support them. Within the framework of recognition, which is another function of public relations, the likes, comments and responses of the followers from KADEM's Twitter account were examined in the context of the activities of institutions to understand the public, their requests and demands. In this context, KADEM's shares received a total of 8,087 likes. In numerical terms, the most shared event/project/seminar/campaign content received 4700 likes, accounting for 58% of the total likes. In second place, informative messages about the institution were popular with 33% and 2699 likes. The call to volunteer again ranked last with 2% and 169 likes.

Followers made the most comments to the event/project/seminar/ campaign content. While 171 comments, which constitute 49% of the 351 total comments, were made to the event/project/seminar/campaign content,

the second place was 43% and the number of informative sharing about the institution with 152 comments. In terms of interaction, it was clearly seen that followers showed interest in KADEM's shares. However, considering the 59.7 thousand followers, the number of comments was weak compared to the number of likes. Another striking point in the study is that the comments and questions made by the followers to KADEM were not answered. In the context of two-way symmetrical communication with the target audience, which constitutes one of the most important pillars of the recognition function of public relations, they have been insufficient in terms of understanding and responding to their requests, demands and expectations. Consequently, it has been seen that KADEM, a non-governmental organization that stands out in terms of the number of followers and shares, uses Twitter as a strong instrument when evaluated in general in terms of the promotion function of public relations as a social media channel. However, the fact that it cannot effectively use the power to create a two-way and dynamic communication form with the target audience, which is one of the most important features that distinguishes social media from traditional media today, has revealed that KADEM's public relations make recognition activities weaker than promotion activities.

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CHAPTER X

THE CHALCOLITHIC MARBLE BRACELETS FROM OYMAAĞAÇ HÖYÜK

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1. Introduction

Oymaağaç Höyük was inhabited as a Hittite sacred city and known as Nerik in the 2nd millennium BC. Although the temple belonging to the Hittite Age is more known for its postern descending to holy water, numerous silos, Hittite inscribed clay tablets, seals and other bureaucratic tools. However, based on the data obtained from the marble bracelet fragments and pottery, it is thought that the earliest settlement dates back to the Chalcolithic Age (Czichon, 2010: 19). It is known that the settlement, which started in the Chalcolithic Age, continued uninterruptedly until the end of the Iron Age (Czichon et al., 2011: 169) (Fig. 1)[1].

Figure 1. Aerial Photograph of Oymaağaç Höyük

(Oymaağaç Project Archive)

2. Research History of Oymaağaç Höyük

A survey was conducted between 2005 and 2006 at Oymaağaç Höyük, measuring 200x190 m, located in the north of Vezirköprü Plain, in the south of Samsun province (Czichon ve Klinger, 2005: 18). Excavations, which started in 2007, are still continuing today. The first research in the area where the settlement is located began with the Iron Age focused survey by James Dengate in 1970 (Dengate, 1978: 245). Then comes the survey conducted by U. Bahadır Alkım in the Vezirköprü region between 1972 and 1973 (Alkım, 1972: 64). Another survey is the Sinop-Samsun-Amasya Provinces Survey, which Şevket Dönmez carried out between 1997-1998 as part of his doctoral thesis. During these surveys, many prehistoric settlements were identified (Dönmez, 1999: 518). Another settlement where Chalcolithic Age layers were identified in the Central Black Sea Region is Samsun-İkiztepe. Chalcolithic Age layers were unearthed on Hill II at this settlement before Oymaağaç Höyük, and traces of prehistoric occupation of the Central Black Sea region were first identified here (Bilgi, 2000: 114).

The 14C analyzes[14] of the organic materials found in the carbonized seed and stem, which is understood to be made of an animal horn, unearthed around an Early Bronze Age kiln at Oymaağaç Höyük during the excavations, give the date range of 4470-4351 (94.4%) BC, and provided evidence that this area

was used in the Chalcolithic Age. Another group of finds belonging to the Chalcolithic Age are the ring-shaped objects made of stone, which were found next to organic materials in this area (Czichon et al., 2022: 13).

3. Marble Bracelets in the Chalcolithic Anatolia

Stone rings, which are frequently encountered in the settlements of Chalcolithic Age in Anatolia and are described as ornaments, are defined as marble bracelets in the literature. Since alternative interpretations that these bracelets are used as rings attached to ropes are no longer accepted (Baysal et al., 2015: 239), naming these finds as bracelets should indeed be the right choice.

Marble, which is a rock type of calcium carbonate mineral origin, was probably an important raw material for prehistoric people with its brightness, easy processing but also durability and color alternatives. This must have gained different symbolic meanings over time, as people started to carry marble as bracelets on their arms (Erdoğu ve Çevik, 2019: 29). In addition to bracelets, items such as vessels and idols were also produced from marble and used as prestige objects symbolizing the class society structure (Çilingiroğlu, 2005: 3; Takaoğlu, 2002: 72[2]). Prehistoric bracelets were produced from many different stone sources. It is known that metamorphosed rocks such as marble, schist, serpentine and jade and non-metamorphic rocks such as limestone are generally used in production as two separate lithological raw material sources (Martínez-Sevilla et al., 2021: 817).

In Anatolia, it is made of limestone at Çayönü (Özdoğan, 2007: 87), from marble at Cafer Höyük (Cauvin et al., 2007: 104: Fig. 34-37), from obsidian at Aşıklı Höyük (Astruc et al., 2011: 3415: Fig. 1) and Canhasan, besides marble samples, stone bracelets made of ivory (Baysal, 2017: 41) are found. Also, bracelets made of copper were found in Canhasan (Baysal, 2018: 87) and Çadır Höyük (Yıldırım et al., 2018: 171). It is seen that the bracelets, which started to become a part of the prehistoric material culture, were produced from white/gray marble and limestone in the Chalcolithic Age, although they were produced in smaller numbers in Anatolia compared to the surrounding regions. On the other hand, the fact the use of copper or other raw materials instead of stone in the Chalcolithic Age may be due to the fact that these settlements were far from the source of

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2 Located in Manisa, Kulaksızlar is a workshop established specifically to produce marble ornaments. It has been determined that the marble bracelets, marble vessels and figurines were produced in this prehistoric workshop dated to the Middle and Late Chalcolithic period and put into commercial circulation as ready-made products in a distant trade road of 400 km.

raw materials and did not have commercial relations with any marble production workshops, or different meanings were attributed to different raw materials.

Chalcolithic Age ornaments are less known among the other ornaments because the latter were produced from precious metals in the Bronze Age after the Neolithic. On the other hand, the Chalcolithic Age actually represents the most important group, as it was a period of great transformation in mining technology. For example, the earliest traces of production and long-distance trade with expert workforce appear in this age (Baysal, 2018: 86).

The presence of rings made of stone in the Neolithic Age as gifts on the arms and fingers of individuals in the tombs proves that they became important symbols in the metaphysical worlds that constitute the social identity of Neolithic communities (Martínez-Sevilla et al., 2020: 2). Findings pointing to the fact that bracelets were reused for more than one time, even if they were broken, prove that they carry deeper meanings beyond ornaments or accessories (Baysal, 2015: 19). This must also be the reason why ornamental items began to appear in communities at the beginning of the Pre-Pottery Neolithic Age (hereafter PPN) (Martínez-Sevilla et al., 2021: 817). In addition to objects such as sea shells, beads, drilled and processed teeth, pendants or rings, stone bracelets must have been used for the same symbolic purposes (Baysal, 2015: 13). Stone bracelets were used throughout the Near East and Anatolia since the beginning of the Neolithic in terms of the type and forms of raw materials used, and did not show any significant changes (Baysal, 2015: 13). However, in the Chalcolithic Age, both their diversity and their aesthetic qualities such as being white, shiny and large in size increase (Baysal, 2017: 46). For this reason, it is impossible to obtain precise dating or other information regarding these finds based on analogical similarities (Baysal, 2017: 41). Apart from the Near East and Anatolia, it is seen that these bracelets are produced and used in a wide geography as far as Greece, Italy, France, Portugal and Spain.

The production of stone bracelets, which requires an advanced organization, is accepted as proof of the emergence of the specialized working class (Martínez-Sevilla et al., 2020: 2). For this reason, although the production of stone bracelets is an occupation that does not seem to require high technology or special skills in the first hand, it may indicate that in Chalcolithic Anatolia, similar to Mesopotamia, professions requiring expertise were formed in the society. Standardized bracelet types in Anatolia have round or oval shapes, and striped and ridged profiles (Baysal, 2015: 13). It is seen that ellipse and quadrangular shapes are also encountered in some samples (Efe, 2001: 137).

The Anatolian settlements of Chalcolithic Age[3] where marble bracelets have been revealed so far are as follows: Uğurlu (Erdoğu ve Çevik, 2019: 31), Ulucak III (Erdoğu ve Çevik, 2019: 29), Kulaksızlar (Takaoğlu, 2002: 78), Dağdere (Takaoğlu, 2017: 12: Figure 4.6), Çine-Tepecik (Günel, 2012: 27[4]), Aktopraklık (Karul, 2017: 108), Orman Fidanlığı (Efe, 2001: 137), Kanlıtaş (Baysal et al., 2015: 239), Hacılar (Mellaart, 1970: 161), Canhasan (Baysal, 2017: 41), Yumuktepe (Baysal, 2016: 21), Büyükkaya (Schoop, 2005: 37) and Oymaağaç Höyük (Map 1).

Map 1. Oymaağaç Höyük and other Chalcolithic Settlements with Marble Bracelets in Anatolia

(Created by E. Kalkan on Qgis-Stamen Terrain Background©)

4. Marble Bracelets From Oymaağaç

Similar to the technique in chipped stone production, marble bracelets are produced by flaking of the slice/blade for bracelets, pounding for correction, abrasion, and finally polishing processes (Baysal et al., 2015: 239). Once the

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3 While the use of marble bracelets is more common in the Neolithic and Early Chalcolithic periods, a more limited number of examples are encountered in the Middle Chalcolithic period (Takaoğlu, 2017: 4). Oymaağaç marble bracelets represent examples of the Late Chalcolithic period and provide important information in this respect.

4 It is mentioned that the dating of the tombs in which marble bracelets were unearthed is probably the Late Chalcolithic period (Günel, 2012: 27).

bracelet is removed from the raw marble, the remaining burrs and roughnesses are smoothened with intense polishing afther the correction and other processes (Efe, 2001: 137). The sketches of the above-mentioned production stages of marble bracelets in a settlement indicates that it was probably a workshop-like production center. It is known that the engraved wood bracelets were brought to the settlement as ready-to-use products, and there are no finds in the mound that were left unfinished, discarded because they were broken, or underwent similar production activities. Although the production workshops of marble ornaments belonging to the Chalcolithic Age are known in Anatolia (Takaoğlu, 2002: 72), the location of the production center of Oymaağaç marble bracelets is not yet known, but this study puts forward a new scope of research for the Oymaağaç archaeological research project. Questions that require archeometric analysis, such as the location of production workshop or workshops, and the raw material sources from which the bracelets are produced, has the potential to be answered in the future research.

Table 1. Marble Bracelets of Oymaağaç Höyük Technical List (dimensions in mm)

plate no.	findings no.	thickness	length	external diameter	internal diameter	raw material
1.1	7285:006:003	6	37	54	37	marble
1.2	7383:249:006	12	47	98	71	marble
1.3	7389:001:021	8	48	82	62	marble
1.4	7483:007:003	11	44	93	78	marble
1.5	7384:023:002	9	36	79	56	marble
1.6	7486:035:004	7	33	84	66	marble
1.7	7488:023:019	9	40	72	49	marble
1.8	7585:166:003	7	31	59	43	marble
1.9	7587:001:003	10	28	75	65	marble
1.10	7685:130:003	9	36	70	59	marble
2.1	7383:085:030	14	44	82	47	marble
2.2	7384:082:004	12	33	83	61	marble
2.3	7383:021:011	13	41	66	49	marble
2.4	7488:060:002	8	21	69	47	marble
2.5	7488:081:003	7	20	76	62	marble
2.6	7786:023:005	18	43	97	51	marble
2.7	7588:046:005	13	31	81	47	marble
2.8	7484:001:006	11	23	72	52	marble
2.9	7385:040:003	13	16	not measured	not measured	marble

Marble bracelets are grouped as raw materials with their morphology and typology classified according to their length, inner-outer diameters, traces of use, thickness and weight[5] (Martínez-Sevilla et al., 2021: 817). The 19 bracelets from Oymaağaç, listed in the technical information (Table 1) prepared in comparison to the stone bracelets from other settlements, are 6-18 mm thick and 16-48 mm long, with their outer diameters between 54-98 mm, and inner diameters ranging from 37 to 78 mm. The most important among these technical features is their "inner diameter", considering that rings with an inner diameter greater than 40 mm are considered as rings in the literature. Stone rings with an inner diameter of less than 40 mm were interpreted as pendants since they could not pass through the knuckles. Although only one sample (Plate 1.1) among the Oymaağaç marble bracelets is under 40 mm, it would not be wrong to interpret it as a bracelet because all samples, in addition to this sample, are above this limit.

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5 The marble bracelets unearthed in Oymaağaç Höyük are kept in Samsun Archeology Museum, to which the excavation project is affiliated, and archaeometric analyzes have been postponed as the subject of another publication, since the artifacts could not be opened to researchers due to the relocation of the museum building at the time of publication. In this archaeometric publication, it is planned to carry out analyses using thin section, x-ray diffraction and x-ray flourescence methods in order to understand the source of raw materials. In addition, the weight, which is an important technical feature of the bracelets, could not be measured for this reason.

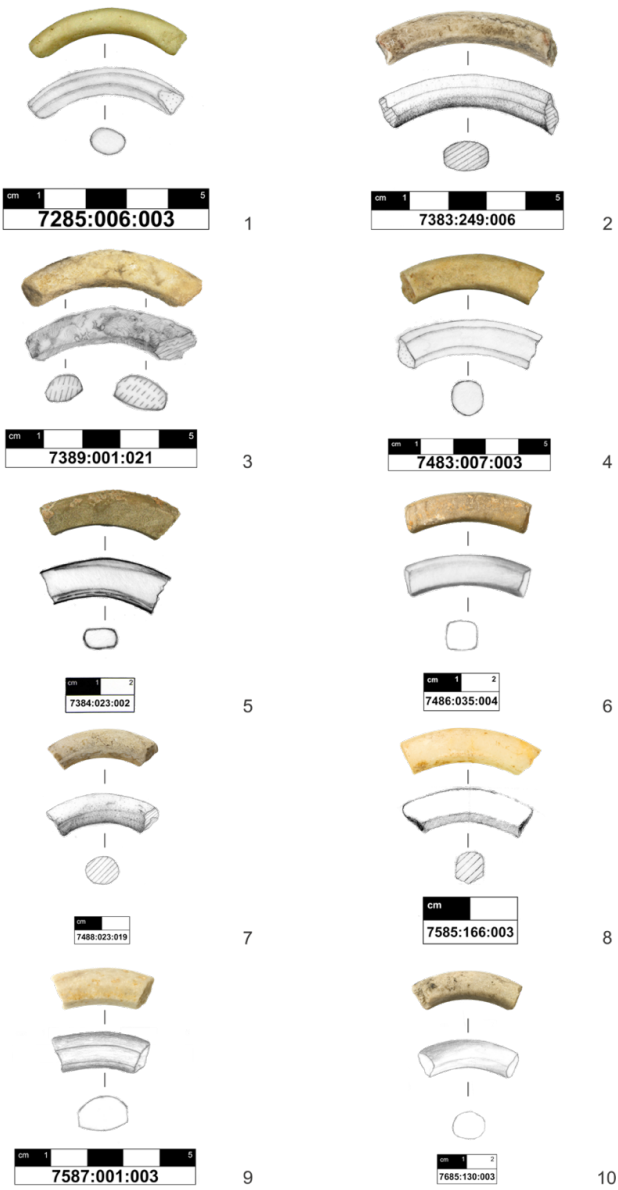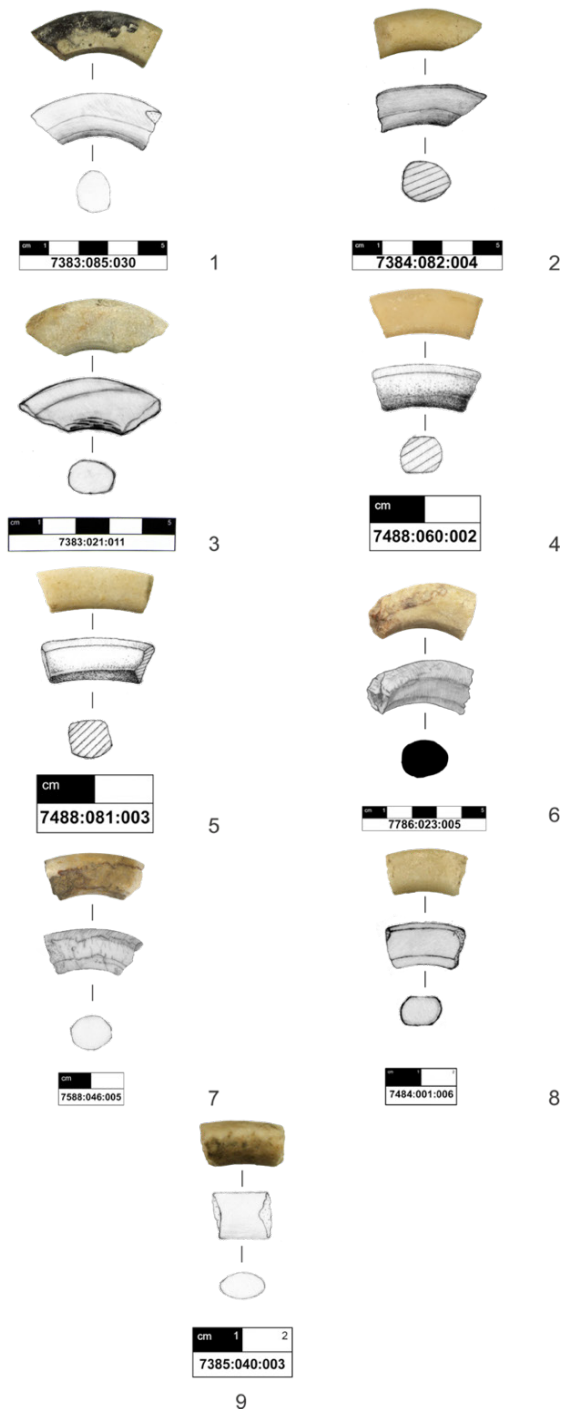**Plate 1.** Oymaağaç Höyük Marble Bracelets

Plate 2. Oymaağaç Höyük Marble Bracelets

5. Conclusion

Marble bracelets were widely used for two millennia in Anatolia, from east to west. The production of marble bracelets, which started in the PPN, continued until the end of the Chalcolithic Age. In addition, the use of stone bracelets became widespread, not only in Anatolia, but also throughout the Aegean Sea, in Greece, Italy and the Iberian Peninsula. The fact that these bracelets were widely used over such a long period of time and across a wide geography may indicate that prestige or other uses of these bracelets were common in prehistoric societies. Moreover, the fact that they were found together with pottery belonging to the Chalcolithic Age at Oymaağaç Höyük provides important evidence regarding the existence of occupation in the settlement, although *in situ* findings have not been reached yet. Furthermore, the presence of marble bracelets, which are more frequently encountered in the early stages of the Chalcolithic Age throughout Anatolia, as ready-made products in the layers of the Late Chalcolithic period in Oymaağaç, point to the existence of a production workshop in this period, and provide important information about the organization of production in the Chalcolithic Age Anatolia.

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POLITICAL ECONOMY OF THE MILITARY COUPS D'ETAT OF MAY 27, 1960 AND SEPTEMBER 12, 1980: IMPACTS, REASONS AND OUTCOMES: A CONCISE COMPARISON

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1. Introduction

If a society is under the conditions of extreme politicization, polarization of political parties, a lack of in-party democracy, political violence, increase in terrorist activities, schism, corruption in bureaucracy and economic depression, all these combined can be said to pave the path to a coup on the system. It is not possible to look unilaterally into the motives behind and analyze the outcomes of military coups in such countries as Turkey that is embedded in a praetorian culture. Obviously, there are lots of different factors that affect the process and progress of a military coup. These factors vary from country to country, and they are formed and shaped relying on the political conditions, levels of economic and socio-cultural development.

Following the transition to multiparty parliamentary system, democracy in Turkey is interrupted three times between 1960 and 1980 by military coups. The

reasons and results of these three military coups that has an impact on Turkey's political, social, economic and legal life have always been a matter of debate and conflict. Therefore, it is important to take an analysis of all impacts of the military coups on society as the main objective by revisiting the history of the military coups in Turkey.

The most important point to take into account, while evaluating the military coups in Turkey, is economic indicators, cornerstones that lay the way open for coups. This study, in general terms, pays and draws attention to the economic indicators en route to military coups and the role they play. Although it is impossible to attribute the dynamics of a military coup to a specific reason, economic indicators stand out as the most significant factor among others affecting all social spheres since it is clear that the worse the economic conditions are, the more probable a country is to face chaos. It can also be put forward that economic disruptions trigger or lead the way to coups.

2. Political Economy of the 1960 and 1980 Military Coups

1960 was the year when Turkey experienced a military coup for the first time with the DP no more in power and in tandem with novel transformations in political economy of the country. It is essential to explore social upheavals along with resultant events so as to analyse the temporal differences in economic policies. It is the major axis of this study to approach the intercoup period between 1960 and 1980 in that respect. Moreover, it specifically puts the emphasis on economic policies before and during military coups.

In order to get a better understanding of the 20-year intercoup period, it is of necessity to draw attention to the last part of the DP rule in Turkey. Even though in its first term the DP created an atmosphere of a "spring" in economy thanks to its economic policies, the "spring" in question was not deeply felt during its second term in office. There came an increase in foreign trade deficit, thus leading to restrictions on importation as well as on credits. These precautions were only meant for short-term ends and in the long run they drove manufacturers to problems of capital (Takım, 2012: 164). As a result of all these factors, there rose a problem of unemployment.

In Turkey, the political economy was based on statist economy, foregrounding the state apparatus in economy from the proclamation of the republic in 1923 to the first half of the 1980s. Although some steps were taken to get rid of this situation between 1923 and 1932, giving weight to the free market, it is obvious that it was not until the 1960s that a more planned period was

relatively the case. Until the January 24 decisions, the production of all goods and the development of the economy was under the state control. The state had assumed responsibility for production and economic development. However, the import-substitution production model, which keeps itself away from foreign competition as much as possible and prioritizes the domestic market, lost its validity by the 1980s (Toprak 2001: 1424).

It would be appropriate to look into the processes and events that troubled the economy prior to an economic comparison between the two coups. The impact of the Second World War on the Turkish economy requires a particular consideration. Although it has been committed to liberal economy principles since its establishment and has been composed along with them, the dilemma as to whether the state or the private sector should be effective alone in the Turkish economy is laid bare in every period. In the end, it is concluded that it necessiates a moderate approach towards forign capital, loans and aids. This point of view has not changed much *per se* throughout the process. Over time, foreign debts have become chronic. The aim is to liberalize domestic and foreign trade, to encourage private investment, and to narrow the application area of statist policies in this way. However, despite the insistence of the USA and the attitude taken on by the DP, this situation did not materialize (Kepenek and Yentürk, 2008: 85).

Drawing on these circumstances, it is essential to analyze the DP's economy policies in order to understand the economic reasons behind the coup. Starting from 1950 when the DP came to power, it formed four governments. Until the second government was formed, the economic situation improved thanks to the idle capacity, accumulated capital and free market. The economic balance deteriorated due to narrowing of the capacity for foreign indebtment, accumulation of investment in housing industry rather than manufacturing sector as was planned, an increase in public expenditures following the year 1954. This deterioration in economy brought about mass migration from the country to the city.

Until 1954, while foreign debt, loans, rapid liberalization as promised, could be financed economically, imports increased owing to weather conditions, agricultural exports and the positive effects of the Korean War. With the technological developments, the number of tractors multiplied, thus deepening the dependence on the land on the one hand, and leading to slums and unplanned urbanization due to the mass migration, on the other. Since this process of change and transformation was intended to be realized in such a short period of time, the

society could not keep up with this rapid transformation, and as a result, social unrest appeared in the public sphere. It gave way to a decline in the growth rate of the economy and to the masses consuming more and more (Bozkurt 2010: 56; Yenal 2010: 84). The DP government sacrificed political liberalization for the sake of economic liberalization, from 1954, when it was in trouble, on (Zürcher, 2013: 335). In other words, the primary goal came to be to advance the level of economic development.

The DP government was relatively successful and uneventful till the Korean War. It should not be overlooked that the DP paid efforts to succeed in integrating into the capitalist system and that it produced policies that fit this policy. Foreign loans especially made the development in agriculture possible for the most part. The biggest move made for this end was the increase in the number of tractors. The number of tractors, which was only around a thousand in 1940, went up to forty thousand in 1955. The policies implemented by the DP augmented the mechanization in agriculture, playing an active role in the rapid development of agricultural areas. Thanks to the agrarian bourgeoisie it developed and supported, the DP both remained in power and expanded their interests (Altan 2006: 57).

Starting in 1953, some steps that contrasted with liberalization were taken, and sugar and cement factories were founded. The DP's policies came to be criticized within the party as well from 1955 on. Moreover, in the same year, steps were taken to promote relations with the USSR and Yugoslavia (Tunçay 1995: 181). In 1954, Menderes wanted to cope with the stagnating economy at all costs. Price support policies for agricultural loans and public investments were reinforced in order to prevent the momentum from slowing down and to protect against stagnation. Coinage was chosen to fund projects. Between 1955 and 1959, the general level of prices doubled. As of the end of 1954, quota was applied to foreign trade within the scope of statist measures. Between 1951 and 1955, it is seen that sufficient accumulation was achieved in the industrial sector over time. The share of industry in national income reached from 10% to 14%, while the share of agriculture in national income decreased from 49% to 43% as a result of the policies implemented. As of the end of the 1950s, the IMF's economic aid packages began to be implemented (Keyder 2010: 166-168).

If the economic situation is evaluated in the context of foreign aid, Turkey, which became a member of the IMF in 1947, entered into a foreign exchange bottleneck starting from 1954 in parallel with the course of foreign trade deficits, and prepared the Stability Program in 1958 in order to get rid of this

bottleneck. Strengthening its ties with the IMF, Turkey decided to implement Stability Programs again in 1970, 1978 and 1979 after this stabilization program. However, the political instability in the country, especially towards the end of the 1970s, paved the way for the economic depression. The bottleneck in the economy both affected the social structure and deepened the dimensions of the depression (Kepenek and Yentürk 2008: 194).

If we talk about the agreements with the IMF; The first *stand-by agreement* between the IMF and Turkey is the stabilization program adopted in 1958. The decisions taken as a result of this program have brought many a restriction on the Turkish economy. Although a high rate of devaluation was made in this direction, the targets were still not achieved. As a result of the devaluation, the prices of imported goods increased. The new price hikes applied by public institutions and organizations for the goods and services they produced also led to an increase in costs. In this case, it paved the way for an increase in prices (Alptekin 2009: 476).

It can be said that the main factor that was decisive in the Democrat Party (DP) period was the political and social consequences that emerged as a result of economic development. The opposition Republican People's Party (RPP) always took a stance in favor of industrialization. However, it especially focused on the idea of making industrialization suitable for local needs. On the other hand, it did not favour foreign aid with the foresight that it would make the country foreign-dependent. Instead, it can be said that an accentuation of a planned domestic capital was at the forefront. The opposition emphasized that the economic development moves worsened the living standards of the low-income people and benefited the wealthier groups more. As a result of this situation, the middle class disappeared and the gap between the poor and the rich has deepened day by day. The opposition particularly focused on the poor standard of living of the citizens who migrated from the village to the city as a result of mechanization, working in the agricultural sector. Imported tractors as a result of huge expenses became inoperable due to the lack of spare parts. In response to all these accusations of the opposition, the ruling party stated at every opportunity that the main aim was to strengthen agriculture and that industrialization was carried out in a way that was to modernize agriculture. According to the ruling DP, dependence on imported goods and imported products has been a reality inherent in the Turkish economy since its existence. For this reason, the modernization of agriculture and its integration with industrialization could only be achieved with foreign capital (Karpat 2014: 105-106).

While the Economic Stability Package, which was carried out in 1970 as another stabilization package that would improve the country's economy after the DP period, was being discussed, Süleyman Demirel, the Prime Minister at that time, secretly declared this decision to Washington with the following coded message when he took a decision on devaluation: "Tell the priest to prepare for the mass" that is, as Karluk points out,

"Through this message, he conveyed to the President of the IMF that the developments regarding the devaluation have been completed. The content of the devaluation decision taken in 1970 can be evaluated as measures to ensure foreign economic stability and domestic economic stability. The most positive effect of the 1970 devaluation was on remittances. In 1970 and the next four years, remittances showed a very important leap. Workers' remittances, which were 141 million dollars in 1969, increased to 270 million dollars in 1970, and this foreign exchange income, which grew increasingly in the following years, approached 1.5 billion dollars in 1974" (Karluk, 1995: 444).

When we look at the Turkish economy in the period between 1963 and 1970, it is an undeniable fact that it showed a successful performance in terms of growth. In this period, the growth rate was around 6.5%, while the annual inflation rate was around 5.5% on average per year. It can be said that there is an improvement of approximately 3.8% per year in the average welfare level of the people (Şahin, 2007: 171).

The same growth rate continued between 1973 and 1977, which included the Third Development Plan. Especially in 1974, 1975 and 1976, the first two plans achieved a growth above the average. But at the same time, price stability began to deteriorate. As a result of this, high inflation rates were encountered in the period between 1970 and 1976. In fact, the average inflation rate exceeded 18% (Yay, 2002: 3).

When the years 1978 and 1979 are evaluated in the context of both economic and international relations, we come across as crisis years for Turkey. Of course, the problems that occurred did not erupt out of nowhere. Especially with the effect of internal and external dynamics, the problems reached the line level starting from 1974, and a crisis environment was on the stage from 1978 on. The biggest economic impact of this situation was the inability to pay foreign debts (Parasız, 1998: 176).

Stability packages, similar to each other, were tried to be implemented in 1978 and 1979 in order not to cause a crisis environment, especially due to the economic problems that negatively affected all segments of the society. On

March 1, 1978, the value of 1 US Dollar was increased to 25 TL. The value of TL was reduced abruptly. In addition, the application of the exchange rate to workers' remittances at a high level has ended as of this date. Five changes were made on other convertible currencies other than the US dollar (Parasız 1998: 176). In addition to all these economic efforts, the stability decisions of January 24, which even have an impact today, were to be implemented before the 1980 coup, and this was to pave the way for the integration of the Turkish economy with the global capital.

Looking at both military coup periods, it can be said that they are similar to the general capitalist depression periods in the world, and it has been inferred that both coups implemented the economic and political programs deemed appropriate by the monopoly capital. At this point, the point that distinguishes the 1980 coup from the 1960 coup is that monopoly capital began to open up financially to peripheral countries at that time (Dodd 1983: 24). The debts of the countries using loans from the IMF for various needs tended to increase rapidly. Since the debtor countries used the prescriptions given by the IMF, monopoly capital programs tried to maintain their existence. The January 24 decisions were put into effect just in this time period, and the program continued to be implemented under the guidance of various circles after the coup. The main target of monopoly capital was small and medium-sized enterprises, and the purpose was to discipline such enterprises. The sanctioning power of the nation state was intended to be used within the framework of this goal.

It is possible to gather the reasons for the May 27 military coup in five basic points. The policies implemented by the DP are shown as the general feature of these reasons. The first of the reasons is that the concessions made from the Kemalist revolutions were seen as the first step by those who opposed the regime, and on the contrary, it is stated that the revolutionary circles are moving away from the Kemalist revolution. Second, it was the repressive policies pursued against political opponents. The confiscation of the properties of the RPP, which was in the opposition, the pressure applied against the press, the closure of the Nation Party are just a few examples of oppression. Repressive policies against the bureaucratic system and the electorate can be claimed as the third reason. Malatya province, whose majority voted for the RPP, was divided and Adıyaman was established. The newly created pension system also constituted an important justification for increasing the control over the bureaucracy. Fourth, it is the pressure applied especially to higher education institutions. During its rule in the Office, the DP increased its pressure on universities. Universities' autonomy

on budgetary issues was limited; academic members engaged in active politics were cut off; and finally, those who criticized the government were placed under the command of the Ministry of National Education. Fifth and last were the repressive policies applied towards the press. The DP, which focused on practices that expanded the rights of the press in the first years of its coming to power, gave up this attitude and started to implement repressive policies starting from 1953 (Özdağ 1991: 56-57). When the negative course in the economy was added to all these components, the May 27 coup d'état became inevitable.

The economic instability, which reached serious dimensions in line with the reasons mentioned above, was one of the issues that prepared the roads to 27 May. While it is a known fact that negativities did not come to light much until 1957, the deterioration in economic indicators after this date, the increase in money printing and the folding of the foreign debt burden, combined with political instability, affected the coup process.

As a matter of fact, the May 27 Coup can also be portrayed as the struggle of two different classes playing an active role in the administration of the country. After the establishment of the Republic of Turkey, two different groups played an active role in the administration. The first of these groups was the statist elite and the other the traditional liberals. These two groups constituted two different faces of Turkey. The statist elite was generally disconnected from the people. For this reason, they tended to ignore the support of the people. This group wanted to implement western state institutions in the administration of Turkey. In line with these wishes, they transferred many ideas from the West. In general, they adopted the statism system socially, culturally and economically. The statist elites defined themselves as the modern face of the country and the protectors of Atatürk's Revolutions. For this reason, they ignored the unique dynamics of Turkish society and, according to Altan, alienated the citizen against the state. The groups that started with the Committee of Union and Progress and continued with the RPP were the representatives of this mentality (Altan 2006: 63-65, Akat 1984: 121).

The National Unity Committee (NUC), which took over the state administration after the May 27, 1960 coup, was aware that it would face difficulties, especially in economic terms. At the end of the 1950s, when the footsteps of the coup made itself felt, the increasing foreign indebtment, deterioration in exchange rates and the country's depletion of foreign exchange and gold reserves led to the emergence of new economic targets. The NUC, which was formed after the 1960 military coup that took place after this

economic stagnation and depression, paid efforts for initiatives in order to revive the economy on the one hand and put Turkey on a new economic basis on the other. The most important decision made by the NUC in the long run was the establishment of the Planning Organization, which would later become the SPO (the State Planning Organization). This institution was important in terms of forming the institutional branch of the coup. The NUC established the SPO with the Law No. 91 dated September 30, 1960 and included the planned economy principle in the new Constitution. The 1960s were the years when five-year development plans were prepared and tried to be put into operation in general terms. The common feature of the five-year development plans was that they were macro plans that cover the whole economy. In all plans, the economic activities of the public sector were planned directly and the economic activities of the private sector were indirectly planned. In the first two of the development plans, the economic and social structure was taken as data, and in the third development plans, the quantitative and qualitative goals were achieved. The main purpose of all development plans was industrialization (Özsoylu 2013: 111). The development plans, which started to be implemented in the first half of the 1960s, could not be successful due to the social and political problems that had took place until the 1980 coup. For this reason, many targets in the development plans could not be realized.

Although the targeted goals were not fully achieved, the development moves did not come to an end after 1960. In particular, it was stated that priority was given to light industry and then to heavy industry. The 1971 Turkish Military Memorandum, called as the transition period, led to a change in the government. With this memorandum, the developments in both political and social spheres that took place in this period were blocked. The student protests that took place in the period disrupted many developments in the field of management.

Undoubtedly, the oil crises, which had a very seriously negative impact on the Turkish economy, were experienced in this process. The oil embargo applied and the Petroleum Exporting Countries (OPEC) raising oil prices to the highest level, had a negative impact on many countries including Turkey. Along with the increase in the cost of oil, the price increase on other imported goods triggered inflation in the countries. In addition to this difficult process, the embargoes implemented after the Cyprus Peace Operation and the cost increases as a result of these embargoes forced the Turkish economy to face serious problems. If we make a brief analysis in terms of Turkey, there was a period when queues for propane cylinder and oil were the case; the black market was at the highest

level; and there was a continuous consumption rather than production. Demirel summarized the present situation by giving the statement "We Needed 70 Cent", which would become famous later on. The period between 1970-1973 can be described as the liberalization process of financial markets and foreign trade for Turkey. This crisis resulted in income transfers from importers to exporters. In the period when oil prices quadrupled with the crisis, Turkey's economic situation was not bad. Namely, the rate of urbanization and industrialization grew between 1968 and 1972, and the GNP increased by 7% on an annual basis. In addition, the private sector came to make its presence felt day by day. However, Turkey, which exported raw materials after the oil crisis, became one of the countries that was greatly affected by the crisis (Kazgan 2012: 174).

Turkey tried to react to the stagnation that occurred in response to the jump in oil prices after the oil crisis, by forcing short-term borrowing methods and trying to maintain the growth rates in national income and imports, in the constant possibility of an election. Meanwhile, OPEC increased oil prices by another 15% on 17 December 1975. Turkey, on the other hand, tried to get rid of this bottleneck by continuing the same policy (Boratav 2006: 341).

When the military coups of 1960 and 1980 were compared numerically within the political framework of the period, it was determined that the coups showed different characteristics from each other. Unemployment, which was closely related to the entire public, was more common in the 1980 coup period than in the 1960 coup period. While the unemployment rate was around 3% in 1960 on average, it more than doubled in 1980 to 7.9%, exceeding the world average with these rates. According to Dağdemir and Küçükkalay;

"...Although the large differences in population between periods showed improvement in favor of 1960, the new employment opportunities should have been used in a way to keep this surplus population in the 1980s. Therefore, it can be said that the 1960 military coup period had more successful results in terms of employment compared to 1980. When the periods are compared in terms of GNP and growth rate, it is concluded that GNP decreased and growth slowed down in both coup periods. However, immediately after the coup, the growth rates increased again by gaining momentum. When the average growth rate of the two periods is compared, the growth rate which was 5.3 in 1960 became 1.8 in 1980. In this respect, we can talk about the relative success of the 1960 period compared to 1980" (Dağdemir and Küçükkalay 1999: 133).

The years 1954-1961 took their place in history as the years when liberalism was abandoned in the context of foreign trade policies, leaving the economy in

a more stagnant course, and imports came to the point of blockage due to the decrease in the demand for export goods. In addition, restrictions were imposed on imports for precautionary purposes. The DP, which describes itself as liberal, felt the need to adapt to the import substitution policy, which would both enable the transition to the foreign trade regime and prevent the contraction in imports (Boratav 2006: 141).

The oil crisis in the world caused widespread problems in both developed and developing countries such as Turkey. Especially in developing countries, in order to overcome the crisis, they applied high interest policies and tight monetary policy. Turkey took the decisions of January 24, 1980 in order to get rid of this depressive period. The January 24 decisions include short-term measures as well as long-term measures that included transformations in the economy. At the beginning of the long-term goals of change were the narrowing of the public sector's place in the economy, the expansion of the private sector in connection with this process, and the operability of the free market system. The short-term objectives were to take measures to ensure the transition from import substitution to export-oriented industrialization in the economy, to find solutions to foreign payment difficulties, and to end devaluation, realistic exchange rate policy, export incentives, liberalization in foreign trade, and reducing inflation (Yay 2002: 3).

With the January 24 decisions created before the 1980 coup, there were developments in the field of economy in terms of imports and exports. The demand for consumer products such as television and white goods has increased. Both import and export figures increased. However, the inequality in income distribution, the unfair taxation and the increase in the informal economy in addition to all these left the citizens in a difficult situation. It is aimed to take various measures to get out of the difficult situation. These measures were in the form of minimizing the role of the state in directing resource allocation in the industrial sector, and making it a rule to prioritize the price mechanism in resource allocation rather than planning. In order to achieve these goals, the idea of determining the prices in the market according to the supply and demand balance by eliminating the price controls was taken as a basis. In this process, especially private firm strategies were aimed to be highlighted.

Inflation balance and foreign payment difficulties, which were experienced in the last period of the 1950s and deteriorated as a result of the continuing economic crisis afterward, were the most important problems of the period. In order to get out of this troubled situation, the government would either privatize

the use of capital to fix the deteriorated economy or go for planned capital use. However, as of the current period, the second option was preferred (Kepenek and Yentürk 2008:145). Thus, the target of transition to a planned economy was set in order to accelerate economic development and get rid of the crisis it was in. In particular, we see that the statist interventionist policy implemented in the 1960s turned into neo-liberal policies and a free market understanding in the 1980s (Danık 2016: 1).

If we evaluate the situation after the 1960 coup, it was widely advocated by *Yön* Magazine, the founders of the State Planning Organization, and mainly the left wing to focus on industrialization as a development initiative. In addition, protecting the country's economic policies against foreign intervention and carrying out any domestic policy through state control was also widely accepted, especially in underdeveloped countries. This view has persisted until today. Since transitioning to a multi-party system, the Turkish economy has become dependent on foreign sources. This situation differs from the evolution of classical capitalism. Turkey has yet to be able to integrate into the world economy and has become increasingly dependent on foreign sources. If we look at the period since the multi-party system, there has not been a single period in Turkish history until 1987 when the country did not have a current account deficit.

Regarding the economic policies during the period between 1960-1980, Kongar states the following:

"The economic policies during the period of 1960-1980 were determined by the State Planning Organization (SPO) and were included in the Five-Year Development Plans. The aim was to increase national development, manage investments to benefit society, and achieve economic, social, and cultural development through democratic means. Therefore, the development plans encompassed both economic and social, and societal development.The First Development Plan, prepared in 1963, encouraged the private sector to contribute to economic development and strengthen itself through economic development. The Second Five-Year Development Plan argued that prioritizing the industrial sector over agriculture, which had dominated the economy, was necessary for parallel development in both sectors. The Third Development Plan aimed to remove barriers to development potential and to utilize these potentials to the fullest extent possible, considering the income level and production structure. However, the public sector's leadership was emphasized for economic development.The first three development plans, prepared during

different government periods, were largely similar in terms of their target goals. In the Fourth Five-Year Development Plan, priority was again given to the public sector in investments, and it was argued that domestic production should be encouraged instead of imports. Although it was not possible to achieve the growth rates targeted in the development plans of this period, it is emphasized that the most significant feature that distinguishes the Fourth Development Plan from others was the use of the democratization process as synonymous with economic development. "(Kongar 1981: 246-247).

When comparing the coups from an economic perspective, it has become necessary to compare the development plans as well. In short, when the first and second development plans are compared, the first five-year development plan prioritizes employment issues, basic infrastructure investments, and reshaping the economic structure, while the second five-year development plan, which was issued immediately afterward, emphasizes the industrial sector as the driving force of the economy.

It is not a correct approach to attribute the formation of coups to a single cause. The 1980 Turkish coup d'état can be seen as a result of the accumulation of regime crisis and class struggle, especially in the 1970s. The roots of this coup, namely its causes, can be traced back to the end of the 1960s, and the 1971 Turkish military memorandum is also considered a successful rehearsal for the 1980 Turkish coup d'état.

The general characteristics of the plans implemented during the period of 1960-1980, which were based on import substitution policies, are that they were carried out with import substitution policies, aimed for balanced growth rather than selective growth, and were comprehensive plans based on the general equilibrium approach.

Kazgan analyzes Turkey in 1979 and the situation that will subsequently arise as follows:

"If there had been no debt rescheduling at the end of 1979, the Republic of Turkey would have become unable to repay its debts again, and its economy would have become unmanageable if it could not find fresh credit. Moreover, it was possible that even the expenses for oil could not be covered with export revenues due to the certainty of the increase in oil prices in 1980. In addition, the rise in global credit interest rates and the increase in the value of the dollar were added to these factors. Finally, the country had lost its creditworthiness and had also lost the opportunity to obtain credit from international commercial, financial institutions. These factors weakened Turkey's bargaining power, while

the bargaining power of the IMF, the World Bank, and the OECD increased." (Kazgan 2012: 198)

It can be seen that the economic policies implemented before the 1960-1980 military coups, to which the 1971 Memorandum can also be added, were "structural-populist," while the economic policies implemented after the coups were "conservative-stabilizing." Due to the structural-populist policy, import substitution was preferred in the economy, and the system where poverty was minimized comes to mind. The aim was to eliminate poverty. In the post-coup periods, a command economy was preferred, and processes where resource allocation was planned or unplanned, came into play. If the conditions were suitable, the policies to be implemented increased social welfare, which also expanded the ruling government's potential voter base. These goals can be thought of as short-term. However, in the long run, especially due to problems arising from the balance of payments, investments decreased, and the growth rate declined compared to the past. This opens a door for governments that are not discredited to determine their populist monetary policy approaches. Ultimately, this situation led to inflation. After the 1960 coup, while the policy of opening up to the outside world was desired to be done through import substitution, after the 1980 coup, it turned into the implementation of export-based growth and industrialization policies. This has been the most important difference in terms of economic policies between the two coups. Therefore, when we look at the economic effects of the two coups, the 1980 coup has been more effective due to its effects on the current economy.

If we review the relationship between the bourgeoisie and political power, Boratav also noted that the bourgeoisie acted unanimously to overthrow the Ecevit government in 1979. For example, it is stated that the peak of this process was TÜSİAD (Turkish Industry and Business Association)'s anti-government press advertisements, and the official and unofficial organizations of the capital such as TİSK (Turkish confederation of employers association), TOBB (Union of Chambers and Commodity Exchanges of Türkiye) , Aegean Region Industrial Chamber, and Free Enterprise Council also tried to undermine the Ecevit government with their heavy and destructive criticisms, not leaving TÜSİAD alone in this campaign. Moreover, in the second half of 1979, a TÜSİAD delegation exchanged ideas with the IMF, the World Bank, finance and government circles in the US about the "direction" of the Ecevit government. Ecevit's evaluation of this issue in a later period is also quite significant in this

context. In his statement, he used the expression "our businessmen played games with us, not the IMF or the US" (Boratav, 2005: 73).

Looking at the conditions of the state after the September 12th coup, the ways to transition from import substitution, which was the basic policy, to export substitution were objectively completed. With the change in the accumulation regime, the economy sector was reorganized, and this reorganization took the form of a revision in the political arena. The military, which held the management for three years after the 1980 coup, tried to integrate the country into a new accumulation regime through Structural Adjustment Programs. Big capitalists supported the September 12th regime and wanted to play an active role in rebuilding society. The biggest supporters of this period were Turgut Özal, who would be accepted as "Çankaya›s fat one, the enemy of the workers" by the workers ten years later.

According to some, the Turkish economy experienced a great leap forward after the 1980 coup thanks to the advantages provided by liberalization. Others argue that as a result of the policies implemented after the 1980 coup, the Turkish economy went off the rails and faced difficult-to-correct damages in the economic system. However, when we look at the economic policies implemented, we see that the Turkish economy transitioned to a free market economy and was affected by globalization to some extent, as Öztürk (2012: 11) points out. As Keyder stated, "In the 1980s, protectionism and the goal of building a national economy could only be sustained at the cost of remaining outside of what was happening in the world" (Keyder, 2010: 16).

It is not a correct approach to connect the similarities and divergences of the economic aspects of the military coups of 1960 and 1980 to a single dynamic. The military governments that served during the coup periods preferred policies such as budget discipline, price stability, and improving the balance of payments over populist policies such as increased investment, growth, and job creation, regardless of the method. In addition, both coup governments deemed it appropriate to produce a stability policy to guide the economy. With this preferred method, the economic legitimacy of the coup was attempted to be established, and the method and approach of the economic policy to be implemented by the coup government were defined. In both major coups, the military governments, which came to power to provide national unity and solidarity, preserve the integrity of the country, and eliminate the reasons that hindered the functioning of democratic institutions, also became the implementers of policies aimed at ensuring economic and financial stability

and economic development. In both coups, a change in the economy's direction was evident. In 1960, liberal discourse gave way to a planned development strategy with the coup, while in 1980, the market economy and liberal discourse gained momentum toward efforts to rejoin the world economy. Evaluations comparing the economic conditions and developments that existed during the military coup periods generally accept that structural problems emerged due to the combination of internal and external threats. However, it has been agreed that the economic policies followed after the 1960 coup were more successful compared to the pre-and post-1980 coup periods. (Dağdemir ve Küçükkalay, 1999: 133-134).

When evaluating the period following the 1980 coup from an economic perspective, it would be a correct approach to examine the period in two separate parts. The first period is the transformation of the Turkish economy within the framework of the "export-oriented development model" between 1980 and 1990; the second period is the period from the 1990s to 2002 when Turkey's integration into global capitalism gained momentum. (Saraçoğlu 2015: 751).

As summarized by Yalman, the economic policies after 1980 aimed to enable the transition from the "national development" capital accumulation regime, also known as import-substitution industrialization, to a regime based on growth through exports. (Yalman 2009: 4). For this strategy to be implemented, various economic reforms at different levels were necessary. The intended situation was actually to ensure that new investments were made in proportion to the profit generated from exports, and thus the economy would grow. In this way, the accumulated capital would be invested in foreign trade, and the problems experienced by capital accumulation in the domestic market would be overcome. Saraçoğlu, on the other hand, states that

In this regard, while the state eliminated the obstacles from previous periods in front of exports, on the one hand, it also went on to encourage the textile and food sectors, which had the potential to export, with incentives such as cheap loans and tax exemptions. It was expected that with the liberalization of the previously tightly controlled import regime, domestic capital would not have a monopoly on the domestic market as before, and it would focus on sectors that would be strong in foreign markets. Additionally, thanks to the interest system that was liberalized with the decisions taken on January 24, 1980, companies would be able to supply the necessary funds to expand abroad under the conditions determined by the capital market. (Saraçoğlu 2015: 752).

The 1980s were a time when bourgeois ideology dominated society's life unprecedentedly in terms of the economy. Concepts such as the middle class, the free market economy, and the shortcut to success were important terms to understand the characteristics of the period. All of these terms are, of course, ideological. The fact that this discourse, which presents a liberal image economically, emerged during a repressive period in Turkey is certainly not a coincidence. A Turkish Islamic synthesis detached from any historical perspective merged with Atatürkism appears to reflect this ideology. The civilian and military bureaucracy were made responsible for carrying this attitude directly. All levels of education were revised uniformly with motivations such as "national unity," "anti-communism," and "harmful and destructive ideologies that want to divide the country," and young people were educated accordingly. In addition to all of this, in times of crisis, the urgent decline of the material and moral values of labor and laborers provided a sufficient transition point for the development of small bourgeois lifestyles within the working class and the ideological reflections of this lifestyle. (Boratav 2006: 145-146).

If we evaluate the January 24 decisions in the context of the 1980 coup, it becomes apparent that Özal did not fully inform his ministers about the program he wanted to implement. However, his two briefings to the military on this program actually indicate his intention to work with the military. During this period, Özal reached out to the military through the Secretary General of the National Security Council, Haydar Saltık, to gain their support. The military became aware of the course of the economy. In other words, when the command of the army took over the government, they learned what kind of economic program would be implemented and who they needed to work with during the implementation process. It is noteworthy that a program that even the Council of Ministers did not fully know about, such as devaluation, interest rates, and the liberalization of imports, was presented and discussed twice at the General Staff, as it affects and concerns the military as well as the whole country economically. The transition to neoliberalism did not happen through top-down imposition by the economically developed countries and organizations of the West, just as coups do not occur solely through the desires of the military. For example, this process was not imposed on Turkey by the United States, the IMF, Turkish Central Bank, or Western capital groups on the Turkish business world against their will. (TBMM 2012: 652-653).

Both the 1960 and 1980 coups can be seen as efforts by the center to regain lost power and, at the same time, renew itself. As a result of the 1960 coup, Turkey, which tried to establish itself in the international system with an

import-substitution industrialization drive, moved towards showing its presence in the international arena with the export-oriented development strategy and neo-liberal economic policies of the 1980 coup. The key point in both the import substitution industrialization policy and the neo-liberal model is the general preference of the Turkish bourgeoisie for capital accumulation and its relations with the international bourgeoisie. (Yaşlı 2009: 104-105).

3. Conclusion

An economic change and transformation that occur in society affect all areas. Therefore, to understand the social aspect of the events, it is necessary to look at the economic aspect first because economic developments are in a central position affecting all societal sectors.

The civilian-military relationship and praetorianism are important issues for analyzing and examining Turkish history. However, the withdrawal of the praetorian culture from the system does not necessarily mean that civilian authority will establish itself within the system at the same speed or slowly. Looking at today's societies, praetorianism in Turkey does not correspond to the unchanging elements of the neo-liberal regime, which are the free-market economy and liberal democratic principles. In other words, Turkey's unique system is reminiscent of capitalist militarism. This is because the state apparatus is restructured after every coup or intervention.

During the formation stages of the 1960 and 1980 coups and afterward, the challenging economic conditions that the public faced emerged as significant factors. As long as the people suffered from unfavorable economic indicators, dissatisfaction peaked. The military, on the other hand, established its position within the regime and always referred to itself as the guardian of the regime; thus, it had to act accordingly.

In the process leading up to the coups, favorable economic indicators led the public to have a more moderate attitude toward the military regime. In a country where economic indicators favor the people, the likelihood of problems arising within that society decreases.

When we examine the May 27th and September 12th coups, it is seen that both coups coincided with general capitalist crisis periods, and the political and especially economic programs that monopolistic capital found suitable for those periods were implemented in both of them, as Dodd suggested. Notably, in 1980, it was the beginning of the period when international monopolistic capital started to open up to peripheral countries, especially in finance (Dodd 1983: 24). The debts of countries that borrowed from the IMF for various needs

began to increase rapidly. Countries with debt tried to sustain the monopolistic capital programs by using the prescriptions given by the IMF. The January 24th decisions were implemented precisely during this period, and the program was continued to be implemented under the guidance of various circles after the coup. Small and medium-sized enterprises, which were the main target of monopolistic capital, were tried to be disciplined during this period. The sanction power of the nation-state was intended to be used within this framework.

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METHODOLOGIC APPROACHES FOR TRANSFORMER FAULT PREDICTION

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1. Introduction

The power transformer is the single most important component of the power system. It is often referred to as the system's "pillar of support." It functions on the basis of electromagnetic induction as its guiding principle. The cost of power transformers accounts for a significant portion of the total cost of the network. These are the elements of the electricity system that cost the most money. The failure of transformers may have a significant impact on consumers on many levels, including industrial, commercial, and individual.

Therefore, condition monitoring of transformers is a very important tool that should be utilized in order to guarantee that the operation of transformers will not be disrupted and will proceed in a smooth manner. This practice can be implemented at a very reasonable cost, even for large and expensive transformers. When assessing the state of a power transformer, there are a number of factors to take into consideration. There are a number of things that

might cause a transformer to fail, but one of the primary causes is the formation of gases inside the oil that the transformer is filled with.

Many different approaches have been developed for the purpose of assessing the status of transformers ever since they have been utilized in power networks. Additionally, a significant amount of research has been conducted in an effort to further develop or enhance these approaches. The polarization and depolarization current (PDC), the frequency response analysis (FRA), dissolved gas analysis (DGA), and dielectric dissipation factor (DDF) are some of the most sophisticated and practical procedures that are generally acknowledged by experts.

The aim of this study is to compile transformer fault prediction studies made in recent years using several methodological approaches such as fuzzy logic, artificial neural networks, and machine learning algorithms.

2. Literature Review

Recent research has used machine learning in the process of problem diagnostics for transformers. The process of decision making in the face of the inherent uncertainty in diagnostic data has been effectively defined via the use of machine learning approaches such as fuzzy logic (FL), artificial neural networks (ANN), and support vector machines (SVM). FL is a fairly straightforward approach of arriving at clear judgments based on information that may be hazy, unclear, or imprecise. The capacity of FL to generate accurate answers based on imprecise input is somewhat reminiscent to the decision-making process that occurs in humans. Constructing a rule set, from which inferences and actions may be formed, is one of the various ways that FL can be used in system diagnostics; nonetheless, it is the method that is used most often.

Both the fuzzy logic (FL) and expert system (ES) techniques include human skill and may be used in a wide variety of contexts. The most difficult obstacle, on the other hand, is to convert the knowledge and experience that experts have gained into decision rules and membership functions. The outcomes of a diagnosis are also dependent, to a considerable extent, on the depiction of acquired human experience or knowledge in a manner that is full and correct. The FL offers a fairly straightforward method for deriving definitive conclusions from evidence that may be unclear, equivocal, or imprecise. The capacity of FL to identify accurate answers based on approximation input is somewhat reminiscent to the decision-making process that occurs in humans. The design of a diagnostic system using FL may be accomplished in a number of different

and unique methods; however, the technique that is applied most often is to build a set of rules from which results and actions can be drawn. This is the most common method.

Even though their classifiers and diagnostic rules are determined by methods that involve either practical experience or methods of trial and error, none of the fuzzy expert systems that have been developed in recent years are able to learn from previous diagnostic results. (Thaker and Nagori, 2018) This is the situation in spite of the fact that several fuzzy expert systems have been created over the course of the last few years. The fuzzy logic algorithms (FLS) that were based on evolutionary programming (EP) were developed with the intention of identifying power transformers that were in the early stages of developing a malfunction (Zimmermann, 2010). The proposed EP-based FLS in (Matindife and Wang, 2017) has the capability of automatically modifying the fuzzy if-then rules, and concurrently adjusting the tasks that correspond to those rules in response to the accumulated data obtained from dissolved gas tests as well as the actual fault problems that have been identified. This is done in response to the cumulative data that has been collected. In (Chen, Liu and Xu, 2013), a recommendation is made for a fault location system (FLS) that is able to discover a large number of defects in a transformer, and quantitatively display the possibility and severity of each problem. Testing conducted on a large number of transformers has shown that it is possible to accurately identify critical situations in transformers by monitoring the degradation of the insulation at each fault point. An innovative FL-based DGA diagnostic tool (Poonnoy, Suwanasri and Suwanasri, 2021) interpreted the findings using a medical-style fuzzy pattern recognition approach. Using this method, very accurate evaluations of the comparative severity of many errors may be performed.

The technique for fault diagnosis used by ANN is distinct from that which is utilized by ES. In an ANN, in contrast to an ES, in which information is retained in a knowledge base, information is covertly dispersed throughout the network in accordance with sample learning. While an ANN has a great deal of potential for learning new things, it also has a great deal of potential for making mistakes. For instance, when there is a significant gap between the training data and the fault samples, the logic that ANN employs to arrive at a result might be questioned. In (Naganathan *et al.*, 2021), a two-step ANN technique was used in order to discover errors that either included or did not involve cellulose. While the first ANN assessed whether the problem was caused by overheating, arcing, or corona, the second ANN looked into whether or not cellulose was involved.

Even with a little amount of sample data, the outcomes of the strategy that used two ANNs showed promise. However, in order for the ANN to understand more complicated associations, such as classes of certain problems, more training data were required. For the purpose of assessing the insulating qualities of an oil-insulated power equipment, the incorporation of ANN into already existing diagnostic procedures has been shown to be extremely successful (Ghoneim, Taha and Elkalashy, 2016). In (Zade and Kudkelwar, 2018), a classification analysis of the effectiveness of ANNs in identifying incipient problems in transformers was given. The success percentage of diagnosis achieved by an ANN that was trained using five diagnostic rules that are typically employed in DGA varied depending on the diagnostic criterion that was being considered, with results falling anywhere from 87 to 100% of the time. According to, the Levenberg-Marquardt method is the quickest approach for training a feedforward ANN. This algorithm was used to train an artificial neural network (ANN) in (Cavuslu and Sahin, 2018). Both ES and ANN suffer from some deficiencies. Combining ES and ANN in their entirety is the most effective strategy for overcoming the drawbacks. Transformer problem identification was made possible with the use of a combined ANN and ES tool, which was presented in (Garro, Sossa and Vazquez, 2012).

There were two EA-based ANNs that were presented in (Lee *et al.*, 2005) for evaluating the condition of power transformers. Evaluation of DGA data using a self-organizing map (SOM)-based data analysis technique has shown promising results in terms of problem identification using DGA (Ghoneim, Taha and Elkalashy, 2016). This is as a result of the method's tremendous capabilities for visualization, as well as its speed and effectiveness in the learning process, and its comparatively use of computational resources. An ANN circumvents some of the drawbacks of ES since it is able to immediately acquire experience from training data. On the other hand, conventional ANN is not particularly excellent at controlling the number of neurons in hidden layers, and the training process takes a very lengthy period. Extension-based techniques, which are based on the element model and extended connection processes, have been used for power transformer failure diagnostics (Bouchaoui *et al.*, 2021) as a means of overcoming the disadvantages that are associated with traditional ANN. These extension-based approaches have been shown to be effective in overcoming these issues. These extension-based approaches have been shown to be effective in overcoming these issues. These kinds of approaches pinpoint potential issues based on how closely they are related.

For the purpose of providing intelligent decision assistance in transformer failure diagnostics, a brand new self-organizing polynomial network has been presented in (Salami and Pahlevani, 2008). The technique takes a heuristic approach to the formulation of the model by making use of a hierarchical design that is built of several layers of functional networks that are simple low-order polynomials. Specifically, the method utilizes a design that is known as a functional node hierarchy. The networks are able to learn sophisticated numerical connections between the quantity of dissolved gas in transformers and the conditions of breakdowns. These correlations might be completely unforeseen. Historical DGA data may be categorized in accordance with gas characteristics using a fuzzy-based vector quantization network (Khan, Equbal and Islam, 2015). A learning vector quantization network is taught to categorize probable faults that are the consequence of deteriorating insulation. This training is done for each category of gas properties. It is possible to attain a remarkable level of classification accuracy with much reduced amount of training.

Evaluation of DGA data using a self-organizing map (SOM)-based data analysis technique has shown promising results in terms of problem identification using DGA (Saha, Baruah and Nayak, 2021). This is as a result of the method's tremendous capabilities for visualization, as well as its speed and effectiveness in the learning process, and its comparatively use of computational resources. Because it diagnoses all DGA data, the SOM does away with the uncertainty and ambiguity that are present in the majority of traditional DGA interpretation techniques. Plotting DGA trajectories now allows for the development of incipient faults to be observed, and thus allows for the incipient fault to be visually monitored, which enables appropriate remedial action to be done at the appropriate moment.

Clustering methods are also often utilized to improve the accuracy of fault diagnosis by using DGA data to better fault categorization. This is done in a widespread manner. Clustering analysis, predictive modeling, and decision making based on grey systems are all components of the grey theory. Processing numerical data is possible with the grey clustering analysis even without modifying the parameters (Lin, Wu and Huang, 2009). It has been shown that the grey prediction–clustering analysis (Zheng *et al.*, 2008) method is useful for fault diagnosis using DGA in oil-immersed transformers. The DGA procedure takes a significant amount of time to decompose overall key gases and monitor conditions. Because of this, the gray prediction GP model takes use of different hydrogen data in order to forecast changes in combustible gases as well as non-

combustible gases. In addition to that, it takes use of gray clustering analysis so that it may identify flaws that are located within. The hybrid adaptive training technique radial basis process-based neural network that was introduced in (Bousmaha, Hamou and Amine, 2021) exhibited a variety of performance benefits over existing SVMs, such as a better approximation capacity, a simpler network topology, and a faster learning rate. These benefits were exhibited in comparison to the existing SVMs. These advantages include: The solution that was suggested does things automatically, such as create network architecture and get model parameters. In order to increase the DGA's accuracy in detecting faults in power transformers (Singh and Bandyopadh, 2010), the implementation of Bootstrap and genetic programming (GP) were undertaken. In order to classify faults, ANN, support vector machine (SVM), and K- closest neighbor (KNN) classifiers were fed the characteristics that had been retrieved by GP as their inputs. The accuracy of classification performed by the combined GP-ANN, GP-SVM, and GP-KNN classifiers was evaluated and compared to the accuracy of classification performed by the individual ANN, SVM, and KNN classifiers. The results of the tests showed that the accuracy of fault identification was significantly enhanced by using Bootstrap and GP preprocessing.

Machine learning is one of the ways that may be used in the process of constructing a defect prediction model. Machine learning is a non-trivial technique that incorporates two domains, namely computer science and statistics, in order to extract hidden, unknown, and possibly important information from big datasets (L'Heureux *et al.*, 2017). The method is described as including computer science and statistics. The field of machine learning includes a number of distinct methodologies that may be used in conjunction with a wide variety of data sets. Classification and regression are reportedly the two methods that are used in the creation of prediction models the majority of the time (Li, Yin and Zhang, 2018). A collection of data may be classified by placing each individual item into one of many distinct classes or groups. Classification is the method that is utilized to do this. A new target class may be created in the power transformer system, and it might be given a name like "fault prone" or "non-fault prone," for example. This would be just one example. After that, the classifier assigns the transformers to a target data on the basis of the recognized pattern that is derived from the variables that are supplied. On the other hand, regression is a very helpful tool for determining the connection between a number of distinct variables. Trip data and fault data are two examples of variables that may be employed in a substation transformer system. The primary purpose of regression

is to investigate the connection between these two types of data. To put it another way, regression is applied when the parameters are of a continuous nature, such as numbers, while classification is utilized when the variables are of a categorical kind (Torre *et al.*, 2019). Data-driven approaches are increasingly being used in the power industry for the purpose of locating, categorizing, and diagnosing faults via the utilization of neural networks, decision trees, and support vector machines (Mustafa Abdullah and Mohsin Abdulazeez, 2021).

The fundamental idea behind ANN is derived from the study of biology, which explains how neural networks play an essential part in the functioning of the human brain (Mahmood *et al.*, 2021). A neural network is nothing more than a web of neurons that are linked to one another. The neuron serves as the most fundamental unit for the processing of information in the neural network. They are structured in at least three levels, including an input layer, one or more hidden layers, and a single output layer (Román-Portabales, López-Nores and Pazos-Arias, 2021). The input layer is the most visible of these layers. Through the training phase, the ANN approach may be utilized to detect the hidden correlations that exist between the different kinds of faults and the dissolved gases.

In 1996, [26](Vinod Kumar *et al.*, 1996) pioneered the use of ANN for use in the failure detection of power systems. It was discovered that ANN can be used straightforwardly to assess the risk of failure of a certain network or indirectly to determine which type of lightning arrester, maximum cable length, or cable insulation level should be used to meet a certain risk of failure. In a similar manner, (Varlas *et al.*, 2019) utilized ANN to forecast the surge, and they discovered that ANN may be used directly to estimate the risk of failure of a particular network. This was discovered after using ANN to predict the lightning surge. In the research carried out by (*et al.*, 2020) ANN was used extensively for the purpose of classifying the fault status of the transformer based on data for dissolved gas analysis. According to the findings of the research carried out by (Zakaria, Johari and Musirin, 2012), the successful development of ANN was able to forecast the incipient problem in the power transformer by making use of the concentration of dissolved gas.

A statistical learning process idea with an adaptive computational learning approach is what support vector machines, or SVMs, are defined as. This learning method takes in input vectors and maps them in a nonlinear fashion into a feature space that has a high dimension (Zhang *et al.*, 2021). The SVM was used in (Benmahamed *et al.*, 2021) in order to estimate the

kind of problem and its distance over a lengthy transmission line for the power systems. Despite the fact that SVM has a high level of accuracy, the training process takes a significant amount of time, which makes the work more difficult and slower. According to the research presented in (Li *et al.*, 2016), selecting appropriate SVM rules is extremely important for achieving strong generalization performance and high accuracy in problem identification and classification of transmission line. This was found to be the case after the researchers conducted the study.

The Decision Tree and the Bayesian Classifier are also other approaches that are used in fault prediction. The Decision Tree is a structure that is reminiscent of a tree and is mostly composed of nodes and branches. There are two distinct types of nodes, known as leaf nodes and intermediate nodes. Leaf nodes are located at the tips of branches. Nodes that are considered to be intermediate are used to represent a rule, whereas nodes that are considered to be leaf level are used to represent a class label. Together, these nodes make up the tree structure. Decision Tree is a useful tool for determining which features to employ (Odongo, Musabe and Hanyurwimfura, 2021). The properties that are represented by nodes on the Decision Tree include crucial information that may be used to further categorization.

Naive Bayesian Classifier is a statistical classification method that also functions as a supervised learning tool. It makes projections about the likelihood of belonging to a class. According to reference (Yong *et al.*, 2022), NB classifiers exhibit both great accuracy and speed when used to huge datasets. According to source (Wu, Zhu and Yuan, 2005), not only does NB make use of a little quantity of training data, but it also has a straightforward structure, a high degree of calculating speed, and accurate results.

3. Method

This assessment of the scholarly literature includes forty publications that were published between the years 2012 and 2022. A search for titles is carried out based on the following keywords: (Transformer, Fault, Prediction). For the purpose of conducting article searches, the following primary databases have been identified: IEEExplore, Science Direct, Google Scholar. A total of 105 articles are found, and each of these articles is examined to see whether or not it contains any duplicates. The articles that do not have enough information are removed at a subsequent stage of the eligibility screening procedure. In conclusion, a total of six papers that were eligible for consideration have been

chosen for this evaluation. Table I contains a summary of the articles included here.

TABLE I. SUMMARY OF ARTICLES

Source	Year	Article Type	Citation
[22]	2012	Journal	117
[25]	2018	Conference	17
[23]	2019	Journal	16
[20]	2020	Conference	20
[21]	2021	Journal	13
[24]	2022	Journal	61

The following is a list of the primary inclusion criteria for this study:

a. research that employed machine learning to construct a fault prediction model for transformers
b. studies that focused on the accuracy of the chosen methods as a whole.

In addition to these requirements, any research would be disqualified if the subject topic in question had no relationship with the prediction of transformer failure. For instance, the literature review will not include any predictions on the failure of smart meters, estimates of the amount of power that will be used, or any studies that provide general reviews. In addition, any research that only compares the algorithms without investigating the accuracy of either is not considered.

4. Results and Discussion

According to the findings of the comprehensive literature study that was carried out, classification is the most common method of machine learning that is used for the purpose of fault prediction in transformers. According to table II, dissolved gas analysis is the kind of transformer problem that has received the greatest attention from studies.

DGA is one of a large number of diagnostic methods that may be used for this goal; among these methods, it has been an essential method. Although DGA (Dissolved Gas Analysis) is a useful method, its accuracy is mostly determined by the level of experience had by its operators. As a result, it is not the most efficient method for diagnosing issues. In order to forecast the fault status of a transformer using DGA (Dissolved Gas Analysis) Data, this article makes use of

the Multilayer Artificial Neural Network Model and the Support Vector Machine Classifier Model. The Support Vector Machine Classifier has shown findings that are around 81.4% more accurate than those produced by the Multilayer Artificial Neural Network, which provide approximately 76% accurate prediction results (Saravanan *et al.*, 2020). In order to cut down on the amount of overlapping data samples caused by the dissolved gasses in transformer oils, four different data transformation methods were used. Decision tree, discriminant analysis, Naive Bayes, support vector machines, K-nearest neighbors, and ensemble classification techniques are the OML approaches that are used throughout the fault detection process for transformers. MATLAB/implementation Software's of the six OML algorithms is based on the collection of 542 dataset samples from various labs and published works of literature (Taha and Mansour, 2021). In this respect, 361 samples from the dataset were utilized for training (Alqudsi and El-Hag, 2019), whereas 181 samples were used for testing the model. In order to cope with long-tail distributions of concentrations, they suggested applying a straightforward logarithmic transform to the preprocessing of the DGA data. On that endeavor, they studied and assessed 15 conventional statistical machine-learning algorithms, and they presented quantifiable findings on a limited but published collection of power transformers as well as on confidential data from thousands of network transformers belonging to a utility business. These findings provide credence to the hypothesis that nonlinear decision functions, such as neural networks, support vector machines with Gaussian kernels, or local linear regression, have the potential to potentially deliver marginally superior performance versus linear classifiers or regressors. To optimize the probabilistic neural network (PNN), they use a differential evolution whale optimization algorithm that has been modified (MDE-WOA). More specifically, they update the smoothing factor () of PNN, which results in an improvement in the classification performance of the model. In addition, the MDE-WOA method offers a reduced complexity and a more stable optimization process when compared to other optimization techniques. In the end, they conduct an analysis of this model using data taken from a power transformer sensor located in Jiangxi province in China. According to the findings, the suggested algorithm was able to obtain a diagnosis accuracy of 98.86% after completing the fourth iteration (Zhang *et al.*, 2020), which was the greatest diagnostic accuracy it could attain. As a result, the PNN parameter optimization meta heuristic method that was presented has the potential to significantly boost the accuracy as well as the efficiency of the power transformer defect detection. Their research presents a novel integration of a deep learning

framework inside an Internet of Things (IoT) architecture to defend against cyberattacks and enable online monitoring of the state of power transformers. For the purpose of fault detection of power transformers and cyberattacks, a one-dimensional convolutional neural network (often abbreviated as 1D-CNN) that has been constructed and is characterized by resilience against uncertainty has been implemented. In addition, practical scenarios are carried out to demonstrate the viability of the proposed architecture for the internet of things. With an accuracy of 94.36 percent in the typical situation, 92.58 percent when taking into account cyberattacks (Elsisi *et al.*, 2022), and less than five percent uncertainty, the new deep 1D-CNN has a superior degree of precision when compared to earlier methods presented in the academic literature. The evaluation result based on corrective prediction is 95.54% when using data training, 88.32% when using cross validation, and 87.23% when using 10% random data from data training. These percentages were derived from the evaluation. In order to carry out online condition monitoring and diagnostics of the power transformer, which are both included into the SCADA system (Basuki and Suwarno, 2018), the decision tree rule was put into effect. This implementation result is superior to standard DGA approaches in its ability to anticipate transformer faults based on gas levels via live analysis.

TABLE II. MACHINE LEARNING TECHNIQUES AND ALGORITHMS

Source	Transformer failure types	ML Technique	ML Algorithms	Accuracy
[20]	Dissolved Gas Analysis	Classification	SVM MANN	81,4 76
[21]	Dissolved Gas Analysis	Classification	KNN	90.61
[22]	Dissolved Gas Analysis	Classification	NN SVM	93
[23]	Dissolved Gas Analysis	Classification	PNN	98.86
[24]	Power Transformer	Classification	1D-CNN	92.58
[25]	Power Transformer	Classification	NN SVM NB DT	95.54

5. Conclusion

In this study, the emphasis was on evaluating several machine learning approaches and algorithms that may be utilized to construct a defect prediction model for transformers. The accuracy of the model is used to assess the performance of the model. It has been discovered that the SVM method is the one that is employed the most often for the dissolved gas failure type. On the other hand, in order to have a more accurate forecast for other sorts of faults, further experimentation with other forms of input and algorithms is required. In addition, there is a need for more research to be carried out in order to uncover additional fault types in transformers and the most effective algorithms to anticipate failures.

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