OPUS

issue 46

ISSUE 46

ADAMOR

OPUS ▶

Volume 19, Issue – 46

OPUS▶

Journal of Society Research
Toplum Araştırmaları Dergisi

ISSN: 2791-9781 – E-ISSN:2791-9862

Issue – 46 ● March 2022

OPUS▸

Issue – 46, 2022

Content

OPUS

Editorial

OPUS Journal of Society Research (JSR) brings a range of different fields of theory, practice, and research in the quest for understanding human behavior in its social environment. The Interdisciplinary perspective provides the groundwork to present and establish a holistic relationship with other disciplines, concepts and methods. The OPUS JSR provides a medium for researchers to incorporate an interdisciplinary approach to bring forward different interpretations and alternative viewpoints. It is not only the intersection of disciplines, but the theoretical frameworks that underpin the analyses and interprets of the subjects under study. This framing can lead to clarity of multiple and even conflicting findings that enable better understanding of social dynamics that may otherwise be invisible when scholars focus on a single set of theoretical dynamics. OPUS JSR reflects more than 10 years of journal sponsorship by [ADAMOR Society Research Center](#) and its partner organization, the [Institute of Urban Studies](#). The OPUS Journal of Society Research is the direct successor of two previously published journals: OPUS Turkish Journal of Social Policies and Work Life Studies: OPUS International Journal of Society Research (ISSN 2528-9527 E-ISSN 2528-9535).

OPUS Journal of Society Research (JSR) is abstracted in EBSCO Information Services, ERIHPLUS European Reference Index For The Humanities and Social Sciences, Cite Factor, TEI Index of Turkish Education, ULAKBIM TR Index, SOBIAD Citation Index and ASOS Index.

OPUS▶

RESEARCH ARTICLE

The Effect of Creative Drama-Based Psycho-Education Program on Emotional Intelligence of Adolescents[1]

Yusuf Akyıl [1] **l M. Engin Deniz** [2]

[1] Specialist Psychological Counselor, Ministry of Education, Istanbul/Turkey
ORCID: 0000-0002-9482-1429
E-Mail:
yusufakyil430@gmail.com

[2] Prof. Dr., Yıldız Technical University, Faculty of Education, Istanbul/Turkey
ORCID: 0000-0002-7930-3122
E-Mail:
edeniz@yildiz.edu.tr

Corresponding Author:
Yusuf Akyıl

Citation:
Akyıl, Y. and Deniz, M. E. (2022). The effect of creative drama-based psycho-education program on emotional intelligence of adolescents. *OPUS– Journal of Society Research, 19*(46), 206-216.

Abstract

The aim of this study was to analyze the influence of the creative drama-based psychoeducation program in adolescents on their emotional intelligence level. For this purpose, a true experimental design with pretest-posttest groups was used. The study group of the research consisted of 16 experimental, 16 control and 16 placebo group 12th grade students who are in a public high school in Avcılar, Istanbul. 20-sessions drama-based education program, two sessions per week for 10 weeks, was applied to the experimental group, while film and 10 academic education seminars were applied to the placebo group, and was no application to the control group. Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) has been applied to all groups. Before the study, data related to the pre-test application of the scale was analyzed with the Kruskal Wallis-H test and it was determined that there was no significant difference between the groups. A meaningful result was found among the groups in favor of the experimental group. This result showed that the creative drama-based educational program increases students' emotional intelligence levels. In this context of the result, using the creative drama method in education and training activities can be suggested.

Keywords: *Creative Drama, Emotional Intelligence, Adolescents, Psycho-Education Program.*

Öz

Araştırmanın amacı ergenlerde yaratıcı drama temelli psiko-eğitim programının duygusal zeka düzeyine etkisini incelemektir. Duygusal zekanın insan hayatına etkisine dair çok sayıda çalışma yapılmıştır. Ortaöğretim 12. sınıf öğrencilerinin duygusal zekalarını özelliklerini geliştirmek için drama temelli hazırlanan programın etkililiğini sınamak amaçlanmıştır. Bu amaçla ön test-son test gruplu gerçek deneysel desen kullanılmıştır. Araştırmanın bağımsız değişkeni, drama temelli hazırlanan programdır. Araştırmanın bağımlı değişkenleri ise öğrencilerin, duygusal zeka düzeyleridir. Araştırmanın çalışma grubunu İstanbul İli Avcılar İlçesi'nde bir devlet lisesinin 12. sınıflarından gönüllü katılan 16 deney 16 kontrol ve 16 plasebo grubu toplam 48 öğrenciden oluşmuştur. Deney grubuna 10 hafta süreyle haftada iki oturum olacak şekilde toplam 20 oturumluk drama temelli eğitim programı, plasebo grubuna programın dışında kalan plasebo etkisi ile ilgili 10 adet sinema izleme etkinlikleri ve 10 adet akademik eğitim semineri uygulanmış, kontrol grubuna ise herhangi bir işlem yapılmamıştır. Program uygulanmadan önce ve sonra deney, kontrol ve plasebo gruplarına DZÖ-Kısa Form uygulanmıştır. Araştırma öncesinde ölçeğin ön test uygulamasına ilişkin veriler KruskallWallisH testi ile analiz edilmiş ve gruplar arasında anlamlı bir farklılığın olmadığı belirlenmiştir. Uygulama sonunda yapılan son test sonucunda ise gruplar arasında deney grubu lehine anlamlı sonuca ulaşılmıştır. Bu bağlamda, eğitim-öğretim etkinliklerinde yaratıcı drama yönteminin kullanılması önerilebilir.

Anahtar Kelimeler: *duygusal zeka, yaratıcı drama, ergenler, psiko-eğitim.*

---

[1] *This study based on first author's doctoral thesis named "The Effect of Creative Drama-Based Psycho-Education Program on emotional Intelligence of Adolescents"*

Introduction

Creative drama is defined as a structural approach method that allows improving students' creative opinions and expressing emotions freely (Duatepe and Akkuş, 2006, 90). Students can learn as well as have fun as a result of creative drama. Students who are active every moment at the lesson can learn information more permanently (Yeşilyurt, 2011, 4). Creative drama is considered an effective method also in recognizing the feelings of individuals. Puberty period is examined as a development step that occurs with too much emotional intensity, and from time to time, emotion-centered problems (Aydın, 2005; Tan, 2009, 191-193). Therefore, the purpose was to examine the influence of creative drama-based psychoeducational program on the emotional intelligence of adolescents.

Drama is used as a method in many fields, and also to improve problem-solving skills (Fulford et al., 2001; Levent, 1999). Solutions to problems are examined during interactions in drama, thus participants have gained experience from activities intended for problem-solving (Önder, 2016). Creative drama includes social support in terms of group activities. It can be said that creative drama has protective and solvent characteristics against anger that may occur in adolescents (Adıgüzel, 2013, 64).

The creative drama is a method and discipline can be expressed that provides improved skills of cognitive, affective and psychomotor by addressing many sense organs (Adıgüzel, 2013; Genç, 2004; McCaslin, 2006; Üstündağ, 2010). Imagination and creativity can be improved, and also cooperation, taking responsibility, and empathy can be stronger by creative drama. Self-confidence can be developed, it may be possible to recognize her/his feelings and the body she/he uses during the drama, and to experience external life. Therewith, it can be specified as an educational process to ensure the active participation of children (Adıgüzel, 2006, 258).

One of the most significant characteristics in terms of maintainability of relationships is to recognize others' emotions. An individual who has information about affective states contacts other

people correctly. Individuals who know their feelings can behave correctly in society and manage their emotions. Emotional intelligence is a concept related to recognizing and managing emotions (Goleman, 2006).

Developing an individual in terms of emotional intelligence can successfully manage the life of society, work-life, and own emotion management. In this case, the individual shows success both understanding others and ensuring the establishment of actual relationships (Konrad and Hendl, 2001). One of the most indispensable components for the individual to recognize his / her potential and make progress is being aware of and expressing his / her emotions and establishing healthy communication (Güneysu and Tekmen, 2009). A large number of studies were conducted on the influence of emotional intelligence on human life. In the studies analyzing the level of emotional intelligence in terms of variables such as sociability, contact, happiness, empathy, work achievement, and academic success, a positive correlation was found between emotional intelligence and these variables (Schutte et al., 2001; Furnham and Petrides, 2003; Titrek, 2004; Doğan and Demiral, 2007). Based on these explanations, the aim of this study is to examine the effect of a creative drama-based psycho-education program on the emotional intelligence level of adolescents.

Method

The Effect of Creative Drama Method: It has been revealed in the studies that the effect of creative drama education in the purpose of providing adolescents with skills of doing and managing work with the group, starting and maintaining relationships, and self-control (Abacı, Tepeli and Erbay, 2015). Also, it has provided that the social development and skills of children, adolescents, and individuals who have disabilities or not may be improved by participating in creative drama activities. (McCaslin, 2006; Freeman et al., 2003; Akfırat, 2004, De La Cruz, 1995; Jackson and Bynum, 1997; Kocayörük, 2000; Uysal, 1996;

Johannsen, 2004; Yassa, 1997; Erbay and Yıldırım Doğru, 2010).

Creative drama allows that children to think at higher levels (Dodson, 2000), create a natural language learning environment (Freeman, Sullivan, & Fulton, 2003), socialize by contributing to their behaviors (Öztürk, 2001), and develop linguistic skills (Aldavero, 2008; Wagner, 1988), development of self-esteem and self-confidence (Altınova & Adıgüzel, 2012; Conard & Asher, 2000), development of vocabulary (Demircioğlu, 2010), development of observation, physical expression, communication and written expression skills (Adıgüzel, 2015; Phillips, 2000; Barnes, 1998). Many studies are showing that creative drama improves the academic success of students (Almaz, İşeri and Ünal, 2014; Aydeniz and Özçelik, 2012; Atish, 2015; Batdı and Batdı, 2015; Gencel, 2009; Joseph, 2014; Kaf, 1999; Oğur and Kılıç, 2005; Sarıçoban, 2004; Selmanoğlu, 2009; Taşkın Can, 2013; Timothy and Apata, 2014). Also, Abacı (2014) found that there was a significant difference the coping with shyness and assertiveness behaviors of the students in the experimental group and the control group where has no training. Çapacıoğlu and Demirtaş (2017) found that the application of creative drama has a significant and positive effect on the anger level of students. Ceylan and Ömeroğlu (2012) found that the experimental group has a substantial difference in social-emotional behaviors according to the applied creative drama program. For having a high level of social-emotional skills in students of the experimental group, they gain these skills from having and living social-emotional experiences such as starting and maintaining communication by assuming different roles in creative drama activities, understanding others, establishing positive and collaborative relationships, obeying social rules, taking responsibility, realizing, expressing and controlling their emotions.

In all these aspects, using creative drama as a method contributes to students' self-confidence, self-regulation, correction and evaluation, and their cognitive, motivational and affective readiness (Adıgüzel, 2015; Ernst-Slavit and Wenger, 1998; Gallagher, 1997; San, 1990; Shell, Colvin, and Bruning, 1995). In this context, it includes the problem idea of this study effect of the creative drama-based psycho-education program on the emotional intelligence level of adolescents during puberty, which is considered an emotionally challenging developmental process.

Research Model

This study aims to analyze the effect of the creative drama-based psychoeducational program to develop the emotional intelligence of 12th grade students. In the study, a real experimental design with pretest-posttest groups was used. The effect of the independent variable (prepared drama-based program) on the dependent variable (emotional intelligence of students) was examined.

Research Design

Table 1. pretest,process and posttest designs of research groups

Groups	Pretest	Process	Posttest
Experimental Group	TEIQue-SF	20-session Emotional Intelligence Program	TEIQue-SF
Placebo Group	TEIQue-SF	Film activities and academic education seminars (10+10 sessions)	TEIQue-SF
Control Group	TEIQue-SF		TEIQue-SF

TEIQue-SF: Trait Emotional Intelligence Scale-Short Form

The 20-sessions drama-based education program, two sessions per week for 10 weeks, was applied to the experimental group, while film activities and academic education seminars were applied to the placebo group, and was no application to the control group. TEIQue-SF applied to the experimental, control, and placebo groups, before and after the program was implemented.

Research Group

The study group of the research consisted of the 12th grade students of a public high school in the Avcılar District of Istanbul. A total of 48 students in 16 experimental, 16 control and 16 placebo groups participated voluntarily. When the pre-tests were made, no significant difference was found between the experimental group, the control group and the placebo group in terms of the scores

obtained from the emotional intelligence scale. In other words, the emotional intelligence mean scores of all groups are at the same (very close) level.

Data Collection Tools : Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF): Trait Emotional Intelligence Questionnaire was developed by Petrides and Furnham (2000a, 2001). The short form of the scale was adapted into Turkish by Deniz, Özer, and Işık (2013). The validity and reliability studies of the scale for the Turkish version were conducted with 464 university students. Language validity and equivalency study of the scale found a positive correlation between the points obtained from English and Turkish forms. As a result of the exploratory factor analysis to examine the structural validity of the scale obtained a four-factor structure consisting of 20 items. The results of the Confirmatory Factor Analysis, which was conducted to understand whether this structure was coherent for the sample data, showed that the scale was good for the sample to which it was applied. The resulting coefficient of the test-retest applied for the reliability study is .86 and the internal consistency coefficient .81 for all the scales.

Research Application

20-sessions Creative-Drama Based Emotional Intelligence Program was applied according to research design which collected from samples with Personal Information Form during the application stage of the research. The study consists of 3 different groups of 16 people each of the groups as an experiment, control, and placebo groups.

During the process of the 20-session Creative Drama-Based Emotional Intelligence Program applied for the thesis, detailed information was given to the students about the scales and the questions during the application. Creative-Drama Based Emotional Intelligence Program was applied to the students and ended with a post-test. Sessions were conducted by the researcher. No application was conducted on the control group. The placebo group watched 10 Turkish movies and

attended 10 academic education seminars.. The movies and seminars are listed below.

Table 2. Movies and seminars

Films	Academic Education Seminars
1. Aile Şerefi (1976) – Orhan Aksoy	1.Set a Goal
2. Kapıcılar Kralı (1976) – Zeki Ökten	2. Examination System
3. Gülen Gözler (1977) – Ertem Eğilmez	3. Study efficiently
4. Neşeli Günler (1978) – Orhan Aksoy	4. Creating an Appropriate Studying Environment
5. Çöpçüler kralı (1978) – Zeki Ökten	5. Determining a Learning Strategy
6. Karpuz Kabuğundan Gemiler Yapmak (2004) – Ahmet Uluçay	6. Increasing Attention Skills
7. Babam ve Oğlum (2005) – Çağan Irmak	7. Exam Strategy
8. Dondurmam Gaymak (2006) – Yüksel Aksu	8. Motivation
9. Hokkabaz (2006) – Cem Yılmaz	9. Exam Anxiety
10. Mavi Boncuk (1974) – Etem Eğilmez	10. Evaluation

Creative Drama-Based Emotional Intelligence Program

Mayer and Salovey (1997) emotional intelligence model and the sub-dimensions of this model, which are divided into the perception of emotion, use of emotion, understanding emotion and managing emotion, and Bar'on (2000) emotional intelligence model and the sub-dimensions of this model, which include awareness of the emotions of oneself and others and expressing emotions, understanding others' emotions, external cues while responding, evaluating their emotions correctly, coping with stressful situations by controlling emotions, feeling positive, optimistic and pleasing towards themselves and others were taken into consideration. Theoretical information about these models and studies including these models was examined. The emotional intelligence model by Goleman (2000) was utilized (Self-Consciousness, Gathering, Self-Motivation, Empathy, Social Abilities). The sub-dimensions of the Trait Emotional Intelligence Questionnaire (TEIQue-SF) by Petrides and Furnham (2000a, 2001) was emphasized (Well-being, Self-Control, Emotionality, Sociability). The sub-dimensions of well-being sub-dimension was also utilized (Satisfaction in Family Relationships, Satisfaction

with Important Others, Life Satisfaction, Positive Emotions). In light of this information, the program was created and the target behaviors and gains that want to be gained as a result of this program were determined. 6 expert opinions were received about whether the program is suitable for students. Studies in domestic and international literature on emotional intelligence programs were used. Aims and target behaviors of the program are stated below.

Table 3. Sessions, aims and target behaviors of Creative Drama-Based Emotional Intelligence Program

Sessions	Aims	Target Behaviors
1.Session: Education Program, Meeting, Rules, Aim of the Program	1.Have information about the education program. 2.Introduce themselves. 3.Have general information about group friends.	Participants are provided to know each other and express themselves comfortably. (behavioral) They are provided with information about the creative drama group. (cognitive) Positive emotions are provided to develop to group members. (affective)
2.Session: Communication	1.Knows the necessary factors for a healthy communication. 2.Discusses the communication barriers.	Participants use nonverbal communication and make eye contact in addition to verbal communication during the activities. (behavioral) Participants learn what the communication barriers are and what it takes to communicate properly. (cognitive) They feel different emotions during communication, and when they encounter communication barriers. (affective)
3.Session: Trust	1.Tells own thoughts about trust. 2.Discusses the factors necessary for the formation of trust.	They learn what it takes for more reliable communication. (cognitive) They express their sense of trust with their bodies (behavioral) They feel trust and / or insecurity with different situations they encounter in activities. (affective)
4.Session: Harmony	1.Acts together with the group. 2.Discusses the factors necessary for acting in harmony.	They behave in accordance with the group movements and the leader. (behavioral) Learn the reasons that prevent and increase group harmony. (cognitive) When acting with the group, they feel belonging and harmonious. (affective)
5.Session: Perceiving and Identifying Emotions	1.Recognizes various emotional expressions. 2.Shows various expressions of emotion.	They show different expressions of emotion to the group with their gestures and gestures. (behavioral) They make sense of facial and body expressions. (cognitive) They feel different emotions according to different expressions of emotion. (affective)
6.Session: Using Emotional Information	1.Tells the areas where emotions are used in daily life. 2.Tells the emotions used by others. 3.Write down the emotions they have experienced recently.	They improvise the emotions they experience and show them to the group members. (behavioral) They make connections between events, places and emotions. (cognitive) They feel different feelings towards different events and places given in activities. (affective)
7.Session: Controlling Emotions	1.Discusses how to control emotions.	They show their emotional reactions to group members in a controlled manner. (behavioral) They learn that emotional responses can be controlled. (cognitive) They feel empathy towards the emotions of group members. (affective)
8.Session: Positive Emotions	1.Writes own opinions about positive emotions. 2.Plays a role regarding positive emotions.	While feeling positive emotions, they perform these emotions to the group members. (behavioral) They notice the factors that make them feel positive emotions. (cognitive) Feel gratitude towards group members (affective)
9.Session: Positive Relationships with Others	1.Discusses the important points in relationships with others. 2.Writes the negative and positive sides of herself/himself or the others in establishing positive relationships with others.	They stimulate behaviors that affect relationships positively and negatively. (behavioral) Learn the important points in relationships and what it takes to make relationships better. (cognitive) They notice the reasons that negatively affect relationships and feel uncomfortable with these situations. (affective)
10.Session: Self-Acceptance - Being Autonomous	1.S/he reads other participants' impressions of her/him. 2.Evaluates and writes the positive and negative aspects of herself/himself.	They write their experiences in the session as a letter to themselves. (behavioral) They notice the positive and negative aspects of themselves and learn the opinions of other participants about them. (cognitive) Seeing themselves through the eyes of others, they feel how much they accept themselves and how autonomous they are about it. (affective)
11.Session: Satisfaction in Family Relationships	1.Writes and discusses the factors necessary to be happy in family relationships.	(behavioral) They learn what it takes for good family relationships.(cognitive) They feel different according to the various family situations created in the activities. (affective)
12.Session: Life Satisfaction	1.Learns the factors that make them happy in life according to Maslow Hierarchy of Needs. 2. S/he writes about the things s/he is satisfied with with life.	They behave in accordance with group work. (behavioral) They learn about Maslow Hierarchy of Needs. (cognitive) They evaluate themselves according to the Maslow Hierarchy of Needs. (affective)
13.Session: Life Goals	1.Writes the life goals of 5-10-15 years.	They write their life goals for 5-10-15 years and share them physically and verbally within the group. (behavioral) They imagine what kind of life they want and their purpose in the future. (cognitive)

210

		They experience different moods while achieving and not achieving their goals. (affective)
14.Session: Self Awareness	1.Says his/her opinion about body awareness. 2.Scores himself/herself in terms of feelings and relationships.	They share their feelings and thoughts about awareness with the group. (behavioral) They measure their awareness of the events happening during the day and towards themselves. (cognitive) They feel all their senses with the raisin-eating activity.(affective)
15.Session: Self-Evaluation	1.S/he writes three positive and three shortcomings about herself/himself.	They reflect their emotions with body language. (behavioral) They evaluate themselves and know their positive and negative aspects. (cognitive) They realize their place in the group in terms of self-evaluation. (affective)
16.Session: Self Confidence	1.Opinions about self-confidence. 2.Discusses the factors that increase self-confidence.	They feel confident in the group and they participate with self-confidence. (behavioral) They learn the factors that increase their self-confidence. (cognitive) They notice themselves when they are in situations that damage their self-confidence. (affective)
17.Session: Believe in Yourself	1.Tells and discuss the characteristics of people who believe in themselves. 2.Speaks as a believer in herself/himself.	They speak and participate as an individual who believes in themselves. (behavioral) They learn the characteristics of individuals who believe in themselves. (cognitive) They can control themselves in situations where they have to believe in themselves and realize how it should be. (affective)
18.Session: Self Control	1.Expresses and discusses thoughts about self-control.	They behave in harmony and control in a way that does not disturb group integrity. (behavioral) They learn what the control mechanism is and how it works.(cognitive) They realize how they feel when they need to control themselves. (affective)
19.Session: Sociability	1.Discusses how people's behaviors are shaped in social situations.	They behave harmoniously according to various social situations. (behavioral) They learn to behave according to the environment in different social situations. (cognitive) They notice how they feel and how they cope in difficult situations. (affective)
20.Session: Termination and Evaluation	1.Evaluates the creative drama process.	They share, visualize and act out what they have learned in the creative drama process. (behavioral) They criticize and evaluate the creative drama process. (cognitive) They notice the changes in themselves during the creative drama process. (affective)

Data Analysis

The Kruskal-Wallis test was used to examine whether there is a significant difference between the pre-test total scores obtained from the experiment, control, and placebo groups. In the same way, The Kruskal-Wallis Test was used to examine whether there is a significant difference between the post-test total scores obtained from the experiment, control, and placebo groups. The Mann-Whitney U test was used to examine the source of a significant difference.

Findings

Table 4. Kruskal Wallis H Test Results of Pretest and Posttest Application

Score	Groups	N	$\bar{x}_{sira}$
Pretest	Control Group	16	24,28
	Experimental Group	16	24,41
	Placebo Group	16	24,81
	Total	48	
Posttest	Control Group	16	16,47
	Experimental Group	16	40,50
	Placebo Group	16	16,53
	Total	48	

It was examined through the Kruskal-Wallis h test whether there was a significant difference between the groups before and after the sample application. As a result of the test, although there was no significant difference between the groups in the pre-test, a significant difference was found in the post-test. To determine which group had a significant difference, Mann Whitney u test was conducted and the test result is given below.

Table 5. Between Groups in Posttest Mann Whitney U Test

Score	Groups	N	$\bar{x}_{sira}$	$\sum_{sira}$	U	z	p
Posttest	Control Group	16	8,50	136,00	,000	-4,842	,000
	Experimental Group	16	24,50	392,00			
	Total	32					
Posttest	Experimental Group	16	24,50	392,00	,000	-4,838	,000
	Placebo Group	16	8,50	136,00			
	Total	32					
Posttest	Control Group	16	16,47	263,50	126,500	-,079	,985
	Placebo Group	16	16,53	263,50			
	Total	32					

,013   ,994

31,470   ,000

As a result of the post-test through the Mann Whitney U test determining which groups differed, it was found that there was a significant difference in favor of the experimental group

211

between the control group and the experimental group. Also, the result showed that there was a significant difference in favor of the experimental group between the placebo group and the experimental group. There was no significant difference between the control group and the placebo group.

Discussion and Suggestion

A method is needed such as the drama that sustains the social and emotional development of the person, dealing with real-life through role-playing, providing socialization through group work, and supporting interpersonal communication and interaction (Önder, 2016). It is expressed that there are emotional management problems in adolescents. It is assumed that creative drama has a positive effect on emotional intelligence. In this context, it was designed as a psycho-education program based on creative drama, and its effect on emotional intelligence in students was examined. The research is important in terms of designing an up-to-date model. Besides, it is thought that a contribution is made to the literature thanks to the intervention program that improves the personal characteristics of adolescents.

As a result of the post-test, a meaningful result was found among the groups in favor of the experimental group. This result shows that the creative drama-based education program improves the emotional intelligence levels of the students. Similar to this result; Üstündağ (1988) reached the conclusion in his study that dramatization at the primary school level has a greater effect compared to plain expression. Freeman, Sullivan, and Fulton (2003) found that creative drama activities have a positive effect on self-concept, social skills, and problematic attitudes. Köksal (2003) suggests that drama can help children to work with the group, to think creatively, to understand themselves, to use verbal and non-verbal communication and language, to cooperate, to solve problems, to be more sensitive to others, self-confidence, responsibility, socialization, internal discipline and imagination

emphasizes that they acquire skills such as developing a sense of solidarity and sharing. According to Erdoğan (2006), while depressive symptoms decreased in the experimental group of creative drama, there was no difference in the control group. Topbaşı (2006) concluded that drama is effective in pre-school six-year-old children in their multidimensional development, especially their moral development and gaining moral values. Güner (2008) has found that the social and emotional adjustment levels of children who participate in educational drama applications are higher than those who are not. Abacı (2014) concluded that creative drama education is a significant difference in favor of the experimental group in the coping with shyness and assertiveness behaviors of adolescents attending secondary education. Abacı, Tepeli, and Erbay (2015) found that creative drama education was effective in helping adolescents acquire social skills of doing and continue work with the group, starting and maintaining a relationship, and self-control. Momeni, Khaki, and Amini (2017) concluded that creative drama increases children's creativity.

In terms of emotional intelligence, pretest and posttest scores of the experimental group were compared, and there were significant differences in favor of the posttest scores. In addition, the post-test emotional intelligence scores of the students in the experimental, control, and placebo groups show a significant difference in favor of the experimental group. According to these results, it can be accepted that the creative drama-based psycho-education program improves the emotional intelligence of the students. When we look at the literature, this result of the research is similar to the findings of many studies that emotional intelligence has a structure that can develop (Altunbaş and Özabacı, 2019; Dulewicz and Higgs, 2004; Yılmaz, 2021). Furthermore, Ciarrochi and Mayer (2007) state that students' emotional intelligence can improve through education and training methods. In the experimental studies, it was found that the post-test scores of the individuals in the experimental group of the emotional intelligence programs developed by the researchers increased

212

significantly compared to the pretest scores (Altunbaş and Özabacı, 2019; Kocaman Gelir, 2019; Nélis et al., 2011; Şahin and Ömeroğlu, 2015; Tufan, 2009; Yılmaz, 2021). The results of these studies support the research findings. According to another result of the study, the emotional intelligence post-test scores of the control group and placebo group students do not differ significantly. Educational activity for the development of emotional intelligence was not carried out for the students in the control group of the study. For the placebo group, a total of 20 sessions, including 10 sessions of film activities and 10 sessions of academic educational seminars, were applied. The results of the study by Tufan (2009) Yaşarsoy (2006) and Yılmaz (2021) support this study with the result that the pre-test and post-test mean scores of the control group students do not differ in their emotional intelligence scores. Altunbaş and Özabacı (2019), who studied the placebo group, did not find any significant results in favor of the control and placebo groups. As a result of this experimental study, the creative drama-based psycho-education program created within the scope of the research caused a significant development of the emotional intelligence of the students.

According to these results, the drama is considered as an art field that contributes to the emotional, mental, and social development of the child, as it requires active participation (McCaslin, 1990; Stewing and Buege, 1994; Üstündağ, 1998; Üstündağ, 2010). With the help of drama, it is ensured that people see themselves and their environment in-depth and in universal dimensions, not superficially (Aral et al., 2000; Başkaya, 2000; Gönen and Uyar Dalkılıç, 1998). In the context of this result, it is thought that using the creative drama method in educational activities is beneficial, and it can be suggested that teachers reflect this method to the education process. It may be suggested that the Ministry conducts program development studies to develop creative drama activities in the education process. To ensure the widespread use of this method, courses related to the importance of this method can be organized and teachers can be encouraged to participate in these courses. In addition, psycho-educational programs can be created that include different methods for the development of emotional intelligence and appeal to different age groups. In future studies, quantitative studies examining the relationships between perceptions of creative drama, psychodrama, sociodrama, and concepts such as emotional intelligence and social intelligence or longitudinal studies involving one or more of these variables can be conducted.

References

Abacı Karadeniz, S. and Tepeli, K. (2019). Yaratıcı drama eğitiminin ergenlerin utangaçlıkla baş etme ve atılganlıklarını geliştirmeye yönelik etkisi. *Yaratıcı Drama Dergisi* , *14*(1), 99-116.

Abacı, S., Tepeli, K. ve Erbay, F. (2015). Yaratıcı drama eğitiminin ergenlerin sosyal becerilerine etkisi *Yaratıcı Drama Dergisi, 10*(2), 191-200.

Adıgüzel, Ö. (2006). Yaratıcı drama kavramı, bileşenleri ve aşamaları. *Yaratıcı Drama Dergisi, 1*(1), 17-30.

Adıgüzel, Ö. (2015). *Eğitimde yaratıcı drama.* Ankara: Pegem Akademi.

Adıgüzel, H. Ö. and Timuçin, E. (2010). The effect of creative drama on student achievement in the instruction of some development and learning theories. *Procedia-Social and Behavioral Sciences, 9*, 1741-1746.

Afzal, M.,&Afzal, T. M. (2016). Relationship of family structure and emotıonal intelligence of secondary school students in İslamabad. *American Journal of Educational Research, 4*(9), 685-688.

Akfırat, Ö. F. (2004). *Yaratıcı dramanın işitme engellilerin sosyal becerilerinin gelişimine etkisi.* (Unpublished master's thesis). Ankara Üniversitesi Sosyal Bilimler Enstitüsü Özel Eğitim Anabilim Dalı, Ankara.

Altınova, H. H. and Adıgüzel, Ö. (2012). Effect of creative drama method to self-esteem level. *Ankara Sağlık Bilimleri Dergisi, 1*(3), 145-164.

Altunbaş, T. & Özabacı, N. (2019). Bir duygusal zeka programının ilkokul öğrencilerinin duygusal zeka, atılgan, saldırgan ve çekingen davranışlarına etkisinin incelenmesi. *Turkish Psychological Counseling and Guidance Journal, 9*(54) , 659-688.

Aldavero, V. A. (2008). Drama in the development of oral spontaneous communication. *Encuentro, 17,* 40-43.

Almaz, G., İşeri, K. and Ünal, E. (2014). Öğretmen adaylarının yaratıcı drama yöntemini kullanmaya yönelik öz yeterlik algılarının incelenmesi. *International Journal of Languages' Education and Teaching, 2*(3), 48-65.

Aral, N., Kandır, A. and Can Yaşar, M. (2000). *Okulöncesi eğitim, 2.* İstanbul: Ya-Pa Yayın Pazarlama San. Ve Tic. A.ş.

Atish, S. (2015). Significance of drama and drama exercises in teaching Turkish as a foreignlanguage, the case of IBSU. *Journal of Education, 4*(1), 13-16.

Aydeniz, H. and Özçelik, N. (2012). Impact on creative drama method on the French achievement of university students. *Procedia-Social And Behavioral Sciences*, 47, 962-967.

Aydın, B. (2005*). Çocuk ve ergen psikolojisi.* (2.Baskı) İstanbul: Atlas Yayıncılık.

Barnes, H. (1998). Identifying educational strategies for use with deaf pupils. *The Journal of National Drama, 5*(3), 20-25.

Başkaya, Ö. (2000). *Dört drama liderinin yaklaşımlarına genel bir bakı ve yaratıcı dramada temel ilkeler.* Türkiye 2. Drama Liderler Buluşması. Published by: Naci Aslan. Ankara: Oluşum Tiyatrosu ve Drama Atölyesi. P.83-88.

Batdı, V. and Batdı, H. (2015). Effect of creative drama on academic achievement: A meta-analytic and thematic analysis. *Educational Science: Theory and Practice, 15*(6), 1459-1470.

Ceylan and Ömeroğlu (2012) Yaratıcı drama eğitimi alan ve almayan 60-72 aylar arasındaki çocukların sosyal-duygusal davranışlarının bazı değişkenlere göre incelenmesi. *Kastamonu Eğitim Dergisi 20*(1) 63-80

Ciarrochi, J. and J. D. Mayer. (2007). The key ingredients of emotional intelligence interventions: similarities and differences. *In applying emotional intelligence: A practitioner's guide*, Edited by J. Ciarrochi and J. D. Mayer, 144–156

Conard, R. and Asher, J. W. (2000). Self-concept and self-esteem through drama: A meta-analysis. *Youth Theatre Journal*, 14, 78-84.

Çapacıoğlu, K. Ç. and Demirtaş, V. Y. (2017). Yaratıcı dramanın öfke denetimi becerilerine etkisi *Elementary Education Online, 16* (3), 960-977.

De La Cruz, R. E. (1995). *The effects of creative drama on the social and oral language skills of children with learning disabilities*. Ph.D Thesis. İllinois State University, Bloomington.

Demircioğlu, Ş. (2010). Teaching English vocabulary to young learners via drama. *Procedia Social and Behavioral Sciences,* 2, 439-443.

Deniz, M. E. and Korkman, H. (2014). Üniversite öğrencilerinin yükleme karmaşıklığı puanlarının duygusal zeka ve akıcı zeka çerçevesinde incelenmesi. *Asya Öğretim Dergisi, 2*(2), 27-37.

Dodson S. (2000). Learning language through drama. *Texas Papers in Foreign Language Education, 5*(1), 129-141.

Doğan, S. and Demiral, Ö. (2007). Kurumların başarısında duygusal zekanın rolü ve önemi. *Yönetim ve Ekonomi, 14*(l), 209-230.

Duatepe, A. and Akkuş, O. (2006). Yaratıcı dramanın matematik eğitiminde kullanılması: Kümeler alt öğrenme alanında bir uygulama. *Yaratıcı Drama Dergisi, 1*(1), 32-38.

Dulewicz, V. and Higgs, M. (2004). Can emotional intelligence be developed?. *Human Resources Management, 15*(1), 95-111.

Erbay, F. and Yıldırım Doğru, S. S. (2010). The effectiveness of creative drama education on the teaching of social communication skills in mainstream students. *Procedia Social And Behavioral Sciences, 2*, 4475–4479.

Erdoğan, G. (2006). *İlköğretim 8. sınıf (14-15 yaş) öğrencilerinin depresif belirti ve öz kavram düzeylerine yaratıcı drama çalışmalarının etkisinin incelenmesi.* (Unpublished master's thesis). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Mesleki Eğitim Fakültesi, Çocuk Gelişimi ve Eğitimi, Ankara.

Ernst-Slavit, G. and Wenger, K. J. (1998). Using creative drama in the elementary ESL classroom. *Tesol Journal, 7*(4), 30-33.

Freeman, G. D. Sullivan, K. Fulton, C. R. (2003). Effects of creative drama on self concept, social skills, and problem behavior. *Journal of Educational Research, 96*(3), 131-138.

Fulford, J.,Hutchings, M., Ross, A. and Schmitz, H. (2001). *İlköğretimde drama.* Ankara: Nobel Yayın Dağıtım.

Gallagher, M. (1997). *Drama in education: Adult teaching and learning for change in understanding and practice.* (Unpublished doctoral thesis). University of Wisconsin Madison, USA.

Gencel, İ. E. (2009). The effects of creative drama technique on achievement attitude toward social studies course. *Çağdaş Eğitim Dergisi, 34*(360), 5-13.

Goleman, D. (2000), *Basında duygusal zeka.* İstanbul: Varlık Yayınları

Gönen, M. and Dalıkılıç Uyar, N. (1997). *Anaokuluna devam eden 60-72 aylık çocuklara destekleyici olarak uygulanan eğitimde drama programının çocukların*

dil gelişimine etkisinin incelenmesi. Editör: G. Haktanır. Okul öncesi Eğitimi Sempozyumu: Okul öncesi Eğitiminde Yeni Yaklaşımlar. Ankara: Ankara Üniversitesi Yayınları, s: 125-134.

Güneysu, S. and Tekmen, B. (2009) Dramanın duygusal zeka gelişimine etkisi, *Yaratıcı Drama Dergisi, 4*(7), 35-50.

Johannsen, K. C. P. (2004). *Social issue drama and its impact on the social consciousness of preadolescent schoolchildren.* (Unpublished doctoral dissertation). University of St. Thomas, St.Paul-Minnesota.

Kaf, O. (1999). *Hayat bilgisi dersinde bazı sosyal becerilerin kazandırılmasında yaratıcı drama yönteminin etkisi.* (Unpublished master's thesisi). Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.

Kocaman Gelir, İ. (2019). *Karikatüre dayalı uygulamaların okul öncesi dönemdeki çocukların duygusal zekâ ve iletişim becerilerine etkisi.* Siirt Üniversitesi, Sosyal Bilimler Enstitüsü, Yüksek Lisans Tezi.

Kocayörük, A. (2000). *Duygusal zeka eğitiminde drama etkinlikleri*. Ankara: Nobel Yayınları.

Konrad, S. and Hendl, C.(2001) *Duygularla güçlenmek (1st Edition)* (Meral Tastan, Trans.). İstanbul: Hayat Yayınları.

Köksal A. (2003). Drama ve dramanın önemi. *Türk Eğitim Bilimleri Dergisi, 1*(2), 36-45.

Levent, T. (1999). Drama kültürü oluşturmak. eğitimde tiyatroda yaratıcı drama. *Çağdaş Drama Derneği Bülteni, 2*, 7-9.

Lillard AS, Lerner MD, Hopkins EJ, Dore RA, Smith ED, Palmquist CM. (2013) The impact of pretend play on children's development: a review of the evidence. *Psychol Bull, 139*(1), 1-34.

Mayer, J. D. Caruso, D. and Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*, 267-298.

McCaslin, N. (1990). New direction in creative drama. *National Forum, 70,* (3), 34, 3p. ISSN: 10162-1831.

McCaslin, N. (2006). *Creative drama in the classroom and beyond.* USA: Pearson Education.

Momeni, S.,Mohammadreza K., Rahmat A. (2017). The role of creative drama in improving the creativity of 4-6 years old children. *Journal of History Cultureand Art Research, 6*(1) 617-626.

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F.,Dupuis, P., ve Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability.

Emotion, 11(2), 354–366. https://doi.org/10.1037/a0021554.

Oğur, B. and Kılıç, G. B. (2005). The effects of students' science achievement on integrated drama in science lessons. *Eurasian Journal of Education Research, 20*(6), 178-188.

Önder, A. (2016). *Yaşayarak öğrenme için eğitici drama*. (10th edition.). Ankara: Nobel Yayıncılık.

Öztürk, A. (2001). Eğitim- öğretimde yeni bir yaklaşım: Yaratıcı drama. *Kurgu Dergisi, 18*, 251-259.

Petrides, K.V.,Frederickson, N. and Furnham, A. (2003). The role of trait emotional intelligence in academic performance and deviant behavior at school. *Personality and Individual Differences, 36*, 277-293.

Phillips, S. (2000). *Drama with children* (2th edition). Oxford: Oxford UniversityPress.

Salovey P.,Mayer, J.D. (1997) Emotional ıntelligence. *Imagination, Cognition and Personality, 9*,185-211.

San, İ. (1990). Eğitimde yaratıcı drama. *Ankara Üniversitesi, Eğitim Bilimleri Fakültesi Dergisi, 23*(2), 573-582. 101.

Sarıçoban, A. (2004). Using drama in teaching Turkish as a foreign language. *Eurasian Journal of Educational Research, 4*(14), 13-32.

Schutte, N.S.,Malouff, J.M., Bobik, C., Coston, T.D., Greeson, C., Jedlicka, C. and Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *The Journal of Social Psychology, 141* (4), 523-536.

Selmanoğlu, E. (2009). *İlköğretim 5.sınıf Türkçe dersinde yaratıcı dramanın öğrenci başarısına etkisi.* (Unpublished master's dissertation). Abant İzzet Baysal Üniversitesi, Sosyal Bilimler Enstitüsü, Bolu.

Shell, D. F.,Colvin, C. and Bruning, R. H. (1995). Self-efficacy, attributions, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology, 87*(3), 386-398.

Stewing, W.J. and Buege, C. (1994). *Dramatizing literature in whole language classrooms.* (Second Edition.). New York : Teachers College Press, Columbia University.

Şahin, H., and Ömeroğlu, E. (2015). Psikososyal gelişim temelli eğitim programının anasınıfına devam eden çocukların duygusal zekâlarına etkisi. *Uluslararası Türk Eğitim Bilimleri Dergisi, 5*, 39-56.

Taşkın Can, B. (2013). The effects of using creative drama in science education on students' achievements and scientific process skills. *Elementary Education Online, 12*(1), 120-131.

215

Timothy, J. and Apata, F. S. (2014). Effects of creative drama-based instruction on basic science achievement and scientific attitudes in Lagos state. *ATBU, Journal of Science, Technology and Education, 2*(2), 59-65.

Titrek, O. (2004). *Eğitim fakültesi öğretim üyelerinin duygusal zekâ yeterliklerini iş yaşamında kullanma ve akademik başarı düzeylerine ilişkin karşılaştırmalı bir araştırma.* (Unpublished doctoral thesis). Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Topbaşı, F. (2006). *Okul öncesi dönem 6 yaş grubu çocukların törel (ahlâkî) gelişiminde dramanın yeri ve önemi.* (Master's dissertation). Ankara Üniversitesi, Sosyal Bilimler Enstitüsü.

Tufan, Ş. (2009). *Geliştirilen duygusal zekâ eğitim programının ortaöğretim dokuzuncu sınıf öğrencilerinin duygusal zekâ düzeylerine etkisi.* (Master's dissertation). Ankara University, Institute of Educational Sciences, Ankara.

Uysal, F. N. (1996). *Anaokuluna giden 5-6 yaş grubu çocuklarda yaratıcı drama çalışmalarının sosyal gelişim alanına olan etkisinin incelenmesi.* (Unpublished master's dissertation). Ankara Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.

Üstündağ, T. (2010). *Yaratıcı drama öğretmenimin günlüğü.* Ankara: Pegem Akademi.

Üstündağ, T. (1988) *Dramatizasyon ağırlıklı yöntemin etkililiği.* (Unpublished master's dissertation). Ankara: Hacettepe Üniversitesi, Sağlık Bilimleri Enstitüsü

Üstündağ, T. (1998). Yaratıcı drama eğitim programının öğeleri. *Eğitim ve Bilim, 22*(107), 28-35.

Wagner, B. J. (1988). Does classroom drama affect the arts of language?. *Language Arts, 65*(1), 46-55.

Yassa, N. A. (1997). *A study of the effect of drama education on social interaction in highschool students.* (Unpublished doctoral dissertation.). Lakehead University, Ontario.

Yaşarsoy, E. (2006). *Duygusal zekâ gelişim programının, eğitilebilir zihinsel engelli öğrencilerin davranış problemleri üzerindeki etkisinin incelenmesi.* (Master's dissertation.). Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.

Yeşilyurt, E. (2011). *6. Sınıflarda yapım eklerinin öğretimine yaratıcı drama yönteminin etkisi.* (Master's dissertation.). Abant İzzet Baysal Üniversitesi, Sosyal Bilimler Enstitüsü, Türkçe Eğitimi Ana Bilim Dalı, Bolu.

Yılmaz, E. (2021). Duygusal zeka geliştirme eğitim programının (DZGP) öğrencilerin duygusal zekalarına etkisi. *The Journal of International Lingual Social and Educational Sciences , 7*(2) , 74-86 . DOI: 10.34137/jilses.1026550.

OPUS ▶

RESEARCH ARTICLE

"Social Innovation" and Urban Policy during Covid 19: Systematic Literature Review and Content Analysis

Burcu Hatiboğlu Kısat [1]

[1] Asoc. Prof., Hacettepe University FEAS Department of Social Work, Ankara/Turkey
ORCID: 0000-0002-4396-8412
E-Mail:
burcuhatiboglu@gmail.com

Corresponding Author:
Burcu Hatiboğlu Kısat

Abstract

This article focuses on how social innovation activities were developed in the urban context during the Covid 19 pandemic, through systematic literature review and content analysis. The literature search was carried out between June and September 2021 on the Web of Science database. 64 articles reached from the database were filtered by applying exclusion-inclusion criteria. After examining the article abstracts, it was determined that 23 articles were closely related to the research subject. Using the NVIVO qualitative analysis program, key features of social innovation in the urban context during COVID 19 were analyzed (in terms of being value-based, social needs/problem-oriented, change-oriented). The research findings are discussed in three sub-titles, revealing the "basic values", "prominent social problems/needs and solution proposals" and "main stakeholders" of social innovation in the context of urban policies during the pandemic. The results of the analysis have shown that the understanding of social innovation in the urban context during COVID 19 has been associated with collective values and focused on the responsibilities of local governments for the realization of social human rights. In this framework, attention is drawn to the opportunities for the implementation of participatory democracy at the level of local governments.

Key Words: *Social Innovation, Urban Policy, Urban Problems, Covid 19.*

Öz

Bu makale, sistematik literatür taraması ve içerik analizi yoluyla, Covid 19 pandemisi sırasında kentsel bağlamda sosyal inovasyon faaliyetlerinin nasıl geliştirildiğine odaklanmaktadır. Literatür taraması Haziran-Eylül 2021 tarihleri arasında Web of Science veri tabanı üzerinden yapılmıştır. Veri tabanından ulaşılan 64 makale dışlama-dahil etme kriterleri uygulanarak filtrelenmiştir. Makale özetlerinin incelenmesi ile birlikte 23 makalenin konuyla yakından ilgili olduğu belirlenmiştir. NVİVO nitel analiz programı kullanılarak, COVID 19 sırasında kentsel bağlamda sosyal inovasyonun temel özellikleri analiz edilmiştir (değer temelli, sosyal ihtiyaçlar/sorun odaklı, değişim odaklı olma açısından) . Araştırma bulguları, pandemi sürecindeki kent politikaları bağlamında sosyal innovasyonun "temel değerleri", "öne çıkan toplumsal sorunlar/ihtiyaçlar ve çözüm önerileri" ve "Temel paydaşları"nı ortaya koyacak şekilde üç alt başlıkta tartışılmıştır. Analiz sonuçları, COVID 19 sırasında kentsel bağlamda sosyal inovasyon anlayışının kolektif değerlerle ilişkili olduğunu ve sosyal insan haklarının gerçekleştirilmesi için yerel yönetimlerin sorumluluklarına odaklandığını göstermektedir. Bu çerçevede katılımcı demokrasinin yerel yönetimler düzeyinde uygulanmasına yönelik fırsatlara dikkat çekilmektedir.

Anahtar Kelimeler: *Sosyal İnovasyon, Kent Politikası, Kentsel Sorunlar, Kovid 19.*

Introduction

The concept of social innovation has increasingly gained significant attention in urban development especially after 2008 economic crisis. This attention has increased day by day since the UN (2015) estimates that the urban population would reach 60% of the world's population by 2030. In this context, "smart cities" in relation with the innovation concept have increasingly been emphasized in international and national urbanization policies and strategies (Calzada, 2020; UN-Habitat, 2020). Additionally, it is argued that social innovation is a dimension that should be considered especially within the poverty reduction and social inclusion policy and programs in countries with partially developed social welfare systems (Cattacin & Zimmer, 2016). In this respect, it is possible to say that the concept of social innovation has begun to be mentioned with the meltdown in welfare systems. It is also emphasized that social innovation in urban context has been differentiated from that in other fields. In this respect, social innovation in the field of urban development is to be identified as a collective strategy of rather than individual leadership. Within this context, Bransen et. al (2016) has identified five types of social innovations could be developed in the urban settings:

- Innovations in social services which consist of investing capabilities, avoiding stigmatization, and acquiring competence and self-esteem
- Innovations in regulations and rights that includes developing offers beyond fixed social rights and flexibilizing the accepted forms of governing
- Innovation in governance to building coalitions and partnership for building opinions around challenges in public services
- Innovations in modes of working and financing for combining resources from different stakeholders and
- Innovations local welfare system to encourage less standardized, more diverse, localized welfare arrangements

In this context, some researchers (Brandsen, Evers, Cattacin & Zimmer, 2016; McGuirk, Dowling, Maalsen and Baker, 2021; Ziegller, 2017) have stressed that social innovation has increasingly being addressed as a collaborative concept as an important tool for providing new and creative opportunities for local development by emphasizing social needs, quality of life, relationship within stakeholders. However, some of the others (Thompson, 2019; Mens et.al., 2021) has emphasized that social innovation becoming the favorite word of local economic development policies is related to neoliberal ideas. In this respect, they have stressed that the types of social innovations developed in the urban area have been structured in a neoliberal context and they have become passive in many cases. They have also stated that the only way to be remain active is to be conditioned by states or markets.

At this point, COVID 19 pandemic, created significant transformations in both private and public lives all around the world, especially of those living in the urban areas. Daily life practices have been restricted by COVID-19 interventions and it has ended up with anxiety and concerns, fueled by inequalities and poverty. In this situation, international organizations (UN, 2020, UN-Habitat, 2020, WHO, 2020) have been underlining that states and local governments should develop measures to prevent the spread of the pandemic with a broader and innovative perspective addressing bio-psycho-social health in a holistic manner and considering intersectional inequalities. In this context, it is seen that many social innovation studies (Tarsitano, Sinibaldib and Colao, 2021; McGuirk, Dowling, Maalsen and Baker, 2021; Cleave and Geijsman, 2020) have been started in different countries against the negative effects of the COVID 19 pandemic in the urban area. However, almost all these social innovation studies were conducted in a scattered manner as they aimed to respond quickly to the negative effects of the pandemic (McGuirk, Dowling, Maalsen and Baker, 2021). For this reason, it is important to examine the social innovation ideas applied in different countries with a scientific perspective.

This article is focused on social innovation activities developed in urban context during COVID 19 pandemic by conducting case study content analysis through the systematic literature review in an international level. In this respect, core characteristics of social innovation (value-based, social needs/problems-focused, collaborative, change-oriented) in urban context during COVID 19 has been analyzed through the selected articles on country case studies.

This paper comprises three basic sections. Following this introduction is the methodology section that gives basic information on "qualitative meta-analysis" as a research method conducted in three stages: 1) systematic literature review, 2) content analysis and 3) synthesis/reporting. The next section outlines the research findings in three subtitles: 1) Core values of social innovation in pandemic urban setting, 2) Prominent urban problems/needs and solution of social innovation in pandemic 3) Core innovators/stakeholders in collaboration under pandemic urban setting. The last section focuses on the discussion of the research findings.

Research Method

This research aims to understand how "Social Innovation" has been contextualized within the International Urban literature related COVID 19 process that completely changed the urban area all over the world. Within this aim, research method has based on a recent approach identified as qualitative meta-analysis. "Qualitative meta-analysis" gives an opportunity for using "a systematic approach" to review, to analysis and synthesis the researches examining the same phenomenon (Timulak, 2014). Within the scope of this research, research method has conducted in three stages for gathering comprehensive understanding on "social innovation" within "urban governance" in relation with COVID 19: 1) systematic literature review, 2) content analysis and 3) synthesis/reporting.

Systematic literature review

This stage has consisted of choosing the data bases to use, deciding the publication time periods, words, concepts, and themes to search by describing the exclusion and inclusion criteria. Web of Science database has been preferred because of allowing to reach high quality publications in terms of their impact factors at the international level. Exclusion and inclusion criteria for filtering the most related publications have also been determined as in Table 1:

Table 1. Inclusion and exclusion criteria for filtering the most related publications

Inclusion Criteria	Exclusion Criteria
• All types of publications reached from WoS database	• Articles not published between 2019 and 2021
• Qualitative, quantitave or mixed research methods	• Articles not included the terms "social innovation", "covid/pandemic" "urban/city" in their abstract
• All country cases published in English	
• Articles published between 2019 and 2021	• Articles not in English
	• No access to publications
• Publications with specific topics on "social innovation", "urban/city" and "Covid 19/pandemic"	• Publications on general literature review that not focus on a specific country sample

The literature search has been performed through Web of Science database between June and September 2021. After 64 articles reached from the database were filtered by applying the exclusion and inclusion criteria (2 of the article not accessed; 4 in Italian and 3 in Chinese could not be included), abstracts of 55 articles identified have carefully been screened for choosing most related articles about the topic. For example, 6 articles were not included in the analysis because of not providing appropriate information for content analysis although they have allowed a general understanding of social innovation within urban policies and governance during the COVID 19 process from an international perspective. 26 articles in which terms of "city" and "urban" has been only referred for only marking the research area but not referred to urban governance or policies/services in their title, abstract or full text are excluded. At least, 23 articles identified as relevant (Table 2) were inserted into the database for analyzing via NVIVO qualitative analysis program.

Table 2. Articles identified for content analysis

Publications	Journal name	Nbr.
Cleave J. and Geijsman J. (2020)	Digital Library Perspectives	1
McGuirk, P., Dowling, R., Maalsen S. and Baker, T. (2021)	Geographical Research	1
Voda, M., Murgu, A., Sarpe, C. A., Graves, S. M. and Avram, C. (2021) Chen, Y., Su, X. and Zhou, Q. (2021) Jeong, E., Hagose, M., Jung, H., Ki, M. and Flahault, A. (2020)	International Journal of Environmental Research and Public Health	3
Mehmood, A. and Imran, M. (2021)	European Planning Studies	1
Zukin, S. (2020)	Theory and Society	1
Maynardes, D. and Fariniuk, T. (2020)	Brazilian Journal of Public Administration	1
Le, T.T., Ngo, H. Q. and Aureliano-Silva,L. (2020)	International Journal of Emerging Markets	1
Hou, X., Ma, Q. and Wang, X. (2021)	Discrete Dynamics in Nature and Society	1
Hidayat S., Halid J., Dirgantara, T., Kusuma, M. A.; Utomo, H.; Sudjud, R. W.; Rejeki, S. I.; Mihradi, S.; Raharno, S.; Rukanta, D. & Tjahjono, H. (2020)	Journal of Engineering and Technological Science	1
Imai, H. and Ji, Y. (2021)	Asian Studies	1
Sharif, A., Khavarian-Garmsir, A.R. and Kummitha, R.K.R. (2021) Calzada, I. (2021). Samkange, F., Ramkissoon, H., Chipumuro, J., Wanyama, H. and Chawla, G. (2021)	Sustainability	3
Tarsitano, E., Sinibaldib, P. and Colao, V. (2021).	International Journal of Sustainable Development & World Ecology	1
Maestosi, C. P., Andreucci, M. B. and Civiero, P. (2021).	Energies	1
Porotto, A. and Ledent, G. (2021).	Buildings	1
Buffel, T., Yarker S., Phillipson C., Lang L., Lewis C., Doran P. and Gof, M. (2021). Zukin S. (2021).	Urban Studies	2
Painter, D.T., Shutters,,S. T. and Wentz,,E. (2021).	Urban Science	1
Diganta D. and Zhang, J. J. (2021)	Urban Geography	1
Hestad, D., Tabara, J. D. and Thornton, T. F. (2021).	Cities	1
Total number of the publications analyzed		**23**

Content analysis of the literature

Once 23 articles chosen as suitable for reaching the research aim were uploaded to the research database of NVIVO. Most of the articles were country specific urban case studies. Once, the remaining 23 articles from the screenings were classified as single cases with country name in the database. In this context, the cases of countries included in the content analysis are as follows: Australia, Austria, Belgium, Brazil, China (2), Italy (2), Indonesia, Japan, New Zealand, Romania, Singapore, South Africa, South Korea, Spain (2),

United Kingdom (2), United States of America (3), Vietnamese.

Then, all cases were analyzed according to capture general understanding on how "social innovation" has been contextualized within the international urban literature related Covid 19-process. In order to understand in depth how social innovation is handled in the context of urban problems/needs within the COVID 19 process, the four sub-questions were identified in relation with the literature on core characteristics of social innovation (value-based, social needs/problems-focused, change-oriented). These sub-questions are:

1. What are the core values that the innovation idea based on?
2. What are the prominent urban social problems/needs to which the idea of innovation is identified?
3. Who are the core innovators/stakeholders?
4. What is the change-oriented solutions produced by the idea of innovation?

In order to answer these sub-questions, deductive category application approach (Timulak, 2014) was used in the first phase of the content analysis by using four categories: 1) core values, 2) urban social problems/needs, 3) core innovators/stakeholders in collaboration, 4) change-oriented solutions. In second phase, inductive approach was used to analyze in all categories separately. Under each category, the contextual position of social innovation in the urban context during the pandemic process has been tried to be understood by using line-by-line coding. Then, themes under each category were reached.

Synthesis/reporting

For synthesizing the data, whenever information related to characteristics of social innovation (value-based, social needs/problems-focused, change-oriented solutions) was found, it has been recorded in a separate coding under the core characteristics in NVIVO program. As the next article has been analyzed, it has checked whether the coding information (related to each

characteristic) could be combined with an existing code. This process was continued until all articles in the database were analyzed. It has helped to identify and extract codes from existing literature and classifying them to developing overreaching themes and sub-themes. This approach has also provided insights on how sub-themes and themes are interconnected and useful for information about social innovation in the pandemic urban settings, which has reported in the following section.

Findings

Content analysis results show that social innovation studies developed within the scope of city management and policy under pandemic conditions are handled with direct reference to sustainable development goals. In this respect, the sustainable development goals framework has a decisive position in terms of developing social innovation solutions for urban problems. In 12 of the analyzed articles, it has been emphasized that "Sustainable Development Goals" should be implemented directly in the context of urban policy under pandemic conditions. Additionally, in 6 articles has indirectly referred to "sustainable development" and "sustainability" in "social innovation" studies within pandemic urban. In this respect, a "sustainable", "recovery-oriented", "resilient" and "green" city has pointed to the main political orientation in which core values and activities of social innovation to solve prominent social problems in pandemic process have been constructed.

The research findings are discussed under four sub-titles to understand that the social innovation activities in pandemic urban conditions have been constructed on which core values, what kind of social problems/need focused and how solutions constructed in collaboration.

Core values of social innovation in pandemic urban setting

Within the framework of the content analysis on core values that stand out in social innovation in terms of urban policies during Covid-19 process, 4

core values in policy level, 10 dependent values in local and 20 dependent values in daily life levels has been categorized (Table 3). The dependent values are interconnected with each other and has close connection with the realization of core values.

In this respect, Interconnectedness & Reciprocity as one of the core values of urban social innovation during COVID 19 have seen institutional "solidarity", "responsibility" and "transparency" in local governance as the basis. Dependent values that require the development of this process at the level of daily life are described as "collective action" and "solidarity" spirit, "participative", "voluntary" spirit, and openness to change.

Table 3. Core values for social innovation in urban settings during Covid 19

SUSTAINABLE – RECOVERY ORIENTED – RESILIENT-GREEN Strong relation with Sustainable Development Goals (Directly in 12 articles and partially in 6 articles)		
Core values in policy level	Dependent values in local level	Dependent values in daily life level
Interconnectedness & Reciprocity	Solidarity Social responsibility Transparency	Collective action Participation Voluntary spirit Solidarity spirit Openness to change
Inclusiveness (Equality& justice)	Empowerment Digital rights Cohesion	Democratic participation culture Belonging Accessibility Tolerance
Transformativity	Openness Adaptability Multiple benefits	Critical thinking Multiple use of spaces Advocacy & Activism
Ecological Priority	Environmentality Ecological urban services	Diversity awareness Advocacy & Activism Monitoring Belonging

Inclusiveness has been one of the other core values defined for social innovation in pandemic urban policy context; that has close connection with the understanding of equal and just city. The realization of this core value has identified as a required multi-level local governance for empowering of vulnerable, implementing of digital rights for all and adopting cohesion policies. In this context, the dependent values expected to develop at the level of daily life have also been mentioned. Especially democratic participation culture, tolerance and belonging

have defined as the main dependent values for realization of inclusiveness in urban daily life under pandemic conditions. In addition to these, accessibility has also handled in close relationship with inclusiveness.

Transformativity has emerged as another important core value emphasized at the level of urban policies during the covid process. This core value has focused on the importance of openness to change toward more democratic urban governance in which the adaptability and the multiplicity of urban services for immediate recovery could be possible in the face of deepening inequalities under pandemic conditions. For this, at the level of everyday urban life, capacity of critical thinking on multi-use value of spaces, monitoring of the urban policy and services and developing advocacy and activism have been highlighted as the important aspects.

Ecological priority has been considered as the newest core value of social innovation in urban setting especially after COVID 19, in close connection with the "sustainable development goals". In this respect, developing environmentality in urban life and governance via ecological urban services has been highlighted as the local level values. The prominence of this local values has been dependent on the increasing awareness on ecological diversity after the relationship between green spaces and belonging becoming more visible in pandemic conditions. From this point of view, values in daily life level on ecological priority have also been defined depending on the capacities of the citizens to monitor and advocate for more green urban areas.

Consistent with the results of the analysis regarding the social problems/needs deepened by the pandemic conditions- discussed in detail in the next section-, the understanding of social innovation has increasingly related with more and more collective values and focusing on local government responsibilities for realizing social human rights.

Prominent urban problems/needs and solutions of social innovation in pandemic

As a result of the content analysis, it is seen that social innovation activities in urban settings have focused on immediate effects of the pandemic but also addressed longstanding social inequalities. In Table 4, social problems/needs and the vulnerable groups defined in social innovation studies carried out within the framework of these problems have been defined under 6 problem categories.

Table 4. Social problems and needs on which social innovation activities focused in urban settings during COVID 19

Problem categorization	Social problems/needs most frequently highlighted	Vulnerable groups
Health problems	Unequal distribution of health supplies Restricted food supply Need for medical devices and services Low public health awareness	Urban poor Elderly Homeless, refugees, displaced people (like Roma people)
Inclusiveness problem	Unmet needs of vulnerable Inaccessibility of urban services Integration problems and conflicts Unhearth voices Stereotypes and inequalities	Elderly Refugee, Roma people Young people Women LGBTİ+
Space/place related problems	Decreased safe spaces/places Conflict of interest over land use Housing shortage/increasing prices Increasing deprived urban areas Restrictions of public transportation Abundance of green spaces	Homeless, refugee, displaced people (like Roma people), Urban poor (children, young, elderly, women, LGBTİ+)
Isolation problems	Feeling of loneliness Depression Negative effects of causalities	Elderly people Young people
Digitalization problems in urban governance	Technocratic and undemocratic planning culture Fragmental local governance and territorial management E-democracy algorithmic threats-Representative problems Digital inequalities-Digital illiteracy	People living in urban areas of municipalities with unequal resources Poor Elderly Women Children

All the problem categories have close relations with the health problems and inclusiveness problems categories. While the first category includes unequal distribution of health supplies (masks, disinfectants etc.), restricted food supply, need for medical devices and services, low public health awareness, the second category consists of unmet needs of the vulnerable because of the inaccessible urban services, stereotypes, and inequalities. That's why, social innovation activities have focused is the space/place related

problems increasing because of the pandemic conditions. This categorical problem definitions have referred to the needs of creating more safe and green spaces/places and more safe public transport services mostly for deprived urban areas and needs for local urban policies to resolve conflicts over land use and housing shortage. The most vulnerable groups have identified in relation to these problems are listed as follows: Homeless people, refugees, displaced people (like Roma people) and the LGBTI+, children, young people and women living in urban poor.

Thus, the most of the innovative solutions to health and inclusiveness problems related to COVID 19 has been about creating, mapping or monitoring multifunctional, ecological, safe urban spaces, public transport system and other urban services including or participatory policy development for reorganizing the public space rules, tax reduce, control of prices of home and collective housing production.

This innovative space creation and mapping activities has been expanded to open online sources spaces for coworking, job creating, knowledge and skills sharing, organizing, and networking in pandemic times. In this kind of open sources space creation, inclusiveness perspective seems to have improved with the trans-boundary collaboration of local union, city councils and non-governmental organizations. Studies carried out in this framework also enable the development of innovative ideas and institutional and social transformation via facilitating social interaction between citizens civil society and the local government. Examples of such innovative studies are:

- Developing online educational and cultural activities for promoting effective lifelong learning and distance learning
- Organizing public discussions
- Disseminating good practice on e-governance
- Developing useful application to raise digital knowledge and skills especially for the vulnerable and groups
- Creating virtual models of safe gaming for children and young people

- Raising awareness via social media campaign for activism and lobbying of social rights

Open sources online spaces have also identified as innovative solutions for the negative effects of isolation during COVID 19 which are categorized under isolation problems. In addition, isolation problems have also been related with the psycho-social and physical health problems which needs to be identified as government responsibility. In this respect, opportunities have emerged for the development of digital professional support systems for all in cooperation between local governments, hospitals, and universities, along with solution proposals, lobbying and advocacy activities of civil society and citizens. At this point, it is seen that innovative professional services have been developed with the financial and technical support of local governments. These professional services can be summarized as follows:

- Call centres for tele consultations and tele medicine with professional psychological support and health materials & medical equipment delivery support,
- Virtual visits of infected patients,
- Local digital centres to capture confirmed cases and to inform about vaccines,
- Municipal financial and food aid for vulnerable,
- Municipal tax assistance to local economy to strengthen small and medium enterprise
- Living treatment centres / Self-help online networks of
- Mutual care,
- Pop up food banks,
- Hardship funds via crowdfunding,
- Organized food distribution to vulnerable,
- Organized vacant housing.

While the emergence of pandemic process in which the use of technology gained importance in terms of urban policy and management revealed the necessity of inclusive participation in governance, governance problems has become more visible or diversified with technological determinism. These problems, which are categorized as digitalization problems in urban governance, has becoming more visible with the emphasis of the need for democratic planning in

general with the pandemic, by civil society and civil networks. However, the status of having digital competence and infrastructure is not shared equally by municipalities, problems arising from digital inequalities seem to have increased due to the dominance of fragmental local governance and territorial management understanding and the inability to carry out e-democracy processes effectively and competently. These problems include the representative problem that emerged as a result of non-inclusive and non-participatory governance understanding. This situation has been further reinforced by the abundance of data on social life during and post pandemic and the problem of digital illiteracy, which prevents the use of mapping systems that will provide data on this issue by the citizens.

Core innovators/stakeholders in collaboration under pandemic urban setting

Content analysis of the articles selected has shown that the core innovators/stakeholders under pandemic urban setting has multiplicity characteristics and new types of collaborations to solve the urban problems has usually been developed under the leadership of municipal and state institutions. These collaborations have been generally defined as "cross-institutional" or "cross-sectional" municipality-led collaborations, unlike traditional innovation activities. They rely on financial, political, technical, and promotional support from municipalities and government institutions. Additionally, roles of the stakeholders have been diversified (Table 5).

Table 5. Stakeholders for social innovation in urban settings during Covid 19

Stakeholders	Roles of the stakeholders
Institutional entrepreneurs from government agencies Local government	Political, financial, technical, and promotional support
City leaders (politicians, city councils, collaborative networks) City agents-community leaders, agents at household level, city volunteers-civic groups NGOs, youth agencies, civil society	Dissemination, monitoring, and mobilization support
Local police Local Institutions (such as libraries, health centers etc.)	Practice and place support
Health workers in public and private health institutions Universities/academicians/research institutes	Knowledge, technical and practice support
National Tech groups/health companies/industry professionals/architects, and private institutions EU organizations International companies	Technical, knowledge and promotional support
Philanthropies	Financial support
Citizens & Civic groups	Shared economy partnership

It is also seen that municipalities generally support the sustainability of innovation activities based on shared economy partnerships developed by the citizens and civil organizations via mobilizing civil society, create crowdfunding system across the borders, institutional boundaries, and generations. In this respect, it is also seen that municipalities, local governments institutions and companies have also found a place for developing cross-border collaborations with international institutions and companies. It seems possible to say that this situation can be reflected in the awareness of sustainable development goals at the local level.

Conclusion

The results of the content analysis on scientific publications, accepted as high quality in terms of international recognition and scientific rankings through WoS database, has shown that the rise of the social innovation activities in urban context can be addressed as a result of the new conditions created by the pandemic in social relations together with the institutional changes that came to the agenda with the neoliberal urban governance policies in the pre-pandemic. In addition to this, social innovation studies developed as a solution to the urban problems

together with the pandemic in various countries (Zieggler, 2017; McGuirk, Dowling, Maalsen and Baker, 2021) have mostly focused on "collectivist and transformative values" including interconnectedness, inclusiveness, transformativity and ecological priority. These collective and transformative values have opened up a space for constructing of values relating with the participatory democracy both in local governments and everyday life level (Abid & Muhammad, 2021). In this framework, it seems possible to develop mechanisms emphasizing and advocating the responsibility of local governments via the active participation of the citizens in the handling of social problems and solution proposals. As a matter of fact, the results of the analysis have indicated that the possibilities of cross border collaborations for social innovation have been developed through diversified roles of the stakeholders, but mostly under state or local government-led responsibility.

However, the pandemic has imposed solutions based on digitalization in terms of local governments and collaborative activities that reveals some risks in terms of the development of participatory democracy in urban context (Hestad, Tabara & Thornton, 2021). At this point, content analysis results have drawn attention to the e-democracy and representation problems (Calzada, 2021) that arise due to fragmental local governance understanding with lack of digital infrastructure, unequal financial and digital capacity or digital illiteracy in both local governance and the daily life level (Zukin, 2021).

At this point, it is seen that a critical perspective on social innovation developed with the pandemic in the urban context has not been developed much. However, content analysis results have shown the contradictory dimensions of social innovation in this context. For example, it is clear that there is a need for studies that reveal the experiences of disadvantaged groups in the dimensions of inclusiveness, freedoms and barriers, especially at the point of being included in the collaborations. Thus, the obstacles could be revealed to the sustainability of the solutions produced by social innovation in urban context during and post the pandemic process.

At last, it should be noted that this research analyzed the social innovation studies implemented in the early stages of the pandemic in urban context through a specific database. This points the limitation of this study despite its importance in terms of capturing the general perception on social innovation in pandemic urban context that determines the international literature.

References

Abid, M. & Muhammad, I. (2021) Digital social innovation and civic participation: Toward responsible and inclusive transport planning. *European Planning Studies, 29,* 1870-1885.

Brandsen, T., Evers, A., Cattacin, S. & Zimmer, A. (2016). Chapter 25: The Good, the Bad and the Ugly in Social Innovation Bransen et. Al. (Eds.). in *Social Innovations in the Urban Contex: Nonprofit and Civil Society Studies* (p.303-310). Springer, Cham.

Buffel, T., Yarker, S., Phillipson, C., Lang, L., Lewis, C., Doran, P. & Gof, M. (2021). Locked down by inequality: Older people and the COVID-19 pandemic. Special issue article: Urban Public Health Emergencies and The Covid-19 Pandemic. *Urban Studies, 00,* 1-18.

Calzada, I. (2020). Replicating smart cities: The city-to-city learning programme in the replicate EC-H2020-SCC Project. *Smart Cities, 3,* 978–1003.

Calzada, I. (2021). The right to have digital rights in smart cities. *Sustainability, 13,* 11438.

Cattacin, S. & Zimmer, A. (2016). Chapter 2: Urban governance and social innovations in social innovations Bransen et. Al. (Eds.). in *Social Innovations in the Urban Contex: Nonprofit and Civil Society Studies* (p.21-44). Springer, Cham.

Chen, Y., Su, X. & Zhou, Q. (2021). Study on the spatiotemporal evolution and influencing factors of urban resilience in the Yellow River Basin. *International Journal of Environmental Research and Public Health, 18,* 10231.

Cleave, J. & Geijsman, J. (2020). LibraryCraft – how the COVID-19 pandemic led to the growth of the WA libraries public Minecraft server. *Digital Library Perspectives, 36,* 377-388.

Diganta, D. & Zhang, J. J. (2021). Pandemic in a smart city: Singapore's COVID-19 management

through technology & society. *Urban Geography, 42,* 408-416.

Hestad, D., Tabara, J. D. & Thornton, T. F. (2021). The role of sustainability-oriented hybrid organisations in the development of transformative capacities: The case of Barcelona. *Cities, 119,* 1-13.

Hidayat, S., Halid, J., Dirgantara, T., Kusuma, M. A., Utomo, H., Widianto S. R., Rejeki, I. S., Mihradi, S., Raharno, S., Rukanta, D. & Tjahjono, H. (2020). Lessons learned from rapid development of CPAP Ventilator Vent-I during Covid-19 pandemic in Indonesia. *Journal of Engineering and Technological Science, 52,* 765-778.

Hou, X., Ma, Q. & Wang, X. (2021). Spatial differentiation and elements influencing urban resilience in the middle reaches of the Yangtze River under the COVID-19 pandemic. *Discrete Dynamics in Nature and Society,* 2021(*1*), 1-18.

Imai, H. & JI, Y. (2021). Social capital, innovation, and local resilience: Tokyo neighbourhood in times of crisis. *Asian Studies IX (XXV), 1,* 283–313.

Jeong, E., Hagose, M., Jung H., Ki, M. & Flahault, A. (2020). Understanding South Korea's response to the COVID-19 outbreak: A real-time analysis. *International Journal of Environmental Research and Public Health Case Report, 17,* 9571.

Le, T. T., Ngo, H. Q. & Aureliano-Silva, L. (2020). Contribution of corporate social responsibility on SMEs' performance in an emerging market – the mediating roles of brand trust and brand loyalty. *International Journal of Emerging Markets,* Advance online publication. https://doi.org/10.1108/IJOEM-12-2020-1516.

Maestosi, C. P., Andreucci, M. B. & Civiero, P. (2021). Sustainable urban areas for 2030 in a post-COVID-19 scenario: Focus on innovative research and funding frameworks to boost transition towards 100 positive energy districts and 100 climate-neutral cities. *Energies, 14,* 216.

Maynardes, D. & Fariniuk, T. (2020). Smart cities and the pandemic: digital technologies on the urban management of Brazilian cities. *Brazilian Journal of Public Administration, 54,* 860-873.

Mehmood, A. & Imran, M. (2021). Digital social innovation and civic participation: Toward responsible and inclusive transport planning. *European Planning Studies, 29*(10), 1870-1885

McGuirk, P. Dowling, R., Maalsen S. & Baker, T. (2021). Urban governance innovation and COVID-19. *Geographical Research, 59,* 188–195.

Painter, D., T., Shutters, S. T. & Wentz, E. (2021). Innovations and economic output scale with social interactions in the workforce. *Urban Science, 5,* 21.

Porotto, A. & Ledent, G. (2021). Crisis and transition: Forms of collective housing in Brussels. *Buildings, 11,* 162.

Samkange, F., Ramkissoon, H., Chipumuro, J., Wanyama, H. & Chawla, G. (2021). Innovative and sustainable food production and food consumption entrepreneurship: A conceptual recipe for delivering development success in South Africa. *Sustainability, 13,* 11049.

Sharif, A., Khavarian-Garmsir, A.R. & Kummitha, R.K.R. (2021). Contributions of smart city solutions and technologies to resilience against the COVID-19 pandemic: A literature review. *Sustainability, 13,* 8018.

Tarsitano, E., Sinibaldib, P. & Colao, V. (2021). Green days in the Park: A case study on Landsenses Ecology. *International Journal Of Sustainable Development & World Ecology, 28,* 632-643.

Thompson, M. (2019). Playing with The rules of the game: Social innovation for urban transformation. *International Journal of Urban and Regional Research, 43,* 1168-1192.

Timulak, L. (2014). Qualitative meta-analysis. Flick, U (Ed.). in *The SAGE handbook of qualitative data analysis* (p.481-495). SAGE Publications.

UN (2015). *World Population Prospects: The 2015 Revision, Key Findings and Advance* (Working Paper No. ESA/P/WP.241) Department of Economic and Social Affairs. https://population.un.org/wpp/Publications/Files/Key_Findings_WPP_2015.pdf.

UN (2020). *Policy Brief: COVID-19 in an Urban World.* United Nations. https://unsdg.un.org/sites/default/files/2020-07/sg_policy_brief_covid_urban_world.pdf.

UN-Habitat (2020). *UN-Habitat Guidance on COVID-19 and Public Space* (Covid Response 1). UN-Habitat. *https://unhabitat.org/sites/default/files/2020/06/un-habitat_guidance_on_covid-19_and_public_space.pdf*.

WHO (2020). *Strengthening Preparedness for COVID-19 in Cities and Urban Settings Interim Guidance for Local Authorities* (WHO/2019-nCoV/Urban_preparedness/2020.1). World Health Organization. *https://apps.who.int/iris/bitstream/handle/10665/331896/WHO-2019-nCoV-Urban_preparedness-2020.1-eng.pdf?sequence=1&isAllowed=y*.

Voda, M., Murgu, A., Sarpe, C. A., Graves, S. M. & Avram, C. (2021). The Tigani community adaptability to changes in rural Romania and the COVID-19 Impact. *International Journal of Environmental Research and Public Health, 18,* 10622.

Ziegler, R. (2017). Social innovation as a collaborative concept. *Innovation: The European Journal of Social Science Research, 30,* 388-405.

Zukin, S. (2020). Seeing like a city: How tech became urban. *Theory and Society, 49,* 941–964.

Zukin, S. (2021). Planetary silicon valley: Deconstructing New York's innovation complex. *Urban Studies, 58,* 3–35.

OPUS ▶

Journal of Society Research

RESEARCH ARTICLE

The Educational Context of Adolescents in a Low-Income Urban District: A Mixed-Method Research on Family Functioning and Schooling[1]

Nurullah Çalış [1] 1 **Ercüment Erbay** [2]

[1] Asst. Prof. (PhD), Giresun University Department of Social Work, Giresun/Turkey
ORCID: 0000-0002-9958-5525
E-Mail:
nurullah.calis@giresun.edu.tr

[2] Assoc. Prof. (PhD), Hacettepe University Department of Social Work, Ankara/Turkey
ORCID: 0000-0002-3760-0224
E-Mail:
eerbay@hacettepe.edu.tr

Corresponding Author:
Nurullah Çalış

Abstract

For disadvantaged communities in the society, educational and family-based problems are more likely to affect children and adolescents. In this regard, the aim of the study is to examine adolescent students' experience in their educational life in terms of family relations and family functioning, from an ecological perspective. The study was carried out in a low-income district of Ankara. Based on the mixed-method approach, a convergent design was used. The quantitative data were collected from vocational high school students, using McMaster Family Assessment Device (FAD). Qualitative data were obtained from 22 students and 8 school professionals through one-on-one interviews. Findings showed that students' perceptions of family functioning varied by mother's employment, average grade point, attitudes towards school, educational support from family, student-family consensus on education. The qualitative findings mostly supported the quantitative findings, referring to adolescent's low academic motivation, problematic and dysfunctional family relationships, and families' poor or superficial support for education. Based on these results, it can be asserted that proactive programs to facilitate more effective family-school relations should be implemented.

Key Words: *Adolescence, Family Functioning, High School Students, Mixed-Method.*

Öz

Toplumda dezavantajlı durumda bulunan topluluklar açısından eğitim ve aile temelli sorunların çocuk ve ergenleri daha fazla etkilemesi muhtemeldir. Bu doğrultuda, çalışmanın amacı, ergenlik döneminde bulunan öğrencilerin eğitim yaşamlarının aile ilişkileri ve aile işlevselliği açısından ekolojik bir bakış açısıyla incelenmesidir. Çalışma Ankara'nın düşük gelir seviyesinde bulunan bir ilçesi olan Altındağ'da yürütülmüştür. Karma yönteme dayanan araştırmada yakınsayan paralel desenden yararlanılmıştır. Çalışmanın nicel verileri meslek liselerinde öğrenim gören öğrencilerden Aile Değerlendirme Ölçeği (ADÖ) kullanılarak toplanmıştır. Nitel aşamada ise 22 öğrenci ve 8 okul profesyoneliyle yapılan birebir görüşmeler yoluyla veriler elde edilmiştir. Bulgular, öğrencilerin aile işlevselliğine ilişkin algılarının annenin çalışması, not ortalaması, okula karşı tutum, ailenin eğitim desteği, eğitim konusunda öğrenci-aile fikir birliği gibi değişkenlere göre farklılaştığını göstermiştir. Nitel bulgular çoğunlukla nicel bulguları destekleyerek ergenin düşük akademik motivasyonuna, sorunlu ve işlevsiz aile ilişkilerine ve ailelerin eğitime yetersiz veya yüzeysel desteğine atıfta bulunmuştur. Bu sonuçlara dayanarak, aile-okul ilişkilerini daha etkin hale getirmeye yönelik proaktif programların uygulanması gerektiği vurgulanabilir.

Anahtar Kelimeler: *Ergenlik, Aile Işlevselliği, Lise Öğrencileri, Karma Yöntem.*

Introduction

School-family relationship in a child's education addresses the importance of cooperation between these two systems. Despite the necessity of this partnership, creating a positive school-family engagement may not always be straightforward due to problems and needs at the micro and macro levels. Studies reveal that the problems and disadvantages in the family system are reflected negatively in educational processes.

It is a well-documented fact that children from families with low socio-economic status (SES) have more difficulty in the educational process (Bellibas, 2016; Bodvin, Verschueren, De Haene, & Struyf, 2017; Tezcan, 2014; Yılmaz-Fındık, 2016). Low SES is linked to a variety of issues, including inability to adjust to school, low academic achievement, school absenteeism, dropping out, and tendency to crime. Low-income families are more likely to send their children to schools that are of poorer quality (Bodvin et al., 2017; Egitim Reformu Girişimi, 2017). Studies also show that the larger family size, which is associated with disadvantages such as higher risk of poverty, gender biased parenting, and low parental control, has negative effects on children's education (Erbay, 2008; Feij & Taris, 2010; Simsek, 2011; Tezcan, 2014).

Studies indicate that children from broken families have more behavioral and disciplinary issues, have more problems with peer relationships, have lower academic achievement, have a higher risk of dropping out of school, and have more physical and mental health problems (Angacian et al., 2015; Eymann, Busaniche, Llera, De Cunto, & Wahren, 2009; Havermans, Botterman, & Matthijs, 2014; Sapharas, Estell, Doran, & Waldron, 2016). Single parent households, which are a social reality of today's world, have remarkable disadvantages for their children's educational needs. As the single parent's responsibility for childcare and livelihood increases, less attention may be given to educational needs. Research show that children from single-parent households have lower academic achievement as they're more likely to be in poverty (Amato, Patterson, & Beattie, 2015;

Aydıner-Boylu & Öztop, 2013; Chukwuka, 2018; Feyzioglu & Kuscuoglu, 2011; Hastings & Schneider, 2021; Mensah & Oduro, 2019).

Patriarchal family structure could be addressed as a family disadvantage for children's education. The global gender gap in education, which disproportionately affects girls, prevents women from taking advantage of socioeconomic opportunities and increases their risk of further disadvantages (Özçatal, 2011; Tezcan, 2014). In this context, the contribution of the family to the reproduction of gender roles should be considered as a disadvantage for children.

In addition to all the above, the functioning of the family as a healthy system is critical for the healthy development of children. For this reason, we believe it is crucial to approach a child's education in terms of family functioning, which is influenced by the family's psycho-social circumstances. In this context, the present study addresses the school experiences of adolescent students, who are at an important developmental stage, in the context of family functioning and family difficulties from an ecological perspective.

Family functioning and adolescence

Family functioning can be seen in the adolescent-parent relationship in different ways, one of which is parenting style. Baumrind (1991) identified four main parenting styles as authoritarian, permissive, uninvolved, and authoritative. Basically, the levels of parental demandingness and responsiveness determine parenting styles. For instance, families with high demands of submission from their children while low responsiveness to them reflect an authoritarian parenting style. On the contrary, in families with permissive parenting style, expectations from children are generally quite low in terms of discipline. Based on the balance of freedoms and responsibilities, authoritative parenting is accepted as the functional and effective style. Resources indicate that parenting style is important for an adolescent's well-being and personality development (Gündogdu-Aktürk, & Helvacı, 2010; Steinberg, 2013; Sümer, Özyürek & Tezel-Sahin, 2014; van Renen & Wild, 2008).

Although parenting style is significant for family functioning, the concept of "family functioning" covers a broader definition. Basically, family functioning refers to a set of characteristics that define a healthy family system. It is determined by factors such as family harmony and close interaction, parental involvement, developmental opportunities, positive affective climate, and problem-solving abilities (Alonso-Castillo, Yañez-Lozano, & Armendáriz-García, 2017; Berksun & Hızlı-Sayar, 2013; Epstein, Ryan, Bishop, Miller, & Keitner, 2003). A child's personality development in adolescence is highly affected by a healthy family structure. Studies reveal that alcohol and substance abuse, delinquency, violent and aggressive behaviours, inappropriate sexuality, and psychiatric disorders in adolescence are linked to family functioning (Alonso-Castillo, Yañez-Lozano, & Armendáriz-García, 2017; Ates & Akbas, 2012; Arslan & Balkıs, 2014; Kapçı & Hamamcı, 2010; Zinnur Kılıç, 2012). Therefore, family dysfunction is a major risk factor in adolescence, whereas a healthy family is a protective factor.

A well-known conceptualization of family functioning is the McMaster Model of Family Functioning, developed by Epstein, Baldwin, & Bishop (1983). The model, which is based on General Systems Theory, views family as a system and focuses on the components that are key to the system's functioning. These are six dimensions consisted of problem solving, communication, roles, affective response, affective involvement, and behavior control (see Table 1). The McMaster Model provides a clinical framework for assessing and enhancing family functioning. Based on this framework, various measurement tools and therapy methods have been developed.

Adolescent, family, and school from ecological perspective

The surrounding systems that adolescent interact with may be varied as family, school, circle of friends, relatives, and social institutions. Family and school are the two of major systems in adolescents' social and educational life. The ecological perspective conceptualizes the network covering the interactions between internal and external factors on an individual's behavior as well as interactions with other individuals and systems. Each individual would seek to maintain their functioning within their ecology, based on their capacity to adapt to the environment (Baykara-Acar & Acar, 2002; Özbesler & Bulut, 2013; Teather, 2015). When an individual is unable to cope with the challenges in their environment, social and professional support would be required.

Since family has a high impact on one's ecology, Constable (2009) emphasizes that schools cannot achieve their mission without connecting with families. The contemporary literature thus focuses more on the parental involvement in education (Raines, Stone, & Frey, 2010). This may include monitoring the academic success of the child, providing an environment that will support home education, doing activities together, communicating with teachers and school management, participating in school activities, and seeking social resources for education (Jarolmen, 2014; Lindberg & Demircan, 2013). Because not all families are skilled or motivated to engage in such practices, they may need professional assistance.

Table 1. McMaster Model of Family Functioning

Dimension	Definition	Two sides of functioning
Problem solving	The family's ability to solve problems that threaten the family's integrity and functionality	*Functional*: Ability to follow the phases of a problem-solving process *Dysfunctional*: Inability to identify problems that encountered
Communication	Verbal and nonverbal communication patterns used by family members	*Functional*: Clear and direct communication *Dysfunctional*: Masked and indirect communication
Roles	Behavior patterns and task sharing to meet the family's material and spiritual needs	*Functional*: Fair and accountable role distribution among family members *Dysfunctional*: Role ambiguity and role unsustainability
Affective response	Family members' reactions to emotional stimuli	*Functional*: Reflecting appropriate emotions in most situations *Dysfunctional*: Avoidance or limitation of emotional expression
Affective involvement	Affection and care between family members	*Functional*: Empathetic emotional involvement *Dysfunctional*: Lack of emotional involvement
Behavior control	Rules and behavior control mechanisms in the family	*Functional*: Flexible and consistent behavioral control *Dysfunctional*: Chaotic and inconsistent behavior control

Adapted from Epstein, Baldwin, & Bishop (1983) and Bulut (1990)

The present study

There is a growing body of evidence that family experiences and familial characteristics have a significant impact on children's and adolescents' educational lives. Therefore, the schooling of a student who experience familial problems would be negatively affected by this situation. Understanding adolescent students' experiences in this context is an essential beginning point for this research. In this regard, the focus of the present study is to gain a comprehensive understanding about how adolescents perceive the influence of family interactions and family disadvantages on their schooling. In fact, it would be argued that considerable changes are needed to improve family-oriented school services in Turkey, where the research was conducted. The following research questions were addressed in quantitative and qualitative dimensions related to the main purpose:

- Does the perception of family functioning of adolescents vary in terms of gender, parent employment status, average grade, feelings about school, family support for education, meeting family expectations?
- How do adolescents describe their family characteristics related to family relationships, disadvantages, support, and expectations?
- How do school professionals describe the family profile, family disadvantages, and family functioning of the students they serve?
- What are the distinctions and similarities between the findings of quantitative and qualitative data?

Method

This study is based on a mixed-method which combines quantitative and qualitative methods. Mix-method research involves collecting and analysing both qualitative and quantitative data in order to address the advantage of utilizing both research methodologies to highlight and enhance our understanding of the topic. This methodology of research has gained prominence due to its applicability for research problems when quantitative or qualitative paradigms alone are not adequate. (Creswell & Plano-Clark, 2014; Leech & Onwuegbuzie, 2009; Teddlie & Tashakkori, 2009).

The primary rationale for employing a mixed-method in current research is to detail and explain statistical knowledge on research subjects through their thoughts and experiences. In this context, it was assumed that this method would be more functional in terms of providing a multi-faceted evaluation of adolescent students' school and family lives. Choosing an integrative approach could be a more effective way to get the necessary data since human needs and problems are inherently complex (Watkins & Gioia, 2015).

For this study, a mixed method design that gives equal weight to quantitative and qualitative aspects was adopted. This is called as convergent design or concurrent triangulation design. The design is based on concurrently gathering quantitative and qualitative data, analysing them separately, and comparing the findings. Therefore, an integrative interpretation could be established by evaluating the similarities and differences (Creswell & Plano-Clark, 2014) (see Figure 1).
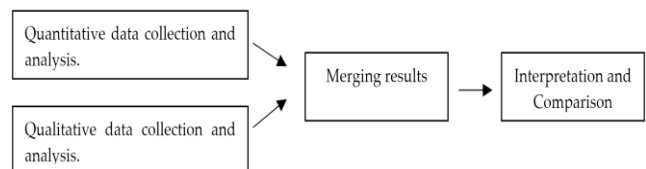
Figure 1. Convergent Mix-Method Design (Adapted from Creswell & Plano-Clark, 2014)

Research sample

The population of the study was 9233 high school students from vocational high schools located in Altındag, Ankara, Turkey. The researchers chose this district on purpose as it is one of the most socioeconomically disadvantaged central districts in Ankara (Ankara Kalkınma Ajansı, 2018). Vocational high schools were also selected purposefully as they are presumed to have more children from disadvantaged families in Turkish educational context (Vuranok, Özcan, & Çelebi, 2017; Yazgan & Sugur, 2019). For the quantitative phase of the study, the sample consisted of 412

vocational high school students from randomly selected schools. Using the cluster sampling method, the following steps were implemented in the selection process:

- In order to involve schools from different sides of the district, the district is divided into four parts as clusters.
- From each part, one school was randomly selected as clusters.
- From school-based clusters, classes from each grade level were randomly selected. All students in selected class were involved in the study sample.

The data of 397 students was processed but data of 15 participants could not be used due to critical missing value. The descriptive statistics about the sample of quantitative part of the study are shown in Table 2.

Table 2. The sociodemographic characteristics of the study group

Variable	Category	f	%
Gender	Female	125	31.5
	Male	272	68.5
Grade level	9th	122	30.73
	10th	128	32.24
	11th	83	20.91
	12th	64	16.12
Age	14-15	89	22.6
	16-17	248	62.9
	18 and older	57	14.5

For the qualitative phase of the study, maximum variation sampling was employed. The aim of maximum variation sampling is to reflect diversity of individuals who experience the problem and who could bring knowledge from different perspectives (Yıldırım & Simsek, 2016). Selected students and school professional were involved in this phase. Students for the qualitative dimension were chosen from those who had attended the quantitative data collection and filled out the questionnaires. The students were chosen under the supervision of the school staff, and it was aimed to involve students with various characteristics in terms of school and family status. Those who agreed to participate were involved in this stage. The information about the participant students of qualitative part are shown in Table 3.

Table 3. Participant students of the qualitative phase *

Participant	Gender	Age	Participant	Gender	Age
P1	Male	15	P12	Male	17
P2	Female	15	P13	Male	17
P3	Male	17	P14	Female	16
P4	Male	16	P15	Female	16
P5	Male	16	P16	Male	17
P6	Female	16	P17	Female	17
P7	Male	18	P18	Male	17
P8	Male	17	P19	Female	17
P9	Male	15	P20	Male	16
P10	Male	15	P21	Female	15
P11	Female	16	P22	Male	15

* The listing has been made by the order of interviews.

School professionals were also included in the qualitative phase in order to enrich and diversify data. At this point, the aim was to have school professionals, especially school counselors, from each selected school. School counselors were targeted because they are in a position to work directly with students and families. Eight professionals volunteered to take part in the study. Since there was no school counselor in one selected school, school administrators were involved instead. The information about the participant school professionals is shown in Table 4.

*Table 4. Participant school professionals of the qualitative phase of the study**

Participant	Gender	Age	Work year
SP1	Male	50	25
SP2	Male	51	29
SP3	Male	45	22
SP4	Male	35	8
SP5	Female	46	23
SP6	Female	44	20
SP7	Female	33	7
SP8	Female	45	21

* The listing has been made by the order of interviews.

Participant selection for the qualitative phase lasted until saturation achieved. When participants do not provide further analytical information, the qualitative data may become saturated (Moser & Korstjens, 2018). Therefore, the sample size for this phase was consisted of a total of 30 participants to provide maximum outcome on the research problem.

Data collection tools

Survey form: A self-report survey form for students was prepared to obtain data on

demographics and perceptions of certain themes. Demographic questions covered gender, grade level, age, parental status, number of siblings, birth order, parental education status, parental employment status. School life theme had questions on school success, sense of accomplishment, school motivation, and interactions with others in the school environment. Family theme included the questions on perception of family relations, perception of family support for education, and sense of meeting family expectations. The form was implemented in a pilot study with 15 students from one of the selected schools to decide whether the draft form was clear and understandable. After this process, the final survey form was completed.

McMaster family assessment device (FAD): To measure adolescent students' perceptions of family functioning, McMaster Family Assessment Device (FAD) was employed. FAD is a self-report scale based on McMaster Model of Family Functioning which identifies 6 dimensions of family as problem solving, communication, roles, affective responsiveness, affective involvement, behavior control. Epstein, Boldwin and Bishop (1983), the developers of FAD, added a sub-scale reflecting the general functioning of the family and designed the scale to be consisted of seven sub-scales and 60 items. It is a four-point Likert-type scale and the higher value on each sub-scale indicates poorer levels family functioning. Bulut (1990) adapted FAD to Turkish culture. The internal consistency of subscale ranged from .72 to 92. The internal consistency of Turkish version was found to be .38 and .86, test-retest reliability was found as .62 and .90.

Semi-structured interview forms: Semi-structured interview forms designed by the researcher were used to obtain the qualitative data of the study. In this regard, two forms were generated as student interview form and school professional interview form. The forms, which were used as a guide in conducting the interview process, included open-ended questions under certain themes. Student interview form included the themes of school life in a general manner, problems in school, family

relations, family functioning, and educational expectations. School professional interview form had themes on student's academic achievement and motivation, family profile, family disadvantages, family related educational problems and needs, suggestions for solutions, the role of social work in addressed concerns. Both forms were reviewed by two peers and two of the school professionals and revised in line with the recommendations.

Data collection and analysis

The survey and FAD were administered in student's classrooms face to face, by using hard-copy, and under supervision of the researcher and teachers. To ensure this, the researcher asked the teachers who teach in the selected classrooms whether they allowed to a survey being administered during their class. Students were informed about the research and asked for their consent. Those who accepted to voluntarily involve in the study were asked to sign the informed consent form. Data collection was conducted in 16 separate classrooms with the teachers who agreed to participate. Questionnaires were delivered to 412 students. After checking carelessly and inconsistently filled forms, 15 forms were eliminated. Data of 397 were entered to SPSS 23.0 software. Before analysing the data, normal distribution was tested. To check the normal distribution, the skewness and kurtosis values were examined (see Table 5), and it was assumed that the data were normally distributed. Independent samples t-test and one-way analysis of variance (ANOVA) were used to determine if there was a statistically significant difference between the group means. When an ANOVA result indicates a difference, post-hoc test was used to determine the source of the difference.

In the qualitative phase, data was collected through interviews in May and June in the year 2017. To record interviews, a recording device and note-taking were used. To prevent data loss, the teachers who did not want to use voice recorders verified their quotations after the interviews. Interviews of both students and school professionals were held in places that allow one-

on-one conversation, such as the guidance office, administrator office, or an empty classroom. Thankfully, school staff was quite helpful in this process. To prepare for analysis, all interviews were transcribed into Word files. All files have been systematically read, and prepared for encoding through transferring to the MAXQDA 2018. Using thematic analysis methods for qualitative research, the data were reviewed by the researchers for overlapping or differentiating aspects to find themes and categories related to research objectives. After creating a code system, researches encoded data individually and then the themes were determined jointly. The agreement rate between the two researchers' coding was calculated via MAXQDA Intercoder Agreement Tool as 88.9%. According to Miles and Huberman (1994, as cited in Baltacı, 2017) intercoder agreement rate should not be less than 80%. Moreover, triangulation strategies were used to ensure the internal validity of the data, using multiple data sources (students and school staff), comparing the findings from the data sources, and using at least three sources of information to support each major finding. The findings from the qualitative and quantitative dimensions were organized to integrate and report together at the end of the process. Finally, direct quotations were used in order to substantiate the categories and themes.

Research ethics

Before data collecting, ethical confirmation was acquired from Hacettepe University's ethical committee and the research permission was acquired from Ankara Provincial Directorate of National Education. During the data collecting, the study participants were informed about the confidentiality, anonymity, objectives, and contact information of the researchers through a voluntary participation form. The APA's (2017) ethical guidelines were followed throughout the research process.

Findings

The results of the study are based on a thematic combination of quantitative and qualitative analyses. Quantitative findings represent the comparison of FAD scores between groups, while qualitative findings are presented through direct quotations after the quantitative findings. Table 5 shows the FAD scores that reflect the students' perceptions on family functioning.

Table 5. Family functioning scores of adolescents

FAD sub-scales	$\bar{X}$	SD	Min	Max	Skew.	Kurt.
Problem solving (PS)	2.06	0.62	1.00	4.00	0,558	0,092
Communication (CM)	2.12	0.52	1.00	3.67	0,289	-0,106
Roles (RL)	2.19	0.42	1.27	3.55	0,446	0,363
Affective responsiveness (AR)	2.13	0.61	1.00	4.00	0,558	-0,101
Affective involvement (AI)	2.40	0.39	1.43	3.71	0,463	0,274
Behavior control (BC)	2.13	0.34	1.33	3.11	0,287	-0,131
General functioning (GF)	1.87	0.57	1.00	4.00	0,679	0,158

Table 5 indicates that the mean score is more than 2 in six of the seven sub-scales of the FAD. A mean score of 2 or above in the FAD evaluation shows that the family would have dysfunctional tendencies in the relevant sub-dimension. Adolescents generally have a perception of low family functioning. The results of the correlation analysis between the scores of the sub-scales are shown in Table 6.

Table 6. Correlations between subscales of FAD

		CM	RL	AR	AI	BC	GF
PS	r	.533**	.502**	.452**	-.036	.326**	.703**
	p	.000	.000	.000	.470	.000	.000
	n	397	397	397	397	397	397
CM	r	1	.499**	.552**	.208**	.271**	.691**
	p		.000	.,000	.000	.000	.000
	n	397	397	397	397	397	397
RL	r		1	.519**	.267**	.360**	.632**
	p			.000	.000	.000	.000
	n		397	397	397	397	397
AR	r			1	.217**	.245**	.686**
	p				.000	.000	.000
	n			397	397	397	397
AI	r				1	.170**	.187**
	p					.001	.000
	n				397	397	397
BC	r					1	.403**
	p						.000
	n					397	397

It can be seen that the scores in almost all sub-scales are positively related to each other. The general functions (GF) scores demonstrate a positive correlation with other subscales, strong with PS (p<.05, r=.703), CM (p<0.05, r=0.691), RL (p<0.05, r=0.632), and AR (p<0.05, r=686), moderate with BC (p<0.05, r=0.403), and weak with AI

(p<0.05, r=0.187). Accordingly, it was considered that general functions scores could represent the adolescents' perception of family functioning in further analyses. The following are the results of examining adolescents' perceptions of family functioning (GF) in terms of various variables (Table 7).

Table 7. Comparing FAD's General Functioning Scores

Variable	Category	n	$\bar{X}$	SD	t	p	d	
Gender	Female	125	1.87	0.58	.000	1.000	-	-
	Male	272	1.87	0.56				
Mother's employment	Non-employed	308	1.83	0.56	-2.761	.006**	0.34	-
	Employed	86	2.02	0.56				
Last year's grade	Under 70	234	1.91	0.58	2.282	.023*	0.25	-
	70+	151	1.77	0.53				
Variable	**Category**	**n**	**$\bar{X}$**	**SD**	**F**	**p**	**η²**	**Tukey**
Family relations	Very good (I)	200	1.60	0.44	84.021	.000**	0.39	I<II I<III
	Good (II)	127	1.94	0.40				I<IV
	Moderate (III)	46	2.36	0.52				II<III
	Bad (IV)	24	2.86	0.53				II<IV III<IV
Feelings about school	Very positive (I)	60	1.76	0.53	7.579	.000**	0.06	I<IV
	Positive (II)	127	1.74	0.53				II<IV
	Neutral (III)	158	1.95	0.54				III<IV
	Negative (IV)	50	2.12	0.69				
Perceived parental support for education	Always (I)	249	1.74	0.52	30.957	.000**	0.13	I<II
	Often (II)	82	1.93	0.49				I<III
	Sometimes or rarely (III)	65	2.31	0.59				II<III
Effects of family problems on school life	Never (I)	96	1.74	0.51	13.642	.000**	0.12	I<IV
	Rarely (II)	111	1.72	0.46				I<V
	Sometimes (III)	86	1.83	0.53				II<IV II<V
	Often (IV)	57	2.16	0.54				III<IV
	Always (V)	45	2.26	0.74				III<V
Adolescent-parent consensus on educational expectations	Always (I)	64	1.65	0.47	24.596	.000**	0.15	I<III
	Often (II)	122	1.64	0.44				I<IV
	Sometimes (III)	144	2.02	0.58				II<III
	Rarely/Never (IV)	66	2.20	0.58				II<IV

Regarding the perception of family functioning of adolescents, the mean scores of general functions are equal, hence the t-test results indicate no significant difference between the groups (p>.05). The results in terms of parental employment status indicated a differentiation between groups. Despite the results indicated no significant difference between the groups of paternal employment status, it was observed that students' perception of family functioning differentiated according to maternal employment status. The students whose mothers work perceived their families to be more 'dysfunctional'

than students whose mothers do not (t=-2.761, p<.01). The effect size of this significant difference was small, according to Cohen's d calculation (d=034).

The t-test results revealed that the academic achievement grades significantly differed between the groups (t=2.282, p<.05). Accordingly, it has been shown that students with average or below (average=60-69, pass=50-59, fail=0-49) grades perceived their families less functional than students with above average (good=70-84, very good=85-100) grades. The effect size of the significant difference in this variable is also small (d=0.25).

According to one-way ANOVA results, the students' perceptions of family functioning vary depending on how they rated their family relations (F=84.021, p<.01), feelings about school (F=7.579, p<.01), perceived support from family for education (F=30.957, p<.01), the effects of family problems on their school life (F=13.642, p<.01), and consensus with parent on educational expectations (F=24.596, p<.01). When the eta square is calculated, the effect sizes of the differences between the groups related to these variables were found to be medium (n²=0.6-0.13) to large (n²=0.15-0.39).

To determine the source of the difference between groups, post-hoc tests were employed. According to observed mean scores comparison, students who rated their family relationships as better perceived their families to be more functioning. Those who have negative feelings towards school have a perception of lower family functioning than other groups. Students who think that they always receive support from their families for education have a perception of higher family functioning than other groups. Those who reported that the problems they experienced in the family were more frequently mirrored in the school also perceived a lower family functioning (Table 7).

The findings from the qualitative data provided an in-depth understanding in the findings of quantitative phase. In this respect, the results of the analysis revealed significant information concerning adolescents' familial difficulties and school experiences (Table 8).

Table 8. Themes and categories of adolescents' familial and educational disadvantages

Themes	Categories	Students (f)	School Professionals (f)
Family disadvantages	Financial issues/poverty	12	7
	Stressful life experiences	9	7
	Patriarchy/Gender issues	18	8
Family relations	Ineffective parenting	9	6
	Gender biased roles	11	7
	Poor/limited interactions	15	7
Student experience in school	Low academic motivation	12	8
	Low sense of achievement	14	5
	Negative feelings about school	10	4
Family in education	Low parental involvement	13	8
	Superficial support/General advices	12	6
	Unrealistic educational expectations	7	5

The findings from the qualitative data provided an in-depth understanding in the findings of quantitative phase (Table 8). The disadvantages of families, relationships in the family, school experiences, and family involvement in education shaped the main domains of qualitative findings.

Family disadvantages

In the context of family disadvantages, when asked school professionals to evaluate the families of their current students. All the participant professionals identified characteristics associated with low socioeconomic status. In terms of income status, education level, professional qualification, and living conditions, it has been stated that families experience considerable disadvantages:

SP1: "Financial difficulties, limited budget, many children, as well as health problems, education problems, transportation problems… So there are many factors that bring about such problems."

SP3: "When we look at eighty percent, when I talk about our school, father in the family, temporary jobs. [...] seriously the economies are low…"

SP5: "Eighty percent of our students' families have a bad economic situation. […] Sometimes we ask the student "Why don't you have a school uniform?" "My father didn't buy it," he says. [...] Most of the families are concerned about their livelihood and do not spare time for school and student issues."

SP6: "There are parents who work in various adverse conditions. […] Some of them are waitresses in nightclubs […] there are people who usually do cleaning or such things (especially among women). [...] There are those who work in the bakeries. They do "tea-making" or catering. That kind of stuff. So, nothing too high."

Another significant issue, the gender inequality was particularly addressed about family characteristics, considering the family disadvantages. Therefore, gender discrimination was reflected in family attitudes based on the students' thoughts on their families. Female students appear to be at a disadvantage because they believe they would be more at ease if they were boys:

P11: "If I were a boy) it would be different, quite different. [...] I would spend my time outside. I would spend it with my friends. [...] It's easier to them, harder to be a girl. Because boys can do whatever they want... I think so. I think (my parent) wouldn't have restricted me too much."

P14: "If I were a boy, things would be easier to do. [...] for example, I could come home whenever I wanted. [...] I would be freer. My parent would have treated me better, they wouldn't have intervened... (My brother as well) interferes with everything I do, including whether or not I come home, my clothes, and everything else. For this, I'm looking for a problem with my father. Because of not saying anything (to him)."

Similarly, school professionals made references to the gender biased attitudes of students' families:

SP4: "... we are a patriarchal society, boys are more valuable, they are given more tolerance. For example, a girl may be removed (by parents) from school due to one or two mistakes she made, but not for a boy. On the other hand, while there is a 'stay at home' mentality towards girls…"

SP3: "Is there a discrimination? Yes, there is. The first sacrificed will be girls, of course. So, the social thing… His son can take care of himself, he would invest in him. He would not to invest in his daughter because his daughter will go away, that is, someone else will earn the investment."

SP8: "When we look at the structure of families, we see that more space is given to boys. Boys are more at ease, they can even smoke with their father and talk about their girlfriend. But this is not the case for girls, they do most things secretly."

In terms of common gender roles in the community, mothers in most families have a great deal of responsibility, according to school professionals:

SP6: "(Children) spend more time with their mother. [...] We generally have mothers who do not work. The child comes to school depending on the mother's condition, discipline or responsibility. (The children) spend time with the mother, taking her as a role model.

In other words, their shares (with the father) are lower in this regard, but their shares with the mother higher."

SP7: "Fathers are unaware of most things. Most of them are people who leave in the morning and come in the evening or in the midnight… mothers take care of everything. All the burden is on the mother… Mother has to maintain control as much as she can. But this is a very risky area; anything can happen to children at any time. […] That is terrifying."

SP8: "Families have financial and moral problems, this is a fact, but I also see some kind of reluctance to work. […] Conditions of working women also difficult, they work in unqualified jobs because of their low level of education, such as cleaning, cooking, tea making, dishwashing…"

Family relations

Interviewed students' perspectives on family relations pointed to somewhat limited interactions in their families. A low tendency to spend time at home with other family members has been expressed by many of interviewed students.

P4: "When I get home in the evening, I will probably go to the computer. […] I go into the room alone, play games. Others… They are sitting in front of the television. My brother plays by himself. Our house… There is not much conversation, my father is always silent. When a guest comes, he talks. Other than that, he doesn't…"

P5: "I watch TV series on Mondays. Then I go to the living room, otherwise I don't go much. […] Spending time together […] I see them at dinner and watching TV on Mondays. […] (usually) I am in my room on the computer or on the phone."

It can be said that the interviewed school professionals also point to a rather negative portrayal of family relations and functioning:

SP1: "Students in this area do not tend to have much contact with their parents. But parents interestingly, I don't think they have a relationship with the student unless it is required."

SP4: "In children's lives, mother and father figures are very, very low, and child figures in families are low. […] I mean, child is left so unattended… actually, there is no communication, they don't know each other (in the family), they are not aware of it."

SP7: "Many children do not get enough care and love from their families. It is such a thing that children do not have that luxury to expect such attention due to the living conditions and problems of their families."

School experiences

When examining at the attitudes of students toward school, it was understood that the majority of them felt a low sense of achievement:

P7: "I think of myself average. I neither work hard nor do I not. So I'm between the two. Sometimes I do my homework myself, sometimes I can't do it, I give it to my friends. Sometimes they help with exams."

P11: "To be honest, I'm not very hardworking… I believe my level of success is a lower than I would like… I don't think I'm successful... [...] you know, sometimes I can't focus too much. [...] There are a lot of stuff that I do not understand. [...] I get stressed when there is an exam or whatever."

While the majority of the students interviewed stated that they were having some academic difficulties, it was noticed that male students, in particular, highlighted this more frequently. Female students, in comparison to male students, have a favorable attitude toward education. Further information on students' performance was also provided by school professionals as following:

SP8: "The students' level of interest in school is very low. They see this place only as a social environment. They have little interest in the course. […] many of them have behavioral problems; they do not listen to lectures. […] They want to finish the school, you know, to get a diploma, but most of them do not aim to work in the field they study after they graduate."

SP5: "Usually low-achieving students come here. Our school's (entrance) point is low… It is commonly selected by students with ambiguous goals and objectives... So it's like they have to enroll in a school... Motivation vanishes when success is low.."

Parents in education

When students were asked about their parents' engagement with school and how parents support them, the majority of the responses emphasized positive but inefficient attention:

P18: "So they don't come (to school). […] Sometimes I make him to cancel my absence if he stops by. […] You will bring certificate, you will bring appreciation (certificate of achievement). […] They aren't like that. […] I mean, if you pass the class, that's enough. [...] You know, (my father) doesn't have much with my classes,

but he knows that I will pass (the class), […] As I said, my family is at ease."

P9: "(My mother) wants me to pass first grade. She doesn't want me to fail (the class). "Son, do not wait for anyone's word, study your lessons. Once you get past the first grade, the other grades are easy," she says. "Don't slack off your studies, and don't chat in class," she says. She doesn't say much else after that."

According to school professionals, many families are oblivious of their children's education, and do not get involved in their educational processes:

SP2: "(They) have an instinctive desire for it. "I couldn't go to school, but my kid should", they say. […] They desire it as a wish, but they can't establish a reasonable goal for their children since they can't look at them objectively. The child understands that no matter how hard he tries, he will not be able to achieve the established objective."

SP7: "One of our most important problems is that we cannot contact families. Most of the families are struggling with their livelihoods and do not take time for school and student issues. That's one of our greatest challenges, so it's very difficult to involve families and work with them."

SP5: "For example, you want to organize an event for parents. For instance, field choosing… The children will select a (vocational) field. You make an announcement of the meeting in different ways. You say we're having a meeting that includes explanations about our children's future. […] So, there are around 200 students in the ninth grade. Just one parent attended."

Due to the families' inability to adequately involve in their children's education, it can be addressed that their educational aspirations are low. In this context, a discussion is given below with the previous findings in the literature.

Discussion and Conclusion

Employing a mixed-method design, the present study revealed considerable findings on adolescents' and school professionals' perception of family functioning and family disadvantages related education. The perception of the participant students about their family was closer to dysfunctioning in the family. Similar results were obtained in other studies involving Turkish high school students (Coskun, 2007; Coskun, 2008; Ünal, 2019). While FAD scores revealed that gender had no relevance on students' perceptions of family functioning, qualitative findings revealed that female students have a more disadvantaged family perception. Karaca, Ünsal-Barlas, Onan, & Öz, (2013) found that girls between the ages of 16-20 perceived their families as more dysfunctional than boys in multiple dimensions of FAD. In another study, Shek, Leung, & Lu (2013) reported that male students generally had more positive perceptions of family functioning than females had in all domains of family functioning, from the findings from a large-scale longitudinal research including secondary school students in Hong Kong. Similarly, in a survey of secondary school students, it was revealed that male students found their families to be more supporting than female students, while female students reported their families to be more obstructive (Özkurt & Camadan, 2018). Involving 530 female students, a study by Aydoğan (2011) found that the most common complaint about unfavorable family attitudes (26%) expressed by female students was interference with their freedom. This finding was also underlined by the students and school professionals interviewed in the present study.

In a study on behavioral problems and family functioning of students aged 12-17 in China, researchers found that the nature of the family relationship was different for boys and girls. It was suggested that male adolescents were more likely to have conflict with their parents due to seeking independence and autonomy (Ma, Yao, & Zhao, 2013). According to the study by Carvalho, Fernandes, & Carvalho-Relva (2017), boys were also the main targets of their father's aggressive disciplinary actions and both parent's penalties and supervision compared to girls. Researchers indicate that girls may not encounter this situation as they are more obedient due to their gender roles. Consisting with the findings of this study, gender issues seemed to be effective on parental roles as well. The perceptions of participant students of family functioning varied depending on whether their mother was working. Unexpectedly, it was observed that the students whose mothers were employed perceived their family as having lower functioning. A mother's employment with a low level of education can be challenging for the family in a disadvantaged community since it increases

the pressure on the mother, who is the primary caregiver for the family (Şirvanlı-Özen, 2009). In fact, the mother's work is not expected and seen as a necessity due to the family's financial problems (Bayat, 2015). As revealed in Özçatal's study (2011), women's work does not mitigate their chores and responsibilities at home. The majority of working women who participated in the study stated that they still have the primary responsibilities for cooking, cleaning, laundry, dishwashing, child care, or care of the elderly or sick at home.

The results of the study revealed that adolescents' perceptions of family functioning differentiated depending on how they rated family relationships. Better family relationships and better family functioning would be important for adolescents' well-being. Interviewed school professionals also stated that students' familial relationships are largely unsatisfactory. Studies have indicated that those who report higher level of positive family functioning have higher psychological well-being (Injo-Ulloque, 2020), have more subjective well-being (Eryılmaz, 2010), and have a higher level of adaptability (Kalyencioğlu & Kutlu, 2010). Adolescents who feel happy in the family have reflected fewer behavioral problems (Yavuz & Özmete, 2012), while those who experience trust, respect, and love in the family have reported a more positive relationship with their families (Karataş, Sertelin-Mercan, & Düzen, 2016).

Family functioning has also observed as a significant factor in terms of adolescents' school life. The findings obtained from the quantitative and qualitative phases provided important information on this topic. Students with negative feelings about school have a lower perception of family functioning than other students. Moreover, the interviewed students mainly stated that their sense of achievement was low, while school professionals also reported similar thoughts on their school motivation. Annunziata, Hogue, Faw, & Liddle (2006) determined that family adjustment has a positive effect on school engagement, and therefore, increased family adjustment results in increased school engagement. In another study, Ateş & Akbaş (2012) found that some school-related deviant behaviors of adolescents such as

truancy and cheating varied by functional and dysfunctional family characteristics. Adolescents perceived their families as more functional, their scores for school dropout scores decreased, according to Arslan (2012). On the other hand, negative attitudes towards school are associated with low school commitment (Atik & Özer, 2020), low academic achievement (Stubbs & Maynard, 2017), absenteeism (Adıgüzel & Karadaş, 2013), deviant behaviors at school (Ateş & Akbaş, 2012), and truancy (Gökçearslan-Çifci, 2016).

It was observed that students whose year-end GPA was average or below (<70) had a poorer perception of family functioning than other students. This result is consistent with the findings of previous research, which demonstrate that children who have family difficulties succeed much worse in school grades (Dam, 2008; Stubbs & Maynard, 2017), and those who perceive their families as unhealthy made worse in mathematics (Karaagaç & Erbay 2015). Paz-Navarro, Rodríguez-Roldán, & Martínez-González (2008) compared the family functioning of high school students in terms of their school performance (low and average). Researchers conclude that families with students with low school performance had more vulnerable family functioning than families with students with average school performance.

Another significant finding was that parental educational support varied adolescents' perceptions of family functioning. It was shown that those who felt more parental support had better perceptions of family functioning. On the other hand, interviewed students' comments implied that their families' support for the school was somewhat superficial, while school professionals stated that parental involvement was minimal. According to Roksa & Kinsley (2018), socioeconomically disadvantaged families frequently lack the capacity to support their children toward success. In their research involving students of low-income families, they found that there was a significant relationship between family emotional support and academic outcomes of low-income students. Emotional support of family was beneficial as it enhances psychological well-being and increased school engagement. Similarly, Annunziata et al. (2006)

revealed that parental follow-up increased the adolescent's commitment to school, even if it was at a moderate level. In other studies that indicate the importance of family support, it has been found that perceived family support increases the student's commitment to school (Rodríguez-Fernández, Ramos-Díaz, Ros, Zuazagoitia, 2018), while low family support increases the risk of dropping out (Şimşek, 2011). As school professionals have pointed out, it is a significant issue since families from disadvantaged backgrounds lack an intact understanding to engage in their children's education. In a meta-analytic review, Castro et al. (2015) indicated the strong relationship between parental involvement and academic achievement when parents establish and maintain communication with children about school activities, schoolwork, and reading habits. Furthermore, authoritative parenting, which reflects healthy family functioning, has been found to be a major predictor of self-efficacy and resilience, as well as a significant correlation with academic achievement (Banerjee & Lamb, 2016). Therefore, it can be concluded that although these students need more parental involvement, they are more deprived of it due to their families' conditions.

The contradiction between parents and adolescents over educational expectations is one of the areas where students' perceptions of family functioning differ. It is recognized that children who report having less agreement with their families on educational goals consider their families to be less functioning. A similar direction can be seen in the qualitative findings of this study. School professionals emphasized that families with a poor level of education were unable to engage in their children's education and set reasonable expectations. Studies indicate that parents with less income and less education are more likely to have lower educational expectations for their children (Carolan and Wasserman 2015; Davis-Kean 2005). Another study conducted with students from a school serving low-income students found that their parents had high educational expectations despite their lower levels of educational attainment. The basic consensus between adolescent and parent is getting a four-

year high school degree (Kirk, Lewis-Moss, Nilsen & Colvin, 2011). Dam (2008) found that students were concerned about their parents' unrealistic expectations for themselves and their education. As stated by Bayhan & Dalgıç (2012), although families want their children to attend high school, because they cannot take an approach to prevent failure or absenteeism at school, the child's probability of dropping out increases. In this light, it can be stated that the findings of this study are generally consistent with those of previous studies in the literature.

The findings of the study provided valuable quantitative and qualitative understanding into the influence of families on adolescents' developmental tasks and educational achievement. On the other hand, research findings were mainly consistent with previous research. Moreover, quantitative and qualitative findings generally generated overlapping themes. According to adolescents' and school professionals' perceptions, it can be asserted that family relations and functioning may not be adequate to support adolescents in their education. Families' socioeconomic challenges are likely to have an impact on this issue.

From the ecological perspective, this could be an essential point for understanding the interaction of multiple systems on a child's school life. In fact, addressing students' school success only on an individual basis may cause ignoring other important systems that affect education. Therefore, it can be argued that family support services should be improved, considering that students and families from disadvantaged background need them the most. Supporting families by increasing their presence in education and enabling them to perform more effective parenting would be protective factors for adolescents' resilience. To accomplish this, it is important to note that the efforts of various professionals who engage in an interdisciplinary teamwork would be more relevant.

Finally, it should be noted that this study has some limitations. First and foremost, family functioning was assessed primarily from the perspective of adolescents in this study. The researchers' inability to include parents in the

study might be considered a limitation. The key reason for this situation is the difficulty in reaching families due to time and cost limits. On the other hand, gathering data in a short period of time has made it harder to predict the results' consistency over time. Using more than one measure to get more consistent findings would have been more efficient. Another limitation is that the study was conducted in a single school type and a certain district. A study based on the participation of students from different locations (district or province), socio-economic status, different types of schools could improve the comprehensive understanding of the subject.

References

Adıgüzel, A. & Karadaş, H. (2013). Ortaögretim ögrencilerinin okula iliskin tutumlarının devamsızlık ve okul başarıları arasındaki ilişki [The level of effect of high school students' attitudes towards school on their absenteeism and school success]. *YYÜ Egitim Fakültesi Dergisi, 10*(1), 49-66.

Alonso-Castillo, M. M., Yañez-Lozano, Á., & Armendáriz-García, N. A. (2017). Family functionality and alcohol use among high school teenagers. *Health & Addictions, 17*(1), 87-96.

Amato, P. R., Patterson, S., & Beattie, B. (2015). Single-parent households and children's educational achievement: A state-level analysis. *Social Science Research, 53*, 191-202. DOI: https://doi.org/10.1016/j.ssresearch.2015.05.012.

American Psychological Association (APA). (2017). Ethical principles of psychologists and code of conduct. APA. *https://www.apa.org/ethics/code/ethics-code-2017.pdf.*

Angacian, S., Bray, M. A., Kehle, T. J., Byer-Alcorace, G., Theodore, L. A., Cross, K., & DeBiase, E. (2015). School-based intervention for social skills in children from divorced families. *Journal of Applied School Psychology, 31*(4), 315-346. DOI:10.1080/15377903.2015.1084964

Ankara Kalkınma Ajansı (AKA). (2018). *Istatistiklerle Ankara 2017. http://www.ankaraka.org.tr/tr/icerik/arastirmalar-serisi_232.*

Annunziata, D., Hogue, A., Faw, L., & Liddle, H. A. (2006). Family functioning and school success in at-risk, inner-city adolescents. *Journal of Youth and Adolescence, 35*(1), 105-113.

Arslan, G. (2012). *Ortaögretimde ögrenim gören ergenlerde görülen problem davranısların aile sorunlari ve aile yapısı açısından incelenmesi [Adolescent problem behaviours in high school students to investigate in family problems and family structure].* (Unpublished Master's Thesis). Pamukkale Üniversitesi, Sosyal Bilimler Enstitüsü, Denizli.

Arslan, G. & Balkıs, M. (2014). The investigation of relationship between problem behaviors and family problems in adolescence. *SDU International Journal of Educational Studies, 1*(1), 11-23.

Ateş, F. B., & Akbaş, T. (2012). Ergenlerde görülen kural dısı davranıslarin aile islevselligi ve yasam kalitesi açısından incelenmesi. *Ç.Ü. Sosyal Bilimler Enstitüsü Dergisi, 21*(2), 337-352.

Atik, S. & Özer, N. (2020). The direct and indirect role of school attitude alienation to school and school burnout in the relation between the trust in teacher and academic achievements of students. *Education and Science, 45*(202), 441-458. DOI: http://dx.doi.org/10.15390/EB.2020.8500.

Aydıner Boylu, A, & Öztop, H. (2013). Tek ebeveynli aileler: Sorunlar ve çözüm önerileri [Single parent families: Problems and solutions]. *Sosyoekonomi, 19*(19), 207-220.

Aydogan, İ. (2011). Genel liselerde ögrenim gören kız ögrencilerin problemleri [Female students' problems who study in general high schools]. *Aile ve Toplum, 7*(24), 47-68.

Baltacı, A. (2017). Nitel veri analizinde Miles-Huberman modeli [Miles-Huberman model in qualitative data analysis]. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 3*(1), 1-14.

Banerjee, P. A. & Lamb, S. (2016). A systematic review of factors linked to poor academic performance of disadvantaged students in science and maths in schools, *Cogent Education, 3*(1). DOI: 10.1080/2331186X.2016.1178441.

Bayat, İ. (2015). Türkiye'de yoksul hanelerde yaşayan kadınların enformel istihdama katılma nedenleri [Causes of women living in poor households participation in the informal employment in Turkey]. *Journal of Labor Relations, 6*(1), 53-69.

Bayhan, G. & Dalgıç, G. (2012). Liseyi terk eden ögrencilerin tecrübelerine göre okul terki [School dropout according to the views of high school leavers*]. Inonu University Journal of the Faculty of Education, 13*(3), 107-130.

Baykara-Acar, Y. & Acar, H. (2002). Sistem Kuramı, ekolojik sistem kuramı ve sosyal hizmet: Temel kavramlar ve farklılıklar [System-ecological system theory and social work: basic concepts and differences]. *Toplum ve Sosyal Hizmet, 13*(1), 29-35.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. The *Journal of Early Adolescence, 11*(1), 56–95. DOI:10.1177/0272431691111004

Bellibas, M. S. (2016). Who are the most disadvantaged? Factors associated with the achievement of students with low socio-economic backgrounds. *Educational Sciences: Theory & Practice, 16*(2), 671-710. doi:10.12738/estp.2016.2.0257.

Berksun, O. E., Hızlı-Sayar, G. (2013). *Aile ve es terapileri [Family and couple therapies].* Detay Yayıncılık.

Bodvin, K., Verschueren, K., De Haene, L., & Struyf, E. (2017). Social inequality in education and the use of extramural support services: access and parental experiences in disadvantaged families. *European Journal of Psychology of Education*, *33*(2), 215-233. doi:10.1007/s10212-017-0335-z

Bulut, I. (1990). *Aile Degerlendirme Ölçegi (ADÖ) El Kitabı [Family Assessment Device Handbook].* Özgüzelis Matbaası.

Carolan, B. V., & Wasserman, S. J. (2015). Does parenting style matter? Concerted cultivation, educational expectations, and the transmission of educational advantage. *Sociological Perspectives*, *58*, 168–186. doi:10.1177/0731121414562967.

Carvalho, J., Fernandes, O. M., & Carvalho Relva, I. (2017). Family functioning and its relation to parental discipline. *Child and Adolescent Social Work Journal*, *35*, 31-44. DOI: https://doi.org/10.1007/s10560-017-0501-9

Castro, M., Expósito-Casas, E., López-Martín, E., Lizasoain, L., Navarro-Asencio, E., & Gaviria, J. L. (2015). Parental involvement on student academic achievement: A meta-analysis. *Educational Research Review, 14*, 33-46. https://doi.org/10.1016/j.edurev.2015.01.002.

Chukwuka, F. O. (2018). Impact of single parent on child education in primary schools in Oshimili South Local Government Area of Delta State. *International Journal of Innovative Education Research, 6*(1), 101-107.

Constable, R. (2009). The role of the school social worker. In C. R. Massat, R. Constable, S. McDonald, J. P. Flynn (Ed.), *School social work: Practice, policy, and research* (Seventh Edition, p.3-29). Lyceum Books.

Coskun, Y. (2007). Ortaögretim ögrencilerinin umutsuzluk durumları ve aile işlevselligi iliskisinin bazı degiskenlere göre incelenmesi [Examination of the relationship between hopelessness and family relations of high school students according to some variables]. *Marmara University Atatürk Education Faculty Journal of Educational Sciences, 26*(26), 11-26.

Coskun, Y. (2008). Ortaögretim ögrencilerinin aile içi iliskilerinin, ögrenilmis güçlülük düzeylerini yordama gücü [The prediction of learned resourcefulness of high school students by the relationship within their families]. *Inönü Üniversitesi Egitim Fakültesi Dergisi, 9*(16), 43-65.

Creswell, J. W. & Plano-Clark, V. L. (2014). *Karma yöntem arastırmaları: Tasarımı ve yürütülmesi [Mix-method research: Designing and Conducting]* (Y. Dede, S. B. Demir, Trans.). Anı Yayıncılık.

Dam, H. (2008). Ögrencinin okul başarısında aile faktörü [The family factor on the student's success of school]. *Hitit Üniversitesi İlahiyat Fakültesi Dergisi, 7*(14), 75-99.

Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology, 19*, 294–304. doi:10.1037/0893-3200.19.2.294.

Eğitim Reformu Girişimi (ERG) (2017). *Egitim Izleme Raporu 2016-2017*. Sabancı Üniversitesi. *http://www.egitimreformugirisimi.org/wp-*

content/uploads/2017/03/EIR2016-17_12.10.17.web-1.pdf.

Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device. *Journal of Marital and Family Therapy, 9*(2), 171–180. https://doi.org/10.1111/j.1752-0606.1983.tb01497.x.

Epstein, N. B., Ryan, C. E., Bishop, D. S., Miller, I. W., & Keitner, G. I. (2003). The McMaster Model: A view of healthy family functioning. In F. Walsh (Ed.), *Normal Family Processes* (p.581-607). The Guilford Press.

Erbay, E. (2008). *Çocuk isçi olmak: Çocuk isçiligine retrospektif bir bakış*. Sosyal Hizmet Uzmanları Dernegi Yayını No:14.

Eryılmaz, A. (2010). Aile yapisi ergeni mutlu eder mi? [Can family structure of adolescents make happy adolescents?]. *Sosyal Politika Çalısmaları Dergisi, 22*(22), 21-30.

Eymann, A., Busaniche, J., Llera, J., De Cunto, C., & Wahren, C. (2009). Impact of divorce on the quality of life in school-age children. *Jornal de Pediatria, 85*(6), 547-552.

Feij, J. A. & Taris, T. W. (2010). Beyond the genetic basis of sensation seeking: The influence of birth order, family size and parenting styles. *Romanian Journal of Applied Psychology, 12*(2), 54-61.

Feyzioglu, S., & Kusçuoglu, C. (2011). Tek ebeveynli aileler [Single parent families]. *Aile ve Toplum, 7*(26), 97-109.

Gökçearslan-Çifci, E. (2016). *Suçun yolculugu: Yasanmıs olaylardan öyküler. Ürün Yayınları*.

Hastings, O. P. & Schneider, D. (2021). Family structure and inequalities in parents' financial investments in children. *Journal of Marriage and Family, 83*, 717-736. DOI: https://doi.org/10.1111/jomf.12741

Havermans, N., Botterman, S., & Matthijs, K. (2014). Family resources as mediators in the relation between divorce and children's school engagement. *The Social Science Journal, 51*(4), 564-579. DOI: https://doi.org/10.1016/j.soscij.2014.04.001

Injo Ulloque, Á. G. (2020). *Funcionamiento familiar y bienestar psicologico en estudiantes de una institucion educativa publica, lambayeque, 2019.* (Unpublished Master Thesis). Universidad Católica Los Ángeles de Chimbote Facultad De Ciencias, Chile.

Jarolmen, J. (2014). *School social work: A direct practice guide*. Los Angeles: Sage.

Kalyencioğlu, D. & Kutlu, Y. (2010). Ergenlerin aile islevi algılarına göre uyum düzeyleri [The adjustment level according to family function perceptions of adolescents]. *Florence Nightingale Journal of Nursing, 18*(2), 56-62.

Kapçı, E. G. & Hamamcı, Z. (2010). Aile islevi ile psikolojik belirtiler arasındaki iliski: Erken dönem uyum bozucu semaların aracı rolü [The relationship between family dysfunction and psychological symptomatology: the meditating role of early maladaptive schemas]. *Klinik Psikiyatri, 13*, 127-136.

Karaagaç, M. & Erbay, H. (2015). Aile islevselliginin matematik basarısıyla iliskisi [The relationship between family functioning and mathematics success]. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 12*(31), 21-33.

Karaca, S., Ünsal-Barlas, G., Onan, N., & Öz, Y. C. (2013). 16-20 yas grubu ergenlerde aile işlevleri ve kişiler arası ilişki tarzının incelenmesi: Bir üniversite örneklemi [Investigation of the interpersonal relationship styles and family functions in 16-20 years old adolescents: A university sample]. *Balıkesir Saglık Bilimleri Dergisi, 2*(3), 139-146.

Karataş, S., Sertelin-Mercan, Ç., & Düzen, A. (2016). Ergenlerin ebeveyn ilişkilerine yönelik algıları: Nitel bir inceleme [Perceptions of adolescents' relationships with parents: A qualitative research]. *Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 19*(36), 237-257.

Kirk, C. M., Lewis-Moss, R. K., Nilsen, C., & Colvin, D. Q. (2011) The role of parent expectations on adolescent educational aspirations, *Educational Studies, 37*(1), 89-99. DOI: 10.1080/03055691003728965.

Leech, N. L. & Onwuegbuzie, A. J. (2009). A typology of mixed methods research designs. *Quality & Quantity, 43*(2), 265-275. doi:10.1007/s11135-007-9105-3.

Lindberg, N. & Demircan, A. N. (2013). Ortaöğretim okullarında aile katılımının değerlendirilmesi: Aile katılım ölçeği veli ve öğretmen formlarının Türkçe'ye uyarlanması

[Parental Participation at High School: Adaptation of Teachers' and Parents' Scales of Parental Participation]. *Cumhuriyet International Journal of Education, 2*(3), 64-78.

Özbesler, C. & Bulut, I. (2013). Sosyal hizmette genelci yaklaşım ve ekolojik perspektif. In H. Acar, N. Negiz, E. Akman (Ed.), *Sosyal politika ve kamu yönetimi bileşenleriyle sosyal hizmet: Temelleri ve uygulama alanları* (s. 97-107). Maya Akademi.

Özçatal, E. Ö. (2011). Ataerkillik, toplumsal cinsiyet ve kadının çalışma yaşamına katılımı [Patriarchy, gender and women's participation in working life]. *Çankırı Karatekin Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 1*(1), 21-39.

Özkurt, Y. & Camadan, F. (2018). Ortaokul öğrencilerinin aile içi iletişimlerinin ve sosyal uyum durumlarının incelenmesi [Investigation of the intra-family communication and social adjustment of middle school students]. *Turkish Studies, 13*(19), 347–371. DOI: https://doi.org/10.7827/TurkishStudies.13925

Özyürek, A., & Tezel-Şahin, F. (2014) Anne-baba olmak ve anne-babaların çocuk yetiştirme tutumları. In T. Güler-Yıldız (Ed.). *Anne baba eğitimi.* Pegem Akademi Yayıncılık.

Ma, X., Yao, Y. and Zhao, X. (2013). Adolescents, families and behavioral problems. *Asia-Pacific Psychiatry, 5*(E1-E8). DOI: https://doi.org/10.1111/j.1758-5872.2012.00211.x

Mensah, E. K. & Oduro, E. (2019). Assessment of student of single parents' support at Konongo-Odumase Senior Higher School in Ashanti Region. *Journal of Education and Practice, 10*(31), 44-50. DOI: 10.7176/JEP/10-31-05.

Moser, A. & Korstjens, I. (2018) Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. European Journal of General *Practice, 24*(1), 9-18, DOI: 10.1080/13814788.2017.1375091

Paz-Navarro, L. D. S., Rodríguez Roldán, P. G., & Martínez González, M. G. (2008) Family functioning of students with poor school performance and its comparison with a group of average performance in a high school at the University of Guadalajara.

Revista de Educación y Desarrollo, 10(Abril-Junio), 5-15.

Raines, J. C., Stone, S., & Frey, A. (2010). Parent involvement. In J. C. Raines, M. S. Kelly, S. Stone, A. Frey (Ed.), *School social work: an evidence-informed framework for practice.* Oxford University Press.

Rodríguez-Fernández, A. Ramos-Díaz, E. Ros, I. & Zuazagoitia, A. (2018). Implicación escolar de estudiantes de secundaria: La influencia de la resiliencia, el autoconcepto y el apoyo social percibido. *Educación XX1, 21*(1), 87-108, DOI: 10.5944/educXX1.16026.

Rodríguez Garcés, Carlos, Padilla Fuentes, Geraldo, & Gallegos Fuentes, Marcelo. (2020). Calidad educativa, apoyo docente y familiar percibido: la tridimensionalidad de la satisfacción escolar en niños y adolescentes. *Cuadernos de Investigación Educativa, 11*(2), 157-173. https://dx.doi.org/10.18861/cied.2020.11.2.2995.

Roksa, J. & Kinsley, P. (2019). The role of family support in facilitating academic success of low-income students. *Research in Higher Education, 60*, 415–436 https://doi.org/10.1007/s11162-018-9517-z.

Sapharas, N. K., Estell, D. B., Doran, K. A., & Waldron, M. (2016). Effects of parental divorce or a father's death on high school completion. *Psychology in the Schools, 53*(8), 861-874.

Shek, D. T. L., Leung, H., & Lu, S. (2014). Perceived family life quality in junior secondary school students in Hong Kong. *Social Indicators Research, 117*(3), 757–775. doi.org/10.1007/s11205-013-0397-5

Steinberg, L. (2013). *Ergenlik [Adolescent].* (F. Çok, Trans.). İmge Kitabevi.

Stubbs, N.S. & Maynard, D. M. B. (2017). Academic self-efficacy, school engagement and family functioning, among postsecondary students in the Caribbean. *Journal of Child and Family Studies, 26*, 792–799. https://doi.org/10.1007/s10826-016-0595-2.

Sümer, N., Gündoğdu-Aktürk, E., & Helvacı, E. (2010). Anne-baba tutum ve davranışlarının psikolojik etkileri: Türkiye'de yapılan çalışmalara toplu bakış. *Türk Psikoloji Yazıları, 13*(25), 42-59.

Şimşek, H. (2011). Lise öğrencilerinde okulu bırakma eğilimi ve nedenleri [Dropout tendency among high school students and its reasons]. *Eğitim Bilimleri Araştırmaları Dergisi, 1*(2), 27-47.

Şirvanlı-Özen, D. (2009). Ergenlerde anneden algılanan kabul/ilgi ile benlik-algısı arasındaki ilişki: Babadan algılanan kabul/ilginin aracı rolü. *Türk Psikoloji Yazıları, 12*(24), 28-38.

Teather, B. (2015). *Sosyal hizmet kuram ve yöntemleri: Uygulama için bir giriş*. A. Karatay (Trans. Ed.). Nika Yayınevi.

Teddlie, C. & Tashakkori, A. (2009). *Foundations of mixed methods research: integrating quantitative and qualitative approaches in the social and behavioral sciences*. SAGE Publications

Tezcan, M. (2014*). Eğitim Sosyolojisi*. (14. Basım). Anı Yayıncılık.

Ünal, N. (2019). *Akran zorbalığı ile ergenlerin algıladıkları aile işlevselliğinin incelenmesi [Investigation of family functionality detected by adolescents with peer bullying]*. (Unpublished Master's Thesis). Ankara Yıldırım Beyazit Üniversitesi Sağlık Bilimleri Enstitüsü, Ankara.

van Renen, L. J. & Wild, L. G. (2008). Family functioning and suicidal ideation/behaviour in adolescents: a pilot study. *Journal of Child and Adolescent Mental Health, 20*(2), 111-121.

Vuranok, T. T., Özcan, M., & Çelebi, N. (2017). Mesleki ve genel lise öğrencilerinin sosyo-ekonomik statüsü (İstanbul Avrupa yakası örneği). In E. Babaoğlan, E. Kıral, A. Çilek & F. Güçlü Yılmaz (Ed.). *Eğitime Farklı Bakış* (p.177-188). EYUDER Yayınları.

Watkins, D. & Gioia, D. (2015). "First floor": An introduction to a "mixed" way of thinking. In *Mixed Methods Research*. Oxford University Press. DOI:10.1093/acprof:oso/9780199747450.003.0 001.

Yavuz, S. & Özmete, E. (2012). Türkiye'de genç bireyler ve ebeveynleri arasında yaşanan sorunların "Aile Yapısı Araştırması" sonuçlarına göre değerlendirilmesi [Assessment of problems between young individuals and their parents in Turkey according to results of "Research on Family Structure 2006" Survey]. *Sosyal Politika Çalışmaları Dergisi, 7*(29), 9-27.

Yazgan, Ç., & Suğur, N. (2019). Yukarıya doğru hareketlilikte bir imkân ve sınırlılık olarak Türkiye'de meslek liseleri: Eskişehir örneği üzerine sosyolojik bir araştırma [intersection of advantages and disadvantages for upward social mobility: A sociological research on vocational high schools' students in Eskisehir]. *ISGUC The Journal of Industrial Relations and Human Resources, 21*(3), 65-86. DOI: 10.4026/isguc.634393.

Yıldırım, A. & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin Yayıncılık.

Yılmaz-Fındık, L. (2016). What makes a difference for resilient students in Turkey? *Eurasian Journal of Educational Research (EJER)*, 64, 91-108. doi:10.14689/ejer.2016.64.

Zinnur-Kılıç, E. (2012). Ergenlerde şiddet kullanımı: Bireysel ve ailesel etkenler [Violent behavior in adolescence: Individual and familial factors]. *Nöropsikiyatri Arşivi, 49*(4), 260–265. https://doi.org/10.4274/npa.y6100.

RESEARCH ARTICLE

OPUS▶

Journal of Society Research

Presentation of the Opening of the Hagia Sophia Mosque in the Printed Media of Islamic Countries

Bülent Öztürk¹

¹ Dr., Hacı Bayram Veli University, Ankara, Turkey
ORCID: 0000-0001-5989-4721
E-Mail:
bulent-ozturk@hbv.edu.tr

Corresponding Author:
Bülent Öztürk

Abstract

Countries that want to improve their power and prestige need to implement cultural diplomacy strategies effectively and efficiently along with traditional foreign policy arguments. In this article the news discourse about an event in countries having the same religion will be examined and the importance of cultural diplomacy will be emphasized. While Hagia Sophia was a place of worship for the Christian Orthodox faith, it was converted into a mosque on May 30, 1453 then a museum in 1934, and a mosque again in 2020. News about the conversion of Hagia Sophia into a mosque in the printed media, which are the samples of the Islamic countries in the population of the research, were categorized according to the subject headings in line with the purpose of the research and transferred to the Maxqda 2018 program, then later analyzed and interpreted with the content analysis method. It has been observed that there is a correlation between the intensity of negative evaluations in the public opinion of Islamic countries and the sharp deterioration in Turkey-Arab world relations. Findings of the analysis of the news have been evaluated in terms of political communication strategies.

Key Words: *Political Communication, Hagia Sophia Mosque, Communication, Public Diplomacy, International Communication.*

Öz

Güç ve itibarlarını geliştirmek isteyen ülkeler, geleneksel dış politika argümanları yanında kültürel diplomasi stratejilerini de etkili uygulamalıdır. Makalede aynı dine mensup ülkelerde bir eyleme yönelik haberlerin söylemleri incelenecek olup kültürel diplomasinin önemi de vurgulanacaktır. Ayasofya, Hristiyan Ortodoks inancının ibadet yeri iken 30 Mayıs 1453'te camiye çevrilmiş, daha sonra 1934 yılında müzeye, 2020 yılında tekrar camiye dönüştürülmüştür. Araştırmanın evreninde yer alan İslam ülkelerinin örneklemleri olan yazılı basınlarında, Ayasofya'nın tekrar camiye dönüştürülmesi ile ilgili gazete haberleri araştırmanın amacı doğrultusunda konu başlıklarına göre kategorize edilerek Maxqda 2018 programına aktarılmış ve içerik analizi yöntemi ile incelenip yorumlanmıştır. İslam kamuoyundaki olumsuz değerlendirmelerin yoğunluğu ile Türkiye-Arap dünyası ilişkilerindeki keskin bozulma arasında bağlantı olduğu görülmüştür. Haberlerin analizlerinden çıkan bulgular siyasal iletişim stratejileri açısından değerlendirilmiştir.

Anahtar Kelimeler: *Siyasal İletişim, Ayasofya Camii, İletişim, Kamu Diplomasisi, Uluslararası İletişim.*

Introduction

Since the 18th century, substantial volume of literature has focused on the media's critical role in observing the legislative, executive and judicial actions of the state or government, and has characterized the media as the fourth power controlling and guiding today's societies (Eizenstat 2004, p.15). The media has already become an instrument for shaping and transforming society with its power.

Arab and Turkish societies developed an attitude that was not considered positive towards each other during the collapse of the Ottoman Empire and the Republic of Turkey. The efforts of colonial governments like as Britain and France in Arab communities have had a significant role in the creation of this attitude. The majority of the citizens of the states in the article's research population are Arabs and Persians in Iran.

The fourth power, media, is used to disseminate psychological and sociological information and ideas, as well as to influence society's perception. Newspapers, television, radio, and cinema are among the most effective mass media for long-term public diplomacy, which is built on long-term communication and relationships in altering unfavorable and unjust judgements in the target countries and establishing positive understanding between nations. Data derived from newspaper news, which is one of these tools, will be examined.

According to Oskay (2015, p.15) "Communications is defined as communicating of attitudes, judgements, thoughts and emotions that are taken place in a community or community life that is composed of people who inform each other about the changes in objects, events and facts in their environment, transfer their knowledge about them, originate from similar life experiences in the face of the same phenomena, objects, problems, have similar feelings and express them to each other. Communication sciences "investigate, observe, categorize and interpret the discussions, information, news broadcasts, sharing and exchange phenomena that contribute to the idea of living together. Communication studies have studied the following phenomena in particular: technical instruments and tools, and their uses, symbolic and functional practices, languages, rules and regulations, circulation of knowledge and information, polemics, policies and strategies" (Perriault, 2016, p.9).

News that may pull societies into conflict with their own states and expose countries with more negative news to public pressure on the global platform is also an area of interest for communication studies in international politics, where the interests of states and societies are protected (Ocak, 2019, p.1465).

News discourses embody the phenomena observed by communication sciences, such as the circulation of knowledge and information, as well as languages, polemics, and politics. The newspaper reports about the reopening of the Hagia Sophia Mosque are from our research area's written press, which includes Saudi Arabia, Bahrain, Qatar, Kuwait, the United Arab Emirates, Iran, and Oman, as well as Egypt and Jordan, which are also known as Gulf Countries. The fact that the written press of 9 countries, including Egypt and Jordan, which have key places in the Islamic world, as well as 7 countries, with the exception of Iraq, which has a Persian Gulf coast, are the topic of the study, is considered as a limitation in the study.

A country's ability to represent itself properly and intelligibly to domestic and foreign audiences, in tandem with the policies it pursues, is strategically vital. Other countries' perceptions of you are frequently different from what actually occurs. As a result, views of global public opinion within the context of international communication must be measured. Therefore, it will be investigated how the inauguration of the Hagia Sophia Mosque is seen in the print media of chosen nations with a significant role in the Islamic world, and if the truth is suppressed.

News is the information. That is what we learned. It is what we do not know before reading, hearing or watching. It is the transmission of events to people who are unaware. It is gathering of information about an event, situation or phenomenon. It is a report of an event (Altun, 2007, p.5). Discourses in news pieces help us comprehend the power/power relations regarding the structures in which they take place. Every

regime underpins ideology (Öztürk, 2015, p.75). The discourses of the countries based on different ideologies and regimes in the news texts are also different. News discourses are not distinct from the prevailing discourses of society to which they belong. It encompasses all of the society's prevailing discourses as well as the society's beliefs and values. The goal of the news analyses performed for these discourses is to elucidate the unseen meanings of the language in the news pieces.

States pay attention to the public opinions of other countries, the United Nations (UN), regional pacts, etc. while establishing and implementing their foreign policies. In what discourses they reported news on the conversion of Hagia Sophia from museum to mosque is crucial to know how the public opinion of Islamic nations and the countries of other religions, which is part of the world public opinion, see and understand the inauguration of Hagia Sophia. It will be seen with this study if the public diplomacy activities that should be carried out within the scope of the understanding effort prior to the understanding effort are sufficient and effective for Turkey.

Public diplomacy, which is also recognized as a new political communication strategy, may appear like a government act, yet it is ultimately an important way of communication. It is a type of communication activity that may be done even for specific subjects within the effort to exchange information with other societies.

Public diplomacy, according to Riggins (1998:4), is a government's endeavor to openly establish foreign public opinion and disseminate accurate information structured to achieve national goals, interests and objectives. It is widely acknowledged that Turkey has not been able to express itself well to the rest of the world, more specifically to the Islamic world, as in the Cyprus or Armenian issues. The lack of influence and efficacy in public diplomacy reveals itself in foreign policy, notably in the Turkic Republics and Islamic countries, particularly in the recent periods when membership negotiations are being carried out as a candidate to the EU. Certainly, the current situation is not just due to a lack of influence and efficiency in public diplomacy. After all, it is well-known that international relations are based on mutual interest.

The policy pursued has been important in public diplomacy. On the one hand, policy refers to the process of reconciling different segments of society and power relations on a common ground; on the other hand communication (political communication) refers to the process of reconciliation on the basis of agreement through creating common symbols and conducting interpretations and discussions on them. Practices are conducted through policy while policy is conducted through communication. According to Harold Laswell, policy and communication processes are tightly interdependent (Oktay, 2002, p.7). Public diplomacy, as a new strategy of political communication aimed at having a positive impact on the public opinion of the target countries by following public relations methods, can allow these countries to establish a relationship with their public that military cannot achieve, but it can be said that the opening of the Hagia Sophia Mosque has not been used effectively for Turkey.

Muslims encounters religious challenges that differ sufficiently from one another to have an impact on their socio-economic development based on the geography they live in the world, as well as face socio-economic problems that overshadow their religious life individually or as a community (Kalaycı, & Aytekin, 2016, p.53). Despite the fact that the Islamic countries in the research area are geographically close to each other, they have various sects, ethnic structures and socio-economic problems. This variance, together with cultural differences and policies has resulted in varied approaches of countries to this research topic.

As Gadimov (2012, p.219) points out, while the media propagandizes for the state, it actually solely takes on the official viewpoint and standpoint, disregards opposing or alternative viewpoints, and never engages in investigation beyond the official statement. Since, it is very simple and affordable to convey the official view. Investigating whether the official view is correct incurs extra expenses. When the media conveys a subject, they may look at the subject from a different perspective and disregard the subject

they should see. In terms of international communication, it is also important to determine how the issue of reopening a mosque that has been converted into a museum into use as a mosque is handled in the media in tandem with the policies of the countries and their distance and closeness to Turkey.

Method

Newspaper reports related to the conversion of Hagia Sophia into a mosque in the print press, which are the samples of the Islamic countries in the population of the research, will be categorized based on the topics headings in line with the purpose of the research, transferred to the Maxqda 2018 program and analyzed and interpreted using the content analysis method. Content analysis is an analytical method. Analysis, which implies breaking down a whole into its components, is employed as a way of comprehending and thinking by different fields of science (Türer, 1991:321).

Findings obtained from the news analysis will be examined in terms of political communication strategies. Furthermore, it will be demonstrated how the prevailing ideologies in the countries in the population of the study are reflected in the news of the newspapers in tandem with the policies of those countries.

Findings

Hagia Sophia museum, which was used as a mosque from 1453 until 1934, began to be utilized as a mosque again after 86 years by the decree of the Council of State, the highest administrative court in the administrative jurisdiction of the Republic of Turkey.

The news that satisfied our need to be informed in our daily and social life has a significant role in our lives. News;

- On the one hand, it is regarded as a phenomenon that "transmits what is in the truth" with a liberal pluralist approach, also known as the mainstream, on the other hand,

- It is examined via critical approach that perceives as an "ideological discourse".

In our research, we took on critical approach from these two methods, which are commonly used in news research. In a critical approach, news appears as either a distorted knowledge of the event or as a reconstruction of reality (Dursun, 2007, p.109). The liberal pluralist mainstream approach believes that mass communication and news are quantifiable and observable and it attempts to reveal the impact of news on individuals and societies. The critical approach, on the other hand, focuses on the relationship between power centers, media and society. As a result, unlike the mainstream, it argues that, in tandem with the ownership structure of the media, economic and political forces influence the discourse and content in the media, and that the mass media are ideological instruments. Therefore, it is explicitly specified that countries report on the issue of working with their ideologies in a critical approach. In Stuart Hall's words, the media's ideological influence stems from its capacity to "describe" the situation. From a critical standpoint, the media's descriptions of the situation are characterized by the word "construction of ideology." According to Stuart Hall, the media's ideological power is derived from "the capacity to describe the situation (Shoemaker and Reese, 1997, p.103)".

Language and discourse, according to Van Dijk (1999, p.42), who studies the link between the notions of discourse and ideology, are among the social practices most influenced by ideology. Language and discourse also have an impact on how we acquire, learn, and change ideologies. The majority of the discourse we use, especially when speaking as a member of a group, consists of ideologically based ideas.

When the discursive structures of news texts are investigated, they reveal themselves to be closed texts with distinct characteristics. Different discourses leaked into the news result in more dominant discourses coming to the fore in the organization of the news and the text closing around these discourses (İnal, 1995, p.116).

Our research field includes the Islamic countries located in Ceziretularap, also known as Al-Cezire, with the full name Shibhu Cezireti'l-Arab (Arabian Peninsula) abbreviated, along with Iran and Egypt. These are Kuwait, Bahrain, Saudi Arabia, Jordan, Qatar, United Arab Emirates and Sultanate of Oman. Six countries in the Arabian Peninsula (excluding Jordan) are members of the Gulf Cooperation Council and are ruled by a monarchy. While Iran has been ruled by a unique republican administration under the name of the Islamic Republic since 1979, Egypt is the only one among others which is governed by the republican administration. As Islamic countries, the way they deal with such a specific issue in their media is important and arouses public curiosity. All the countries in our research area are also members of the Organization of Islamic Cooperation, which consists of 57 member states.

News Reports about the Opening of the Hagia Sophia Mosque:

EGYPT PRESS

In the news dated 10 July 2020;

Liberal-tendency Al Youm Al Sabie Newspaper with a daily circulation of 5.000 carried the news as "Erdogan trades with Hagia Sophia", "Reading Turkey's attitudes - Mu'taz Billah Abdelfettah" ,

The Egyptian Gazette, which is pro-regime and is published daily with a circulation of 3,000, carried the news as "Greece condemns Turkey's decision to convert Hagia Sophia into mosque".

On July 11, 2020, it is noteworthy that the Egyptian press more focused more on this subject.

"Erdogan's decision to convert Hagia Sophia into a mosque. European Union: The decision is heartbreaking. UNESCO condemns",

After headlined in The Egyptian Gazette as "UNESCO warns Turkey against the conversion of Hagia Sophia mosque; "How does the President of Turkey utilize religion to consolidate his dictatorship?" ... news has been released.

According to statement made by Global Fatwa Index (GFI) of the Egyptian Mufti[1] and the General Secretariat of Fatwa Institutions and Commissions in the World, Erdoğan's decision to convert the Hagia Sophia Museum into a mosque confirms the validity of what the Index stated in its report last March (2020), the Index report stated that Erdoğan used the mosque as a political card to recapture his lost popularity which he is dependent and he aimed to draw voter's attention from the economic problems caused by the devaluation of the Turkish Lira and his failure to cope with the corona virus crisis, in order to achieve political gains from them and to use them for his religious interests.

Following the publication of Erdogan's plans in its previous report, the Fatwa Index was exposed to a severe attack with the orders of the Turkish boss by terrorist pro-ikhvans (society of the Muslim brothers) through social media platforms and satellite channels. Their goal was to divert attention away from the report alleging that Erdogan used the weapon of religion and fatwa to expand his regional influence, under the guise of resurrecting the caliphate that had previously been buried in Turkish territory by Ataturk, in an attempt to revive the Ottoman trend, or what Arab scholars called "neo-Ottomanism."

The Fatwa Index stressed that the decision to convert Hagia Sophia into a mosque was taken nationally and politically under the guise of religion. This decision is not so different from the conversion of Hagia Sophia from a mosque to a museum or converting ancient Cordoba Mosque into a church. All of these are actions that serve politics, not religious ones, and the call to prayer in Hagia Sophia is nothing more than a trick of using religious rites for political purposes.

The Fatwa Index states that by putting on the Hagia Sophia issue under a religious cover, Erdogan and his party hope to win over Turkey's conservative electoral bloc through the ballot boxes, while also trying to create large Muslim masses abroad and justify their dubious expansionist actions in Libya, Syria, Iraq and other countries in order to build the image of the "Great

---

[1] *Global Fatwa Index, which is affiliated with the Daru'l Ifta Fiqh Council, Egypt's top official institution of Islamic law.*

Savior" by attempting to restore the Caliphate in people's minds. Furthermore, the Fatwa Index reminded that this decision, which was taken purposely to Europe which gave the honor of joining the union to smaller countries but not to Turkey, is taken in response to a series of confusions at home and abroad of a regime that overwhelmed its people economically and politically and lost domestic and foreign support.

The Fatwa Index noted that portraying the matter as an Islamic issue or a new conquest is a falsehood, because religious realities order us to approach the beliefs of others in good faith, to respect their holiness and places of worship, and all these are the teachings and principles of Islam. Caliph Omar bin Khattab declined to pray in the church as he feared that the Muslims would convert it into a mosque after him. This is also how Amr bin As acted when he arrived Egypt. Erdogan's lost dream of leadership, on the other hand, drives him to employ all means necessary to attain his goal.

The Index stated that a decision to close the brothels spread all over Turkey is more useful to Muslims than converting the museum into a mosque. Similarly, the decision to stop the influx of mercenaries killing Muslims in Libya is more beneficial than converting the museum into a mosque. The decision not to loot the wealth of the peoples and not to starve the Muslims is more line with God than converting a museum into a mosque. A constitutional definition of Islamic state rather than secularism is preferable than converting a museum into a mosque.

The Fatwa Index stated that Erdogan's actions put the world situation (Crusader and Islamic) in danger back to idea of two opposing camps, while Far-Right movements of the West, at the same time led fundamentalist terrorist groups to fight on an issue for which God has not sent clear evidence, thereby reducing the likelihood of human brotherhood and rapprochement, but encouraging supporters of each side to use hate discourses.

Why has Hagia Sophia been converted into a mosque now?

The Global Fatwa Index stated that the issue of converting Hagia Sophia into a mosque was raised prior to the elections ten years ago, but it has

remained a tool and propaganda weapon in the hands of various politicians in the Turkish regime's campaigns to politicize religion or use religious policy slogans, particularly to attract religious voters.

After all the wilting leaves of his old tree had fallen and now he had nothing left to deceive his supporters, converting Hagia Sophia into a mosque became an electoral weapon in Erdoğan's hands. Erdogan and his soldiers brought this up again whenever they needed the people's support.

IRAN PRESS

In the news published on 10-12 July 2020,

- "The Hagia Sophia Problem; Erdogan's decision to convert Hagia Sophia from a museum into a mosque sparked international reaction." (with reference to Iran, Al-Cezire and AFP)

The titles "Turkish Council of State approved the decision to transform Hagia Sophia into a Mosque: Erdogan's Trump" (Etemad).

- In the article titled Hagia Sophia cannot save Erdogan." (Etemad, Article, Author Turec Atabeki), the author mentioned the history of Hagia Sophia from its construction to its present, its conversion from a church to a mosque and a museum during the Republic, and he described the conversion of Hagia Sophia into a museum as a symbol of the heritage of the Republic and the multicultural structure of İstanbul, and considered the conversion of Hagia Sophia into a mosque as a continuation of the policies of the Ak Party and the President to separate from the Republican discourse in line with the neo-Ottomanism to adhere to the tradition of the Ottoman Empire.

The author argued that President Erdogan and other Turkish authorities' rejection of neo-Ottomanism policies, were purely tactical, and that it was understood that Turkey's recent regional policies, more specifically its attitude towards Northern Iraq and Northern Syria, acted entirely in the direction of reviving the Ottoman Empire. Subsequently, the Turkish and Turcoman militia units dispatched to Northern Syria were named after Ottoman sultans such as Abdülhamit, Fatih, Sultan Süleyman, Beyazıt and the like, and that the conversion of Hagia Sophia into a mosque was

done with the purpose of temporarily rallying and persuading conservatives, including the Islamist capitalist faction that formed in the 20 years that passed during the difficult days of the AK Party, behind its leader, but because of long-term economic problems, such symbolic initiatives could not save "Erdoğan" from the problems he faced. At the end of the article, he noted that the US and Greece are at the top of the groups opposing to the resolution, that this initiative would not have significant impact on US-Turkey relations and would lead to increased tension between them, but the situation in the Orthodox world, especially in Greece, is different and could affect the relations between Turkey and these countries.

In another article titled "The History of Hagia Sophia from the Cathedral to the Great Mosque: The story of 1500 years of religious conflict" (Etemad- Hagia Sophia History), the history of Hagia Sophia was explained in detail and the following points were added at the end:

"Hagia Sophia is regarded as a symbol of religious tolerance and the ability of people from various religions and sects to live together until today. However, we must wait to find out what can happen to this historical building after Erdogan's recent decision to convert Hagia Sophia into a mosque."

The news titled "World reacts to reconverting Hagia Sophia into a mosque" (Tehran Times) also includes the reactions of Church Leaders, UNESCO, EU, Greek Cypriot Administration, USA, Greece, RF, HAMAS and TRNC, regarding the opening of Hagia Sophia to worship.

On the other hand, according to Anadolu Agency (AA) news dated 13 July 2021, Iranian Foreign Ministry Spokesperson Mousavi; Speaking to about the decision to open Hagia Sophia as a mosque, he said, "We are happy with the decision to open Hagia Sophia, which was welcomed by the people of Turkey and Muslims."

Regarding the reactions from some countries to this decision, Mousavi remarked that, "The decision regarding the situation of Hagia Sophia is an internal matter of Turkey. This is a matter to be considered within the context of Turkey's national sovereignty."

KUWAIT PRESS

In the press dated 12 July 2020, following news reports are included;

Turkey's court annulled a 1934 Cabinet decree that had ordered Istanbul's Hagia Sofia to have become a museum, allowing it to be a mosque again (KUNA).

The following statements were briefly recorded in the news: ''Erdogan turned iconic museum into mosque to widen support: Converting Istanbul's Byzantine-era cathedral Hagia Sophia back into a mosque will allow Turkish President Recep Tayyip Erdogan to expand his Islamic and nationalist base and divide the opposition, experts count. But the move will heighten tensions between the West and Turkey's veteran leader Erdogan, who has been grappling with an economic crisis and regional conflicts in several nearby countries, they say (Kuwait Times).''

Also, in the press

- Amidst international condemnation, Erdogan challenges and changes the status of Hagia Sofia. (Al Travel)

-- Erdogan appeases his voters with the news titled "Hagia Sophia mosque" (Al Qabas) has been published.

BAHRAIN PRESS

In the press dated 10-12 July 2020; the following news reports are included;

-Erdogan rejects criticism about the conversion of Hagia Sophia (The Daily Tribune)

- Erdoğan: The first prayer was held in Hagia Sophia on July 24 (Al Ayam) Erdoğan: Holding the first prayer in Hagia Sophia on 24 July (Al Ayam)

-Hagia Sophia to be reopened for worship, UNESCO warns (The Daily Tribune)

- A Turkish court opens the way for the conversion of the Hagia Sophia to a mosque and Erdoğan announces it is open to Muslims for prayer (Al Ayam)

-Constant international condemnation of Erdoğan's controversial decision on Hagia Sophia (Akhbar Al Khaleej)

- Erdogan transforms Hagia Sophia into a mosque and opens it to Muslims for prayer (Akhbar Al Khaleej)
- World Council of Churches: Transforming Hagia Sophia into a mosque gives rise to grief and resentment (Al Ayam).

PRESS IN SAUDI ARABIA (SA)

Two conflicting statements reveal Erdoğan's intention according to an editorial in the newspaper dated 10-12 July 2020 titled "*Sultan who exploits religion, lies and contradictions syndrome-Hagia Sophia (Okaz)*".

"The first statement intended to deceive the Arabs with the words linking "Hagia Sophia" and "Masjid al-Aqsa". The mosque will be open to Muslims, non-Muslims, Turks and everyone else according to the English statement. The ill Ottoman leader tries to save his collapsed popularity and failed policies in Turkey and abroad through this contradiction.

Deputy Faruk Gergerlioğlu, a member of HDP, reacted sharply to the decision to convert the Hagia Sophia Museum into a mosque and telling Erdoğan, "You cannot cover up evil with this decision."

An attempt to engage the public and divert attention from the economic crisis:

An opinion survey revealed that the majority of Turkish people associate Erdogan's Hagia Sophia decision with deteriorating economic conditions in Turkey. While others think it's a game, the ruling party hopes it will go into effect before the snap elections. It is evident that the President of Turkey is attempting to gain the support of conservative voters in Turkey with his speeches and attempts to revive the Ottoman Empire.

"What were you thinking when you made the decision on Hagia Sophia Church? In another editorial entitled '',

President Erdogan signed the decree to convert Hagia Sophia from a museum into a mosque. This has become a global issue, and Erdogan and his party have exploited it politically, giving Erdogan strong incentives to annex West Bank territory, including Al-Aqsa Mosque, while ignoring Muslim interests in the world.

I'd like to underline a few aspects about this decision

1- Islam outlaws harming, cutting down trees, killing animals and destroying homes and dwellings so that the Islamic message we give to the world stays humanitarian and in line with Allah's law.
2- Because Hagia Sophia is full of tombs and graves of Ottoman sultans, it is not permitted to pray in its mosque.
3- Converting Hagia Sophia, even as a reaction to the conversion of the Cordoba Mosque into a cathedral, may be against the law. Mosques should not be subjected to political exploitation and electoral ambitions as in Turkey.
4- This action will increase hostility between Christians and Muslims in the long run.

Official voice of the SA regime by Wafaa Al Rasheed on July 13, 2020 in Okaz published article is recorded below:

"Hagia Sophia and Erdogan's Stupidity

The timing of the announcement that the Hagia Sophia Museum would be converted into a mosque is stupid and provocative to the civilized world. The purposes of converting into a mosque are obvious and unjust. We also noticed differences and contradictions between the Turkish President's Arabic pronouncements, such as "Hagia Sophia, the return of Muslims and Ottoman civilization" and his English statements. We have detected the difference and manipulation of information directed to Arabs and the West! But why just now? Now, because the decision is a purely political tool to recover its popularity in Turkey after the economic downturn, the deterioration of security, the collapse of the lira and foreign diplomatic failure in Syria, Iraq and Libya! Erdogan certainly will now take advantage of the condemnation of countries and organizations to portray himself the leader and defender of the Islamic world. The most significant question is that what advantage it would offer to Muslims around the world if Hagia Sophia was converted a mosque? Would Erdogan accept if Jews converted the Dome of the Rock into a temple?

"Erdogan's illusions: Hagia Sophia is neither Mecca nor Medina" is said in the commentary signed by Mohammed Al Saaed, which was also published in the Okaz newspaper on 13 July 2020.

JORDAN PRESS

While there aren't many pieces of news in the Jordanian press on the Hagia Sophia's conversion to a mosque, the news titled "Erdogan rebuffs criticism over Hagia Sophia conversion to mosque" (AFP-Jordan Times) in the written press on July 11, 2020 was found noteworthy.

QATAR PRESS

In the Qatari press, which was observed to adopt a politically supportive attitude towards Turkey, following piece of news are published;

- ''Hagia Sophia will be open to everyone: President (The Peninsula, 10 July 2020).

In a statement on Friday, the Turkish President said that after Turkey completes all the preparations, it will open Hagia Sophia to worship on July 24 at Friday prayers.

-Hagia Sophia in Istanbul was declared a mosque after the decision of the Turkish court. (Golf Times 11 July 2020).

- Erdogan: Hagia Sophia to be reopened for Muslim worship (Asharq Al Awsat, 11 July 2020).

Turkish President Recep Tayyip Erdogan stated on Friday that Hagia Sophia, one of the architectural wonders of the world, will be reopened for Muslim worship, sparking anger in the Christian community and neighboring Greece.

UNITED ARAB EMIRATES (UAE) PRESS

In the news titled "Turkey's reopening of Hagia Sophia as Mosque 'Emboldens Extremists'" published on 12 July 2020 in The National, the unofficial English language organ of Abu Dhabi:

"Cultural landmarks should neither be misused nor changed," said a UAE minister, following Turkey's move to revoke Hagia Sophia's decades-old museum status and reopen it as a mosque.

The resolution by Turkey's highest administrative court on Friday was greeted with worry by US, French,

Russian and Greek officials, as well as Christian church leaders.

The UNESCO World Heritage site was built in the 6th century as a cathedral of the Greek Orthodox Church by the Byzantine emperor Justinian before it was converted into a mosque under the Ottoman Empire nine centuries later.

It was declared a museum in 1934 after the establishment of the secular modern Turkish Republic in 1923 and is one of the most visited monuments in Turkey.

…The Minister underlined the importance of UNESCO's statement emphasizing that Hagia Sophia is a part of Istanbul's rich history.

"Designated by UNESCO as a heritage museum. It is an architectural marvel and a unique witness to the interaction between Asia and Europe over the centuries. It is a symbol of dialogue," he said.

UNESCO said that countries hosting cultural heritage sites should not alter them in a way that would undermine their extraordinary universal value.

The UAE is a member of the board of directors of UNESCO.

In the news dated 13 July 2020;

- EU: Ankara is moving away from European values (Al Khaleej)

- Erdogan decided to change the status of Hagia Sophia (Al Ittihad)

- The World Council of Churches "feared" that the status of Hagia Sophia would change (The National)

- USA disappointed by Turkey's decision to change the status of Hagia Sophia (The National)

- Erdogan: The first call to prayer in Hagia Sophia will be read on July 24 (Gulf News).

OMAN PRESS

The Grand Mufti of Oman, Sheikh Ahmed bin Hamad Al Khalili, put out a statement on 12 July 2020 on his official twitter address, saying "I congratulated the Islamic world, especially Mr. President and the Turkish nation, on the reopening of Hagia Sophia as a mosque, he said that the brave step taken for this mosque, which was a symbol for Muslims from Fatih Sultan Mehmet to the last Ottoman sultans, was appreciated.

The above news has been analyzed with the MAXQDA 2018 program. As part of the qualitative research, codes were developed before the data and then similar codes were gathered under the same theme. It has been found that the news generated in accordance with the codes transferred to the Maxqda 2018 program are gathered under 4 different discourses. Accordingly, the frequently used discourses in the news and their numbers are given in the table as follows:

Table 1. The Frequently Used Discourses In The News And Their Numbers

1 United Arab Emirates	
1.1 Positive Reactions to Worship Opening	1
1.2 Discourse on the Warning-Ultimatum-Reaction	3
1.3 Conservative Policy Discourse	1
2 QATAR	
2.1 Breaking News	1
3 JORDAN	
3.1 Discourse on the Warning-Ultimatum-Reaction	1
4 SA	
4.1 Discourse on the Warning-Ultimatum-Reaction	1
4.2 The contrast of Islamic practices in Turkey	2
4.3 Policy Discourse for Conservatives	2
4.4 Discourse as a Cover-up for Political Failures	6
4.5 Economic Discourse	1
4.6 Discourse to Cause Political Conflict	3
4.7 Discourse on the Use of Religion and Fatwa for Benefit	4
5 BAHRAIN	
5.1 Warning-Ultimatum-Reaction Discourse	4
6 KUWAIT	
6.1 Management Empowerment Discourse of Use for Benefit	1
6.2 Warning-Ultimatum-Reaction Discourse	1
6.3 Discourse of Causing Political Conflict	1
6.4 Policy Discourse for Conservatives	1
7 IRAN	
7.1 Positive Reactions to Opening to Worship	4
7.2 Uncertainty of Hagia Sophia's Future	1
7.3 Religious Conflict/Discourse of Conflict	1
7.4 Discourse to Cause Political Conflict	1
7.5 Policy Discourse for Conservatives	1
7.6 Discourse of Leadership to Bring Back the Caliphate	2
7.7 Management Empowerment Discourse of Use for Interest	2
7.8 Warning-Ultimatum-Reaction Discourse	3
8 EGYPT	
8.1 Economic Discourse	1
8.2 Speech of Condemnation	2
8.2.1 Discourse of being under attack from social media and visual media	1
8.3 Warning-Ultimatum-Reaction Discourse	1
8.4 Management Empowerment Discourse of Use for Interest	7
8.4.1 Discourse of Decision Taken in Reaction to Non-Acceptance to the European Union	1
8.4.2 Policy Discourse for Conservatives	3
8.5 Discourse as a Cover-up for Political Failures	1
8.6 Discourse on the Use of Religion and Fatwa for Benefit	5
8.6.1 Discourse of Leadership to Bring Back the Caliphate	1
8.7 Quoting the Lives of Islamic Leaders	1
8.8 Contrast of Islamic practices in Turkey	2
8.9 Discourse to Cause Political Conflict	1
9. OMAN	
9.1 Positive Reactions to Opening to Worship	1

When we graph the table, the ratio of the different discourses created can be seen more clearly:
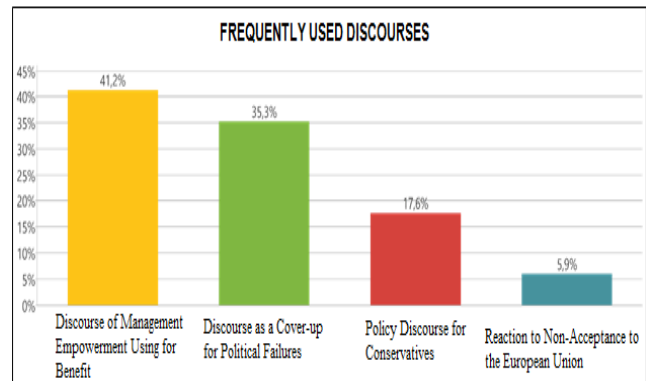
Graphic 1. Frequently Used Discourses According to Media News

Conclusion and Evaluation

It is not how a country perceives itself that matters in the international arena, but how other countries perceive it. As a result, the outcomes obtained will be valuable data for the executive actors. The issue of the conversion of Hagia Sophia which literally means "Holy Wisdom" (Thevenot, 1978: 59), into a mosque, and its subsequent reopening, has been widely evaluated and criticized as following arguments mostly in Christian countries, more specifically in Orthodox countries; Turkey's "Islamization/religiousness", "Blow to laic/secular understanding" and "Returning to neo-Ottomanism".

It was noted in the study that negative reactions were observed in the media of non-Muslim countries, located adjacent to Turkey, as well as the negative reactions in the media of non-Muslim countries. As a result of the analysis, the following ratio and form were found in the research of news discourses from nine different Islamic countries; 41.2% Management empowerment, discourse of use for profit, 35.3% Discourse as a means of covering up political failures, 17.6%, Policy discourse for the conservative, 5.9% The discourse of the decision taken in response to not being admitted to the European Union.

One of the concepts on which the battle to generate meaning can be seen in the context of the presentation of the Hagia Sophia Mosque

inauguration is "Religion and Fatwa Usage. Many Islamic countries in the subject of studies, particularly Egypt, have employed the concept of politicizing religion via fatwas. This research also revealed the use of ideology within the framework of religion in terms of journalism practices. In this regard, it has been noticed that the news in the discourses formed in Islamic countries in the context of journalism practices also affects international communication as a side of the power struggle.

With the expansion of communication technologies along with globalization, it is no longer possible to consider international relations as solely interstate affairs. Other than states, today non-state players have begun to play an active part in the international system. It is now possible to say that achieving absolute success with hard power has become difficult, if not impossible. As a result, it should not be overlooked to engage in public diplomacy, which is a powerful tool for influencing local and international public opinion and having a favorable effect, particularly on global public opinion. The events that have developed in the world show that public diplomacy has risen to prominence among foreign policy instruments. Developed powerful states that use public diplomacy are making efforts to create a positive perception in global public opinion by engaging cultural diplomacy activities in line with their goals.

There is also an association between the intensity of negative evaluations in the Islamic public in the subject of study and the severe deterioration in the relations between Turkey and the Arab world. It has been determined that positive evaluations have been made in Qatar and Oman, where the relations are better. It is understood that many structures, particularly the Organization of Islamic Cooperation (OIC), of which Turkey is a member, were not used effectively in such an important action for the Islamic world. It can be said that the cultural diplomacy activities, which are one of the tools of public diplomacy and carried out with the goal of conveying the cultural valuesof Turkey to the societies in other countries and gaining

appreciation, have not yielded enough positive results in this respect.

As a result of the above-mentioned findings, it was concluded that Turkey was unable to conduct sufficiently effective public diplomacy on the subject of the study. It is seen that the reopening of the Hagia Sophia Mosque, which should have been embraced ideologically by the Islamic world, has been converted into a public diplomacy campaign against Turkey for political objectives.

References

Altun, S. (2007). Haber söylemi, değişkeleri: Cumhuriyet mitingleri ya da gelincik devrimi örneklemi, master's thesis. İstanbul Kültür Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul

Dursun, Ç. (2007). *Hak haberciliğinin doğası ve olanağı insan hakları haberciliği*. İstanbul: IPS İletişim Vakfı Yayınları, p.105 – 127

Eizenstat, S. E. (2004). Nongovernmental organizations as the fifth estate, seton hall. *Journal of Diplomacy and International Relations, 5*(2), 15-28

Gadimov, J. (2012). *Herman ve Chomsky'nin Propaganda Modeli: Rızanın imalatı: Kitle medyasının ekonomi politiği kitap eleştirisi.* İstanbul: bgst Yayınları.

İbrahim, K. (2012). Kamu diplomasisi. İn, *Türk Dış Politikası ve Kamu Diplomasisi*, p.145-160), ed., Özkan A. and Öztürk T. E., İstanbul: Tasam Yayınları,

İnal, M. A. (1995). *Yazılı basın haberlerinde yapısal yanlılık sorunu toplum ve bilim.* İstanbul: Birikim Yayınları

Kalaycı, İ., Aytekin, B. (2016). Çağımız İslâm dünyasında yaşanan dinsel ve sosyo-ekonomik sorunlar (Teşhis Boyutu). *Türk İşbirliği ve Koordinasyon Ajansı Başkanlığı Avrasya Etüdleri Dergisi*, p.153-182

Kapani, M. (1999). *Politika Bilimine Giriş*. Ankara: Bilgi Yayınevi.

Oçak, Z. (2019). Yumuşak güç olarak uluslararası basın ve söylemi. *4. Uluslararası EMİ Girişimcilik ve Sosyal Bilimler Kongresi, 29-30 Kasım 2019, İstanbul*

Oktay, M. (2002). Politikada halkla ilişkiler. İstanbul: Derin Yayınları.

Özsoy, G., Erdal, Y. and Hiperlink (Firm). (2005). *Ayasofya - Kariye*. 1. bs. İstanbul: Hiperlink

Öztürk, B. (2015). Siyasal İletişimde İdeolojik Söylem: 7 Haziran 2015 genel seçimi üzerine bir inceleme. *Gazi Üniversitesi Eğitim ve Toplum Araştırma Dergisi, 2*(5), 68-85.

Perriat, J. (2016). *İletişim bilimlerinin unutulmuş kökenleri*. Transl. Köse, H., 1. baskı, İstanbul: Ayrıntı Yayınları.

Perriault, J. (2016). *Genel sunum: İletişim bilimlerinin bilinmeyen kaynakları. İletişim bilimlerinin unutuluş kökenleri*. (der) Jaques Perriault. Transl. Hüseyin Köse. İstanbul: Ayrıntı Yayınları

Rıggıns, J. (1998). *A strategic assessment of public diplomacy*. USA.

Shoemaker, P. and Reese, S. D. (1997). *İdeolojinin medya içeriği üzerindeki etkis*i. Medya Kültür Siyaset, comp. İrvan S. Ankara: Ark Yayınevi,

Thevenot, J. (1978). 1655-1656'da Türkiye, transl. Nuray Yıldız, Tercüman 1001 Temel Eser - 120, İstanbul.

Türer, C. (1991). Eğitimde içerik analizi. *Marmara Üni. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 3*,321-327.

Van Dijk, T. (1999). Söylemin yapıları ve iktidarın yapıları. *Medya, İktidar, İdeoloji* içinde, (comp. Mehmet Küçük), Ankara: Ark Yayınları.

OPUS▶

Journal of Society Research

RESEARCH ARTICLE

The Mediating Effect of Uncertainty on the Impact of Information Technologies, Agility and Integration on Operational and Financial Performance[1]

Murat Sağbaş [1] I Hüseyin İnce [2]

[1] Asst. Prof., National Defence University, İstanbul/Türkiye
ORCID: 0000-0001-5179-7425
E-Mail:
msagbas@msu.edu.tr

[2] Prof., Gebze Technical University Kocaeli/Türkiye
ORCID: 0000-0002-5953-6497
E-Mail:
h.ince@gtu.edu.tr

Corresponding Author:
Murat Sağbaş

Abstract

The aim of the research is to draw attention to the integration of rapidly developing and changing information technologies into supply chain management and to test the dimensions of integration and agility. In addition, it is to analyze the effects on the performance of the enterprises and to make concrete suggestions according to the results obtained. For this purpose, the main mass of the research, which was conducted by applying a literature review, face-to-face interview, and a two-stage questionnaire, consisted of managers working in medium and large-scale enterprises operating in Istanbul. In research in supply chain management; The effects of information technologies, integration and agility on operational and financial performance are analyzed. In addition, the moderator effect of demand and technological uncertainty between integration and agility variables and operational performance has been examined. The reliability and validity analyzes of the research variables were examined using explanatory factor analysis and confirmatory factor analysis. Research hypotheses were tested using correlation analysis and structural equation modeling (path analysis). Based on the data obtained, there is a significant relationship between the other variables except for the information technologies and integration variables; It has been concluded that uncertainty creates a moderator effect only with its technological dimension.

Keywords: *Information Technologies, Integration, Agility, Uncertainty, Performance.*

Öz

Araştırmanın amacı hızla gelişen ve değişen bilgi teknolojilerinin tedarik zinciri yönetimine entegrasyonuna dikkat çekmek, entegrasyonun ve çevikliğin boyutlarını test etmektir. Ayrıca işletmelerin performansına etkilerinin neler olduğunu analiz ederek, elde edilen sonuçlara göre somut önerilerde bulunmaktır. Bu maksatla literatür taraması, yüz yüze görüşme, iki aşamalı anket uygulanarak yapılan araştırmanın ana kütlesini İstanbul'da faaliyet gösteren orta ve büyük ölçekli işletmelerde çalışan yöneticiler oluşturmuştur. Araştırmada tedarik zinciri yönetiminde; bilgi teknolojileri, entegrasyon ve çevikliğin operasyonel ve finansal performansa etkileri analiz edilmiştir. Ayrıca talep ve teknolojik belirsizliğin, entegrasyon ve çeviklik değişkenleri ile birlikte operasyonel performans arasındaki moderatör etkisi incelenmiştir. Araştırma değişkenlerinin güvenilirlik ve geçerlilik analizleri, açıklayıcı faktör analizi, doğrulayıcı faktör analizi kullanılarak incelenmiştir. Araştırma hipotezleri ise korelasyon analizi ve yapısal eşitlik modeli (yol analizi) kullanılarak test edilmiştir. Elde edilen verilerden yola çıkıldığında bilgi teknolojileri ve entegrasyon değişkenleri hariç diğer değişkenler arasında anlamlı bir ilişki olduğu; belirsizliğin sadece teknolojik boyutuyla moderatör etki yarattığı sonuçlarına ulaşılmıştır.

Anahtar Kelimeler: *Bilgi Teknolojileri, Entegrasyon, Çeviklik, Belirsizlik, Performans*

---

[1] **This study was derived from Murat SAĞBAŞ Ph.D. thesis "The Impact of Information Technologies, Agility and Integration on Operational and Financial Performance in Supply Chain Management" which was supervised by Prof. Hüseyin İNCE.**

Introduction

The rapid development of technology and rapid and incredible developments in information technologies have removed the borders in the globalizing world and rebuilt the world under the umbrella of information societies that are in constant communication and competition with each other. With the rapid spread and cheapening of information technologies, people have had the opportunity to access information with personal computers in their homes and workplaces. It is possible to share information very cheaply by accessing another computer and data bank via the internet from anywhere in the world at any time. With the 21st century, the need for desktop computers in our homes or workplaces for information sharing is also disappearing. Even laptop technology has fallen behind due to the rapid development of smartphones and tablet computers.

If we evaluate the factors that businesses focus on and determine criteria for selection while integrating information technologies into their own structures, operational and financial performance comes first. Evaluating the concept of performance is not at all easy. A superficial analysis causes great losses for the business. In addition, in the competitive environment in the market, it remains in the background and its market share is lost. Our other two concepts in our research are integration and agility. If the best performance is to be achieved in supply chain management, the impact of information technologies, integration and agility on the chain should be well evaluated. Integration in the supply chain means that all the links in the chain have information and work simultaneously with the whole system, not just before and after it. Otherwise, it should be noted that a malfunction will affect the entire system and reduce performance. Partial successes in supply chain management are not enough for the system. A holistic success is required for performance. If we define agility under the umbrella of supply chain management, we can say that it is being able to respond to demands in the desired place and time, despite the changes in market and market conditions. Agility is one of the factors that businesses must have and develop under competitive market conditions in the supply chain. Non-agile organizations do not adapt to rapidly changing conditions and are doomed to extinction. The aim of the research is to draw attention to the importance of supply chain management in medium and large enterprises, to identify the deficiencies arising from existing practices in the planning, implementation and control stages of supply chain management and to reveal what should be done. In addition, for the success of supply chain management practices in universities; to emphasize that the supply chain management processes should be considered as a whole, to determine the extent to which the supply chain management process is affected by the performance of the enterprises and to make concrete suggestions by comparing them. Our country has been opened to international competition after 1980 and has accepted the conditions of global competition as a member of the World Trade Organization. Under these competitive conditions, companies entered into a great race to be the best. Mass production methods have become a thing of the past and customer satisfaction has come to the fore. With the awareness of the customers, the responsibilities of the enterprises have increased. Therefore, the factors affecting the performance of the enterprises have changed and increased. In this context, supply chain management, which has a great impact on the performance of enterprises, will be discussed in this study. The importance of information technologies in presenting a good and service to the consumer at the right time, place and conditions and its role in competitive conditions will be examined. In additon, this study aims to measure the superiority of the companies that integrate information technologies well into the supply chain network and constantly update them over other enterprises, as well as their optimal decision-making success in conditions of uncertainty. Success is the necessity of an agile decision-making mechanism and the existence of a

supply network that uses information technologies extensively and up-to-date for this mechanism.

The study consists of six chapters. The theoretical framework for the study will be presented in the section following the introduction. Following that, the research hypotheses will be determined within the theoretical framework. The scales will be specified in the method section, as well as information on data collection. Data analysis will be performed, and the research hypotheses will be evaluated, in the data analysis and findings section. The research findings and recommendations for future studies will be presented in the final section. It is considered that the results of the study will make significant contributions to the practice and the literature.

Theoretical Framework

A supply chain is a network of facilities and possibilities consisting of the distribution of raw materials to semi-manufactured products (Rajaguru and Matanda, 2013:623). Every company that produces goods or services is bound to at least one supply chain (Autry et al., 2010: 3). How wide or narrow the supply chain is managed is directly related to which supply chain management is applied (Ganeshan et al., 1999: 4). According to Lambert et al. (1998:506) "Supply chain; It is the harmony observed between institutions that offer products and services to the market". Ganeshan et al. (1999); It defines supply chain as a network in which the finished product supply to the buyers with product supply functions has taken place. While Chopra and Meindl (2004: 2) define the supply chain as a network in which the finished product supply to the buyers is realized with the product supply functions, on the other hand, in order to meet the direct and indirect buyer demands, the supply chain is not only composed of producers and suppliers, but also transporters, warehousing service providers, retailers, buyers. and they define it as a chain that includes all other actors. Houlihan (1998) considers all activities in the supply chain as a single process and states that supply is a common

goal shared by the units in the chain (Houlihan, 1988). When the main objectives of supply chain management are expressed; Increasing customer satisfaction, reducing cycle time, reducing inventory and inventory-related costs, reducing product errors, reducing operating costs are among the first activities, and the mechanisms and levels that businesses should establish in order to successfully carry out these activities have been determined by the Global Supply Chain Forum. These; customer relationship management (Crimea, 2001), customer service management (Keely et al., 2001; Çancı & Erdal, 2003), demand management (Kobu, 1999), order processing (Kotler et al., 1999; Croxton et al., 2001), manufacturing flow management (Doğruer, 2005), supplier relationship management (Sanders, 2005), purchasing, product development and commercialization, and returns (Çancı and Erdal, 2005). Eight processes defined by the members of the Global Supply Chain Forum are generally accepted (Özdemir, 2004). Although supply chain management differs among academics in definition, it can be defined as an indispensable system for businesses to respond to changing market conditions and to meet customers' demands and expectations. There are three types of approaches to supply chain management (Jones and Riley, 1985; La Londe et al., 1994; Mentzer et al., 2001); "supply chain management as a management philosophy", "supply chain management as business activities", "supply chain management as a set of management processes". Firms often reconsider their supply chain activities to meet their needs. The system that connects the company to its suppliers, distributors or customers is called the information system. Information technology infrastructure, which allows companies to provide supply chain management, is one of the ambiguous resource types. Information technology infrastructure is generally divided into two main groups: These are the technical and human infrastructure of information technologies. Managerial information technology capabilities generally depend on the relationship between people developed over the years (Patterson et al., 2004, p.12-13). Integration

increases in direct proportion to productivity and production. The effective integration of suppliers into the supply chain is a very important factor in gaining competitive advantage. The higher the integration between suppliers and customers, the greater the possible profitability. Supply chain integration can improve its performance by eliminating inefficiencies and instabilities, directing processes correctly, giving customers what they want, avoiding excessive inventory, and actively regulating demand (Agan, 2011:34). It is said that companies with strong customer relations have more integrated strategies. Market-oriented supply chains emphasize issues such as coordination and integration, which are supply chain tasks and activities, instead of sourcing and shipping a simple product (Faisal et al., 2008: 70-71). In the study of Prajogo and Olhager (2012) with companies for long-term suppliers, the important relationship between information technology capacities and information sharing with logistics integration has been revealed. Moreover, long-term supplier relationships have been expressed as direct and indirect effects on performance. Another factor that businesses should have and develop under competitive market conditions in the supply chain is agility. Although agility is especially related to the flexible production system, it has been conceptualized in the field of production (Nagel et al., 1999). While supply chain agility creates a competitive difference in the market environment, it also provides a long-term sustainable situational advantage for the organization (Lee, 2004). Its speed and efficiency in the agility of key suppliers and customers is defined as a capability for organizations (Wanger and Silveira-Camargos, 2012). Agility has a very important place in the supply chain management literature. Agility starts with the development of scales in the supply chain (Braunscheidel, 2005; Başkol, 2011). Market sensitivity, network integration, virtual integration and process integration are elements in the procurement framework (Van Hoek, et al., 2001: 126-147). It emerges as a successful exploration of elements such as agility, speed, flexibility, proactive innovation, quality and profitability in the rapidly changing market environment of

reconfigurable resources during integration. Supply chain agility according to this market environment; supply chain planning, procurement and procurement in the supply chain, supply chain production, supply chain logistics and product delivery (Yao and Cartson, 2003: 95-102).

Research Hypotheses

With our research, which has six variables, ten different hypotheses have been established as a result of the literature evaluated within the theoretical framework. Frohlich and Westbrook (2001) as stated, the top-down and bottom-up information flow in the supply chain network is very important. Ensuring this flow of information flawlessly depends on the basic mechanisms (Sheu et al., 2006). These are information technology capacity, a good coordination platform, participation, problem solving activities and integration. The integrative relationship between information technologies and integration is available in the literature studies conducted so far. Daniel Prajogo (2011), in his study with companies with long-term suppliers, revealed the important relationship between information technology capacities and information sharing with logistics integration. Moreover, long-term supplier relationships have been expressed as direct and indirect effects on performance. In the studies of Bush (2001) there are findings supporting that information technologies affect supply chain integration. Although previous studies state that only the sub-concepts of information technologies, technical structure affects integration and do not evaluate the human dimension, it can now be stated that human and technical infrastructure together affect supply chain integration and there is a relationship between them.

H1: There is a positive relationship between information technologies and integration.

Although the increasing costs and speed of change of information technologies reach scary dimensions for companies, they have to be at a sufficient level to survive in a competitive environment. Its speed and efficiency in the agility

of key suppliers and customers is defined as a capability for organizations (Wanger & Silveira-Camargos, 2012). Thanks to this key, the business can enter the market more easily, hold on and advance. Literature studies show us that there is a positive effect between information technologies and agility (Bottani, 2010; Overby et al., 2006; Poweret et al., 2001; Swafford et al., 2008; Tallon & Pinsonneault, 2011; Yusuf et al., 2004; Zain, et al., 2003). Information technologies increase the speed in obtaining, processing and sharing information by companies (Vickery et al., 2010). In line with these studies, the relationship between information technologies and agility can be mentioned.

H2: There is a positive relationship between information technologies and agility.

The dynamic nature and continuous evolution of the supply chain presents interesting problems for effective system coordination. Supply chain members may not compete as independent members. Before the product is consumed by the end user, it passes through many business segments and adds value. Moreover, globalization, outsourcing and reduction in supply bases worsen uncertainty and increase risks in the supply chain. The supply chain is more prone to sudden disruptions (Yusuf et al., 2012). When the concepts of integration and agility are handled separately in increasing supply chain performance, it has been observed in the literature studies that they make positive contributions. It is seen that integration and agility variables affect each other depending on the performance criteria. It is considered that there is a relationship between integration and agility (Prajogo & Olhager, 2012; Chaudhuri, et al., 2018 p. 691).

H3: There is a positive relationship between integration and agility.

In order to achieve a high operational performance, the requirements of using the most appropriate parts in the system at the right time, place and manner should be determined. When

these two concepts are examined under the title of supply chain management, it is also stated in the literature studies that there is a direct relationship between integration and operational performance. Yu et al. (2013)'s research revealed the relationships between financial performance, which is an important sub-dimension of performance and supplier integration, which is a sub-dimension of integration in 213 companies in the manufacturing sector in China. In Wong's (2011) study, he sees that supply chain integration has been examined under 3 main subheadings. These are internal integration, supplier integration, and customer integration. The firm's performance measures are distribution product pricing, product quality, and product flexibility. It is defined by Wong (2011) that there is a positive relationship between these three main integration factors and operational performance.

H4: There is a positive relationship between integration and operational performance.

In McKinsey's research, senior managers defined agility as being at the forefront over time and playing an important role in business success. According to the study, increased agility offers positive benefits such as higher earnings, satisfied customers and business employees, improved operational efficiency and faster time to market (McKinsey, 2006). The ability of businesses to integrate with the changing conditions of the markets is important in achieving and maintaining competitive advantage. The idea of adaptation to unpredictable situations and conditions has led to the development and increasing importance of agility, which is one of the last developing concepts of business strategies. Agility contributes significantly to the company's capabilities in maintaining operations and making profits in uncertain and unregulated markets. It accelerates the decision mechanisms that affect performance within organizations. Previous studies show that there is a direct relationship between operational performance and agility (Swafford et al., 2008; Yusuf and Adeleye, 2002). It has been observed that it contributes to firm performance, especially

when the supply chain agility speed of the firms is measured and the supply chain functions are adapted to the variables of the market (Swafford, 2008). It can be said that there is a relationship between agility and performance.

H5: There is a positive relationship between agility and operational performance.

In order to evaluate and measure performance, a given job must be completed and its result must be evaluated. Business performances are measured against financial and operational (non-financial) criteria. In operational measures, it can be divided into two directions. First, key competitive success factors such as quality, price, delivery, service and flexibility; second, internal indicators such as defect, schedule realization, and cost (Parahinski and Benton, 2004; Uğural, 2020). Financial performance, on the other hand, can be evaluated by the increase or decrease in operating earnings of the success experienced in operational performance. Parahinski and Benton (2004) discussed supplier performance in terms of critical success factors and determined the criteria as product quality, delivery performance, price, responsiveness to changing demands, service support and overall performance. Fawcett et al. (2007), on the other hand, used cost, quality delivery, flexibility and innovation factors as key factors related to supplier performance. When the operational and financial performance concepts are evaluated, it is defined that there are two different basic sub-dimensions of the performance variable in both concepts and there is a relationship between them.

H6: There is a positive relationship between operational performance and financial performance.

Prater et al. (2001), the supply chain takes place in an uncertain environment with customer demands on the one hand and demands from raw material suppliers on the other. Traditionally, attention has been focused on uncertainties in customer demand, but there are also uncertainties in the market. The quality and quantity of raw materials

from external suppliers differ. With regular integration systems, the supply and demands of customers and suppliers in the market are fully met, and the uncertainty of the structure here puts customers and suppliers in a difficult situation. Uncertainty within the supply chain spreads, causing useless downtime and worthless practices. Mason-Jones and Towill (1999) stated that due importance should be given to reducing uncertainty for international competitive performance. Wong et al. (2011) investigated the effect of the possibility of environmental uncertainty on the relationship between supply chain integration and operational performance. While establishing the theoretical model in this research, internal integration, supplier integration and customer integration as sub-dimensions of integration; Distribution, product cost, product quality, product flexibility were used as sub-dimensions of performance. It has been determined in the study that uncertainty has a regulatory variable effect at high and low levels for integration and operational performance.

H7a: Demand uncertainty has a regulatory variable effect between integration and operational performance.
H7b: Technological uncertainty has a moderator effect between integration and operational performance.

The most important problem areas that businesses face in the 21st century are the changes, uncertainties and unexpected developments that occur in the environment in which they exist. Businesses are looking for new solutions to be successful under these changes and uncertainty factors. International competition, developing technology, changing and developing business and industry environment, consumer dissatisfaction have put businesses under pressure. Existing production methods and systems increase the efficiency and effectiveness of enterprises in the short run, but do not contribute to adapting to changing market conditions in the long run. The concepts of agile production and supply chain agility are defined as the way businesses should follow in order to provide the

desired performance under constant change and uncertainty in a competitive environment (Çetin and Altuğ, 2005).

Wong (2009) and Germain et al. (1994) tested that customers frequently change their orders every month, the operational performance of their suppliers cannot be predicted, factories frequently change their core product technologies, and competitive moves related to market promotions cannot be predicted. Uncertainty affects the agility and operational performance of the firm.

H8a: Demand uncertainty has a moderator effect between agility and operational performance.

H8b: Technological uncertainty has a moderator effect between agility and operational performance.

Method

In this part of the study, the population and sampling process used in the research, the research model, the data collection method, the determination of the research variables, the research hypotheses, the analysis of the data, and the development of the survey questions are mentioned. In the study, which will be carried out in line with the stated purposes, it has been tried to contact 1500 businesses operating in the food, furniture, white goods, electronics, clothing, and weaving sectors operating in the province of Istanbul, using e-mail, telephone and face-to-face interview methods. About 300 of these businesses responded to the survey. However, the study continued with the questionnaire data of 200 companies, which were filled in appropriately from the feedback provided.

Research Model
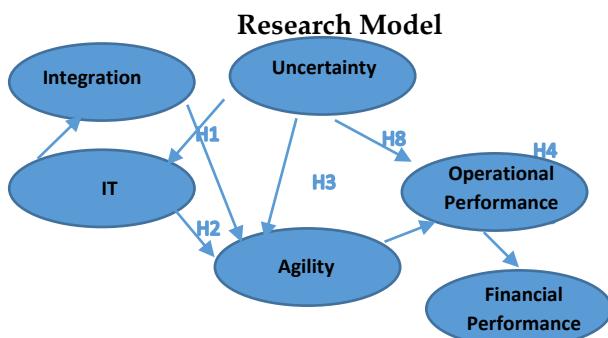
Scales

This study was applied to middle and senior managers of 200 companies in Istanbul between January-July 2014. Ethics committee report was not requested by the university related to the research. It was shaped as a result of the survey titled "The impact of information technologies, integration and agility on the operational and financial sector in supply chain management". In order to measure the effect of information technologies on supply chain management, five questions were asked to the participants. In these questions, it has been tried to determine at what scale the suppliers use information technologies in their communication with each other, product orders, invoicing, product loading and monitoring stages. The questions are taken from the study in the article by Prajogo and Olhager (2012). In supply chain management, five questions about integration were asked to the participants. In these questions, information sharing between suppliers and customers and the dimensions of this information sharing were asked in general. The level of information sharing was tried to be revealed with questions about sensitive information sharing and confidential information sharing. The questions are taken from the study in the article by Patricia M. Swafford (2008). seven questions about agility in the supply chain were asked to the participants. These questions generally wanted to measure production time, product development cycle, distribution capacity, improving delivery reliability, and responding to changing market needs. Related questions are taken from article in Sharon E. DeGroote (2013). Sixteen questions about performance were asked to the participants. In these questions, questions were used to measure the comparison of the return on investment with the competitors, the presentation of the product and service to the market before the competitors, the response to customer complaints before the competitors, the fact that the market share is higher than the competitors, the level of profitability, the growth rate and the comparison of the market value of the company with the competitors.

Related questions are taken from the study in the article by Prajogo and Olhager (2012).

Sampling and Data Collection Tool

The universe of this research consists of middle and senior managers of medium and large enterprises operating in the province of Istanbul in Turkey. In the study carried out within the scope of the survey, it was tried to apply a survey to 1500 enterprises by e-mail and face-to-face. The questionnaire was answered appropriately by 200 enterprises. Some of the enterprises did not want the name of the enterprise, the number of employees and annual profit figures to be disclosed in the data related to the survey. This request was also taken into account. The obtained data were transferred to the SPSS program and prepared for data analysis. Questionnaire method was used as data collection method in the research. The questionnaire is an observation tool consisting of a group of questions that the people to be informed can read and answer. Some of our surveys were conducted via e-mail and some of them were made face-to-face. In the first part of the questionnaires prepared for the research, questions about demographic information were asked. In the second part of the questionnaire, "Five-point Likert Scale" for information technology, agility, performance and uncertainty variables (1-Strongly disagree, 2- Disagree, 3-Undecided, 4-Agree, 5-Strongly Agree; 1= Very little; 2 = Little; 3= Moderate; 4= Too Much; 5= Too Much). For the integration variable, "Five-Likert Scale" (1-Definitely Insufficient, 2-Inadequate, 3-Undecided, 4-Sufficient, 5-Absolutely Sufficient) was used with different options. In the preparation of the scales, importance was given to the fact that the sources were up-to-date and generally accepted in the international arena. The studies of Prajogo and Olhager (2012), Patricia M. Swafford (2008) and Sharon E. DeGroote (2013) were used in the preparation of the survey questions. The reliability and validity analyzes of the research variables were examined using explanatory factor analysis and confirmatory factor analysis. Research hypotheses were tested using correlation analysis and structural equation modeling (path analysis).

Data Analysis and Findings

First of all, the demographic characteristics of the participants were examined, and before testing the research hypotheses, reliability and validity analyzes of the scales used were made. In order to perform reliability and validity analyzes, firstly, Exploratory Factor Analysis (EFA) was performed, then confirmatory factor analysis (CFA) was performed to investigate whether the scales have discriminant and concordant validity. Explanatory factor analysis was done with the help of SPSS. Structural equation model was created to perform confirmatory factor analysis and AMOS 4.0 structural equation software was used for this. In order to examine the relationship between the variables that make up the research model, correlation analysis and pathanalysis, and whether the hypotheses are supported or not, were examined with the structural equation model.

Demographic features

In this study, the number of employees in the companies of the participants who answered the questionnaire, the activity period of their companies and the fields of activity of their companies were examined and summarized. In Table 1, it is seen that 56% of the companies participating in the research have 250 or more employees. According to these data, when the distribution of the companies participating in the research according to their activity period is examined, it is seen that the number of companies operating for 15 years or more (18.5%) is low. The fact that 12% of the respondents are in the industrial sector shows that there are few operators in sectors that require large capital and R&D. It should not be forgotten that the industrial sector is large and strong, and it will also create a resource for other sectors.

Table 1. Demographic Characteristics Table

Number of Employees	Frequency	Ratio (%)	Cumulative Percentage (%)
0-50	55	27,5	27,5
50-100	42	21	48,5
100-250	47	23,5	72
250 and more	56	28	100
TOTAL	200	100	
Duration of Year	**Frequency**	**Ratio (%)**	**Cumulative Percentage (%)**
1-5 year/years	62	31	31
6-10 years	78	39	80
11-15 years	23	11,5	81,5
16-20 years	17	8,5	90
21 years and more	20	10	100
TOTAL	200	100	
Sector of the Company	**Frequency**	**Ratio (%)**	**Cumulative Percentage (%)**
Industry	12	6	6
Service	37	18,5	24,5
Agriculture	13	6,5	31
Other	138	69	100
TOTAL	200	100	

Reliability and Validity Analysis

Explanatory and confirmatory factor analysis was performed for validity analysis. First, explanatory factor analysis was performed and it was examined whether the data set formed the concepts to be measured or not. Explanatory factor analysis allows researchers to obtain the least possible number of factors with the variables in the data set. Thus, the factors obtained have a clear and distinct meaning. The purpose of this method is to obtain different components for a group of variables (indicators). Before starting the factor analysis, the suitability of the data set was examined. For this, Kaiser-Meyer-Olkin (KMO) sample adequacy statistics and Bartlet sphericity test were applied. KMO sample adequacy value was analyzed by making 2 groups. It was found as 0.748 and 0.798. This seems to be much higher than the recommended 0.50 (Hair et al., 1998). In addition, it is statistically significant at the 1% significance level of the Bartlet test of Sphericity ($\chi2$ (55) = 1941.45 and $\chi2$ (190) = 4066; p <0.01) (Hansen and Bush, 1999). These results show that the sample is suitable for factor analysis. Our goal is; "Principal Components Analysis" was used together with the "Explanatory Factor Analysis" method because it is to determine the indicators (questions) that make up the information technologies, integration, agility, operational and

financial performance factors (concepts) and to calculate composite values. 12 indicators were eliminated because they did not load on a factor and did not meet the criterion of having a factor load equal to or greater than 0.50, loaded on more than one factor (factor load on other factors-cross-loading-cross-loading) was 0.40 or higher. Principal-component factor analysis (with varimax rotation) was applied with the remaining 31 indicators as a result of the process described above. Factor loads of all indicators are above 0.50 and cross-loading is below 0.30. Factor analysis results (factor loadings and total explained variance) are shown in Table 2-3. As seen in Table 2-3, the indicators constitute the appropriate scales. In addition, construct validity is available since all factor loads are greater than 0.50.

Table 2. Results of Explanatory Factor Analysis

Results of Explanatory Factor Analysis			
Expressions	**Component**		
	IT	**Integration**	**Agility**
IT1	0.723		
IT2	0,839		
IT3	0,854		
Integration 1		0,921	
Integration 2		0,917	
Integration 4		0,844	
Integration 5		0,816	
Agility 4			0,789
Agility 5			0,819
Agility 6			0,932
Agility 7			0,763
Eigenvalues	2,048	3,459	2,885
Explained Variance (%)	18,622	31,450	26,225

Varimax rotation was used with principal component analysis. Total explained variance 76,297%

Table 3. Results of Explanatory Factor Analysis

Results of Explanatory Factor Analysis

Expressions	Component			
	1	2	3	4
Perf1	0,691			
Perf2	0,847			
Perf3	0,545			
Perf8	0,547			
Perf9		0,811		
Perf10	0,797			
Perf11	0,605			
Perf5		0,886		
Perf6		0,924		
Perf7		0,746		
Perf16		0,791		
Uncertainty5			0,831	
Uncertainty6			0,896	
Uncertainty7			0,898	
Uncertainty8			0,574	
Uncertainty9				0,696
Uncertainty10				0,773
Uncertainty11				0,830
Uncertainty12				0,810
Uncertainty13				0,817
Eigenvalues	4,031	3,710	2,983	3,615
Explained Variance(%)	20,157	18,552	14,913	18,077

Varimax rotation was used with principal component analysis. Total Explained Variance 71,700%

In addition, to investigate the validity of the scales in detail, the data set was subjected to confirmatory factor analysis. Confirmatory factor analysis was used to examine construct validity (convergent validity and convergent validity). AMOS structural equation modeling software was used to perform confirmatory factor analysis. The measurement model consists of 7 factors (latent variable) and does not constitute only one latent variable of the indicators. It is seen that 12 indicators obtained using Maximum Likelihood Management are loaded on the relevant factors. This confirms the unidimensionality of the concepts and provides strong empirical evidence about the validity of the scales (Anderson & Gerbing, 1988). Construct validity consists of two parts: concordance and discriminant validity. Concordance validity, high t values of factor loadings obtained as a result of confirmatory factor analysis with the help of structural equation model (Akgün et al., 2007) indicate that there is concordance validity (Akgün et al., 2007). If all factor loadings are at least 2 times its standard error, the scale is considered to have convergent validity. As seen in Table 4, the smallest t-test value

(critical ratio) is 6.917, which is much higher than 2. This information obtained shows that the indicators measure the concept effectively (Anderson & Gerbing, 1998). The value of the measurement model was obtained as $\chi 2(219)$ 821.51. Also, $\chi 2$/sd(degrees of freedom) is equal to 3.751. Since this value is close to the threshold value of 3, the measurement model is suitable. Since the chi-square statistic is sensitive to sample size, secondary fit indices were also examined to test the fit of the model. As a result, it was seen that the measurement model and the data were quite compatible with each other. Fit indices – comparative fit index (CFI) = 0.883, incremental fit index (Incrimental Fit IFI) = 0.884 and the root mean square error of approximate errors (Root Mean Square Error of Approximation, RMSEA) = 0.098. This shows that the overall fit of the measurement model is good. In the light of all this information, it was concluded that the scales (concepts) had convergent validity. Take, for example, the convergent validity of the concept of "integration". As seen in Table 4, the t-test values of the 4 indicators (questions) that make up the concept of "integration" are between 13,774 and 44,449. Since these values are very high, the concurrency validity of this concept is high. The t-test values of other concepts are given in Table 4. According to these results, it can be seen in Table 4 that all concepts have congruent validity.

Table 4. Confirmatory Factor Analysis Table

Confirmatory Factor Analysis Results				
Variable and Questions	Non-standardized Factor Loads	Standard Factor Loads	S.E.	C.R.
IT				
IT1	0,862	0,536	0,125	6,917
IT2	1,163	0,785	0,151	7,721
IT3	1	0,78	_a	_b
Integration				
Integration 1	1	0,992	_a	_b
Integration 2	0,963	0,966	0,022	44,449
Integration 4	0,683	0,679	0,245	15,32
Integration 5	0,675	0,672	0,049	13,774
Agility				
Agility4	1	0,773	_a	_b
Agility5	0,893	0,809	0,062	14,312
Agility6	0,979	0,916	0,062	15,871
Agility7	0,697	0,652	0,064	10,96
Demand Uncertainty				
Uncertainty5	1	0,771	_a	_b
Uncertainty6	1,778	0,994	0,125	14,185
Uncertainty7	1,743	0,969	0,124	14,09
Uncertainty8	0,847	0,502	0,112	7,567
Technological Uncertainty				
Uncertainty10	1	0,735	_a	_b
Uncertainty11	1,055	0,701	0,086	12,268
Uncertainty12	1,172	0,895	0,091	12,916
Uncertainty13	0,847	0,774	0,064	11,825
Financial Performance				
Perf5	1	0,975	_a	_b
Perf6	0,88	0,891	0,036	24,378
Perf7	0,81	0,803	0,05	16,316
Perf16	0,924	0,806	0,049	19,017
Operational Performance				
Perf2	1	0,813	_a	_b
Perf3	0,727	0,621	0,07	10,334
Perf8	0,999	0,673	0,084	11,906
Perf9	0,667	0,603	0,064	10,496

Note: SE stands for standard error from non-standard solution.

The _a t-values (critical ratio) were calculated using the non-standard solution.

All are statistically significant (different from zero) at a significance level of 0.01.

The factor _b was calculated as 1 for the purpose of estimating the load.

Convergent validity ensures that elements of a concept do not conceptually overlap with elements of other concepts. To examine the discriminant validity of a scale (concept), the mean extracted variance (Averege Variance Extracted, AVE) is compared with the squares of the correlation coefficients of other scales (concepts). If the scale's AVE value is greater than the square of the correlation coefficients with other scales, it is concluded that the scale provides discriminant validity (Fornell & Larcker, 1981). As seen in Table 5, the AVE value of each concept is greater than the square of the correlation coefficients. Therefore, it is concluded that the scales have discriminant validity.

The Confirmatory Factor Analysis results given in Table 4 show that all concepts were measured in accordance with the theory. Composite reliability (CR) coefficients of all scales (concepts) were found to be greater than the recommended threshold value of 0.70. Except for the operational performance variable, the average extracted variance (AVE) coefficients were found to be well above the recommended threshold value of 0.50 (Fornel and Larcker, 1981). These coefficients are given in Table 5. The conclusion of whether the measurement model (Structural Equation Model created to perform Confirmatory Factor Analysis) is appropriate is reached by using primary and secondary fit indices. As mentioned before, these indices are higher than the desired values. After ensuring the reliability and validity of the concepts, composite scores were created for each concept by using the indicators (items) constituting that concept to measure the concepts. In other words, a new variable was created and labeled by taking the averages of the indicators that make up each concept. For example, the concept of "Agility" was formed by taking the average of the 4 indicators that make up the concept of "Agility". The reliability of the scales was examined using the Cronbach Alpha reliability coefficient and the Composite Reliability coefficients. As seen in Table 5, the Cronbach Alpha reliability coefficient and Composite Reliability coefficients of all scales were found to be much higher than the threshold value of 0.70 (Akgün et al., 2007). This shows that the reliability of the scales is high.

Testing Research Hypotheses

Correlation and structural equation modeling were used to test the hypotheses. Correlation is the coefficient showing the strength of the linear relationship between two variables. If the

correlation coefficient is statistically significant, it is said that there is a relationship between the two variables. The correlation coefficient takes values between -1 and +1; the greater the absolute value of the correlation, the stronger the relationship between the variables (Newbold, 2009). When the correlation coefficients showing the linear relationships between the variables are examined, it is seen that there is a correlation at the 0.01 significance level (p<0.01) between the variables (See Table 5).

Table 5. Correlation Coefficients

Variables	Average	Standad Deviation	1	2	3	4	5	6	7
Correlation Coefficients									
1.IT	4,2574	,51699	1.00						
2.Integration	3,4251	,88294	,046	1.00					
3. Agility	3,7581	,61493	,139*	,521**	1.00				
4.Demand Uncertainty	3,0781	,79306	-,102	,206**	,175**	1.00			
5.Techno Uncertainty	3,9061	,69227	,015	,499**	,393**	,362**	1.00		
6.Financial Performance	3,7482	,58007	,117	,557**	,407**	,137*	,283**	1.00	
7.Operational Performance	3,7627	,48696	,094	,648**	,463**	,164*	,398**	,789**	1.00
Cronbach Alfa			0,732	0,918	0,863	0,859	0,857	0,791	0,943
Composite Reliability (CR)			0,748	0,748	0,870	0,878	0,860	0,926	0,775
Average Variance Extracted (AVE)			0,504	0,714	0,629	0,657	0,608	0,760	0,460

Structural equation model (SEM) was used to test the hypotheses in the research model. Structural equation models (SEM) is a statistical technique used to test causal relationships between observed and unobserved (latent) variables. It is a systematic tool used especially in social sciences (such as psychology, sociology, business) to evaluate the relations between variables and to test theoretical models. SEM uses the assumption that there is a causality structure between the set of latent variables and that latent variables can be measured through observed variables (Joreskog & Sörbom, 2001). Table 6; It illustrates the relationships between IT, Integration, Agility and Performance. It is seen that there is no relationship between information technologies and integration (β=0.05, p>0.05). Therefore, the H1 hypothesis was not supported. There is a positive relationship between information technologies and agility, supporting the H2 hypothesis (β=0.12, p<0.05). The H3 hypothesis, on the other hand, shows that there is a positive relationship between the independent

variables of integration and agility (β=0.52, p<0.01). The H5 hypothesis (β=0.17, p<0.01), which examines the relationship between agility and operational performance, is supported. In our last hypothesis, H6, it can be stated that there is a strong positive relationship (β=0.79, p<0.01) between operational performance and financial performance.

Fit indices were used to test the fit of the established structural equation model. Fit indices χ2(7) = 4.736; χ2/df = 1.184; comparative fit index (CFI) = 0.998, incremental fit index (IFI) = 0.998, and root mean square error of approximation (Root Mean Square Error of Approximation, RMSEA) = 0.137. These results show that the established model is suitable. The linear relationships between the variables are measured by the correlation coefficient. However, in some cases, if the correlation coefficient is also affected by another variable or variables, it is not sufficient to explain this relationship. However, other variables in the model that are thought to be related to these may have an effect. "Path Analysis" developed by Sewal Wright was used when it was desired to find the parts arising from the relationship related to other variables in the correlation coefficient calculated between the variables (Orhan and Okut, 1993). Path analysis results are shown in Table 6. Except for the H1 hypothesis, our other hypotheses were supported as a result of our analysis.

Hypothesis   Link   Path   Value Result

Table 6. Results of Hypothesis Tests

				Path	Result
H1	Information technologies	→	Integration	0,05	Not supported
H2	Information technologies	→	Agility	0,12*	Supported
H3	Integration	→	Agility	0,52**	Supported
H4	Integration	→	Operational Performance	0,56**	Supported
H5	Agility	→	Operational Performance	0,17**	Supported
H6	Operational Performance	→	Financial Performance	0,79**	Supported
Path coefficients are standardized. *p< 0, 05; **p < 0,01					
χ2 (7) = 4,736	R²(Integration)= 0,002				
CFI = 0,998	R²(Agility)= 0,285				
IFI =0,998	R²(Operational Performance) = 0,441				
χ2/df = 3,006	R²(Financial Performance) = 0,623				
RMSEA = 0,137					

For hypotheses H7 and H8, multiple hierarchical regression analysis was used to examine the moderating effect of integration and agility on operational performance with demand and technological uncertainty. Due to the multicollinearity problem, demand and technology uncertainty, integration and agility are transformed around the mean. When the VIF values were examined, no multivariate problem was found (VIF<10). According to Anderson's suggestion; R2 is compared to the regression equation with the cross product of the equation without R2 and the cross product with R2 (where incremental R2 is significant relative to the interaction). The results show that a significant explanation of variance (p≤0.05) was added to the operational performance model in Table 7 by including the interaction conditions in the hierarchical regression. However, the interaction-induced incremental R2 is statistically insignificant in model 2 (p>0.10). As shown in Table 7, the coefficients of interaction conditions are positively correlated with the moderating effect of high level of technology uncertainty and integration only.

Table 7. Results of Hierarchical Regression Analysis (Moderator Effect of Environmental Uncertainty)

	The Dependent Variable Operational Performance	
	Model 1	Model 2
Integration	0,511**	0,587**
Agility	0,281**	0,217**
Demand Uncertainty	-0,002	0,009
Technological Uncertainty	0,065	0,090
Integration * Demand Uncertainty		-0,053
Integration * Technology Uncertainty		0,207**
Agility * Demand Uncertainty		-0,060
Agility * Technology Uncertainty		-0,109
R2	0,494	0,527
R2 adj	0,485	0,511
ΔR2	0,494	0,033
F	56,602	4,009

Note: Regression coefficients are standardized. *p<0.05, **p<0.01

The hypotheses and their support status are as follows.

Hypothesis Link Method Result

Table 8. Results of All Hypothesis Tests

H1	Information Technologies	→	Integration	YEM	Not supported
H2	Information Technologies	→	Agility	YEM	Supported
H3	Integration	→	Agility	YEM	Supported
H4	Integration	→	Operational Performance	YEM	Supported
H5	Agility	→	Operational Performance	YEM	Supported
H6	Operational Performance	→	Financial Performance	YEM	Supported
H7a	Integration Under Demand Uncertainty	→	Operational Performance	HRA	Not supported
H7b	Integration Under the Effect of Technological Uncertainty	→	Operational Performance	HRA	Supported
H8a	Agility Under Demand Uncertainty	→	Financial Performance	HRA	Not supported
H8b	Agility Under the Impact of Technological Uncertainty	→	Financial Performance	HRA	Not supported

Evaluation of Research Hypotheses

The results do not show that information technologies have a positive effect on integration (Table 6). The results obtained in the Path Analysis were not supported because they were not found to be significant. In the studies of Bush (2001), there are findings supporting that information technologies affect supply chain integration. In addition, in the study of Prajogo and Olhager (2012), the important relationship of information technology capacities and information sharing with integration has been revealed. In our study, however, this relationship was not found. The most important reason for different results may be to consider information technologies and integration multidimensionally. If these components are handled separately, different results can be obtained. In addition, differences between countries may cause this result. The results show that information technologies have a positive effect on agility (Table 6). The results obtained in the Path Analysis were found to be significant and supported. Literature studies also show us that there is a positive effect between information technologies and agility (Bottani 2010; Overby et al., 2006; Poweret et al., 2001; Cooper et

al., 1997; Swafford et al., 2008; Tallon and Pinsonneault, 2011; Yusuf et al., 2004; Zain et al., 2003). Information technologies increase the speed in obtaining, processing and sharing information by companies (Vickery et al., 2010). In line with these studies, the relationship between information technologies and agility can be mentioned. This relationship was also found in our study. It shows that integration has a positive effect on agility (Table 6). The results obtained in the Path Analysis were found to be significant and supported. When the concepts of integration and agility are handled separately in increasing supply chain performance, it has been observed in literature studies that they make positive contributions. It is seen that integration and agility variables affect each other depending on the performance criteria. In literature studies, it is thought that there is a relationship between integration and agility. This relationship was also found in our study. Analyzes show that integration has a positive effect on operational performance (Table 6). The results obtained in the Path Analysis were found to be significant and supported. In the study of Prajogo and Olhager (2012), information integration and material flow and the effect of supply chain partners on operational performance were investigated. According to data and research, there is an important relationship between integration and operational performance. In Wong (2011)'s study, we see that supply chain integration has been examined under three main subheadings. These are internal integration, supplier integration and customer integration. The firm's performance measures are distribution, product pricing, product quality, and product flexibility. It is defined by Wong (2011) that there is a positive relationship between these three main integration factors and operational performance. The positive relationship in previous studies was also observed in our study. As a result of the study, it was determined that agility has a positive effect on operational performance. The results obtained in the Path Analysis were found to be significant and supported. Many studies show that there is a direct relationship between operational performance and agility (Swafford et al., 2008; Yusuf and Adeleye,

2002; Acar vd., 2021). It has been observed that it contributes to firm performance, especially when the supply chain agility speed of the firms is measured and the supply chain functions are adapted to the variables of the market (Swafford, 2008). It can be said by examining the literature studies that there is a relationship between agility and performance. This relationship was also found in our study. The results show that operational performance has a positive effect on financial performance (Table 6). The results obtained in the Path Analysis were found to be significant and supported. Parahinski and Benton (2004) discussed supplier performance in terms of critical success factors and determined the criteria as product quality, delivery performance, price, responsiveness to changing demands, service support and overall performance. Fawcett et al. (2007) used cost, quality delivery, flexibility and innovation factors as key factors related to supplier performance. When the operational and financial performance concepts are evaluated, it is defined in previous literature studies that there are two different basic sub-dimensions of the performance variable in both concepts and there is a relationship between them. This relationship was also found in our study. As a result of the analysis, the regulatory variable effect of demand and technology uncertainties between integration and operational performance; Technological uncertainty was determined for the regulator variable, but not for demand uncertainty. Wong et al. (2011) investigated the effect of the possibility of environmental uncertainty on the relationship between supply chain integration and operational performance. In his research, Wong et al. (2011) while establishing a theoretical model, internal integration, supplier integration and customer integration as sub-dimensions of integration; Distribution, product cost, product quality, product flexibility were used as sub-dimensions of performance. Wong et al., which has been found to have high and low levels of regulatory variable impact for uncertainty, integration and operational performance. (2011), it was also determined in the study. In our study, our hypothesis about demand uncertainty, which is one of the sub-dimensions of uncertainty, was supported, but our hypothesis

about technology uncertainty was not supported. The most important reason for the different result may be to consider integration and operational performance multidimensionally. If the integration variable and the sub-dimensions of the operational performance variable are handled separately, different results can be obtained. In addition, differences between countries may cause this result. The results do not show that demand and technology uncertainties have a regulatory variable effect between agility and operational performance. When the literature studies are examined, it is said that this relationship exists. Wong (2009) and Germain et al. (1994) tested that customers frequently change their orders every month, the operational performance of their suppliers cannot be predicted, factories frequently change their core product technologies, and competitive moves related to market promotions cannot be predicted. It is seen in the existing literature studies that uncertainty affects the relationship between agility and operational performance. In our study, however, this relationship was not found. The most important reason for the different result may be to consider agility and operational performance multidimensionally. In addition, differences between countries may cause this result.

Conclusion And Recommendations

In this section, in the light of the findings obtained as a result of the analyzes, the following conclusions were reached, and various suggestions were made to middle and senior managers and researchers who will conduct future research. In this study, medium and large-scale companies operating in the province of Istanbul were examined, in supply chain management; The effects of information technologies, integration and agility on operational and financial performance were investigated.

First of all, no relationship was found between information technology applications and supply chain integration in the research. During the evaluation of the research hypotheses, necessary evaluations were made regarding why this

relationship was not determined. When the literature studies are evaluated, it is seen that there is a significant relationship between the two variables (Prajogo & Olhager, 2012). It is also evaluated that innovations and developments in information technologies are not followed closely by companies and accurate cost analyzes are not made in businesses. The point of view that the budget to be allocated to information technologies will reduce other costs in the future has not yet been formed by the managers. Second, the strong relationship between agility and integration is demonstrated by companies. The only way to keep up with the qualitative and quantitative changes in customer demands in changing market conditions is with an agile and integrated supply network and management (Prajogo and Olhager, 2012; Chaudhuri, et al., 2018 p. 691). Finally, with this research, companies; It does not give the necessary importance to information technologies, does not allocate sufficient resources for information technologies, does not see information technologies as a part of supply chain management, but considers it as an additional cost, integration of information technologies with integration only takes place at the planning stage and difficulties are faced in implementation, the concept of integration in supply chain management is a holistic concept. It has been determined that it is considered only as communication between the previous and next supply network elements, not with a view. It has been revealed that operational performance will increase with an agile and integrated supply chain management. The strong relationship between operational performance and also financial performance has been demonstrated. There is a regulatory variable effect between supply chain integration and operational performance in environmental uncertainty (Wong et al., 2011).

According to the results of the literature study and analyzes carried out within the scope of the research, in order for company managers to be more successful and to catch up with market competition conditions; the inclusion of information technologies in all of the company's supply chain management processes, giving the

necessary importance to information technologies, allocating the necessary budget for the follow-up and integration of information technologies, revealing the importance of agility in the supply chain flow in all activities, integration not for two interconnected elements of the system, but for the whole system. It is suggested that the integration should be provided simultaneously, the integration should be followed from a central system and the necessary controls should be made from a single center, the relations between performance, integration and agility factors should be correctly perceived in order to minimize the negative effects of uncertainty, and technological and demand uncertainty should be correctly defined by the companies.

As for the suggestions for further research, it can be said that a different study can be done by considering the sub-dimensions of the information technologies, integration and agility variables used in the study model. The sub-dimensions of the uncertainty moderator variable, demand and technological uncertainty, have already been used in our study. To this can be added the concept of market uncertainty. The effect of information technologies on operational performance can be investigated. The relationship between the information technologies variable and the information sharing variable can be examined. Flexibility and risk can be added to the model as independent variables. In addition, the effects of these concepts on the model and other variables can be investigated. The relationship between information technologies and the concept of innovation can also be examined in future studies.

References

Acar, A. Z., Kara. K. and Gülsoy, E. (2021). Tedarik zinciri uygulamalarının otel işletmelerinin performansına etkisi: Bursa İli örneği. *Elektronik Sosyal Bilimler Dergisi*, 20(78), 569-589.

Agan, Y., (2011). Impact of operations, marketing, and ınformation technology capabilities on supply Chain integration. *Journal of Economic and Social Research*, 13(1), 30-32

Autry, C.W., Grave, S.J., Daugherty P.J. and Richey R.G., (2010). The effects of technological turbulence and breadth on supply Chain technology acceptance and adoption. *International Journal of Information Management, Elsevier*, 28(6), 534-536.

Başkol, M., (2011). Bir rekabet aracı olarak tedarik zinciri yönetimi: Strateji ve yaklaşımlar. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, 3(5), 13-27.

Bottani, E. (2010). Profile and enablers of agile companies: An empirical investigation. *International Journal of Production Economics*, 125(2), 251-261.

Braunscheidel, M. J. (2005). *Antecedents of Supply Chain agility: An empirical investigation*. School of Management University of Buffalo The State University, of New York

Bush, A. A. (2001) *Fragmentation to integration: Digitally transforming the demand and supply chain*. Unpublished Ph. D. diss., Georgia State University.

Chaudhuri, A., Boer, H. & Taran, Y. (2018). Supply chain integration, risk management and manufacturing flexibility. *International Journal of Operations & Production Management, 38*(3), 690-712.

Chopra, S. and Meindl, P. (2004) *Supply Chain Management: Strategy, Planning, and Operation*. Second Edition, Person and Prentice-Hall, New Jersey

Cooper, C., Lambert, M., Pagh, D., (1997). Supply Chain management: More than a new name for logistics. *The International Journal of Logistics Management*, 8(1), 5.

Croxton, K., Dastugue, G., Lambert, M. and Rogers, D., (2001). The Supply Chain management processes. *The International Journal of Logistics Management*, 12(2), 20

Çancı, M., and Erdal, M., (2003). *Lojistik yönetimi* (1. Baskı), İstanbul: Erler Matbaacılık San. Ve Tic. A.Ş.

Doğruer, İ. M., (2005). üretim organizasyonu ve yönetimi. İstanbul: Alfa Yayınları.

Faisal, M.N., (2008). Virtual integration and ınformation risks: A supply Chain Perspective. *Iimb Management Review, 2008*, 70-72.

Fawcett, S. E., Osterhaus, P., Magnan, G. M., Brau, J. C., & McCarter, M. W. (2007). Information

sharing and supply chain performance: the role of connectivity and willingness. *Supply Chain Management: An International Journal*, *12*(5), 358-368.

Frohlich, M.T. and Westbrook R., (2001). Arcs of integration: An ınternational study of supply Chain strategies. *Journal of Operations Management, 19*(2), 185-200

Ganeshan R., Jack E., Magazine M.J., Stephens P. (1999). A Taxonomic Review of Supply Chain Management Research. In: Tayur S., Ganeshan R., Magazine M. (eds) Quantitative Models for Supply Chain Management. International Series in Operations Research & Management Science, vol 17. Springer, Boston, MA.

Germain, R., Dröge, C. and Daugherty, P. J. (1994). The effect of just-in-time selling on organizational structure: An empirical investigation. *Journal of Marketing Research*, *31*(4), 471-483.

Houlihan, J.B., (1988). International supply Chains: A new approach. *Management Decision, 26*(3), 13-19.

Jones, T., Riley, D. W. (1985). Using ınventory for competitive advantage through supply Chain Management. *International Journal of Physical Distribution and Materials Management, 15*(5), 16-26

Kırım, A., (2001). *Strateji ve birebir pazarlama*. İstanbul: Sistem Yayıncılık.

Kobu, B. (1999). *Üretim yönetimi*, (10. Baskı). İstanbul: Avcıol Basım-Yayın.

Kotler, P., Wong, V., Saunders, J. and Armstrong, G., (1999). Principles of Marketing: Prentice Hall Europe, 2nd European Edition, P. 595

La Londe, Bernard J. and J. M. Masters, (1994). Emerging Logistics Strategies: Blueprints for the Next Century, International Journal of Physical Distribution and Logistics Management, 24(7), 35-47.

Lambert, D. M., Stock J.R. and Ellram L., M., (1998). Fundamentals of logistics management. Boston, MA: Irwin/ Mcgraw-Hill.

Lee, H., (2004). The triple-a supply Chain. *Harvard Business Review, 82*(10), 102–112.

Mason-Jones, R., & Towill, D. R. (1999). Total cycle time compression and the agile supply chain. *International journal of production economics*, *62*(1-2), 61-73.

McKinsey Quarterly. (2006). Understanding supply chain risk: A mckinsey global survey. September, 1-9.

Mentzer, J.T., DeWitt W., Keebler, J. S., Min, S., Nix, N.W., Smith C., D. and Zacharia, Z., G., (2001). Defining supply Chain Management. *Journal of Business Logistics, 22*(2), 23

Nagel, R., N., Dove, R., Goldman, S. and Preiss, K., (1991). 21st Century Manufacturing Enterprise, Lehigh University

Overby, E., Bharadwaj, A., & Sambamurthy, V. (2006). Enterprise agility and the enabling role of information technology. *European Journal of Information Systems*, *15*(2), 120-131.

Özdemir, A.İ., (2004). tedarik zinciri yönetiminin gelişimi, süreçleri ve yararları. *Erciyes Üniversitesi İktisadi Ve İdari Bilimler Fakültesi Dergisi, 23*, 91-93

Prajogo, D., Olhager, J., (2012). Supply Chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. *Int. J. Production Economic, 135*, 514-522

Prater, E., Biehl, M. and Smith, M.A. (2001). International supply chain agility - Tradeoffs between flexibility and uncertainty, International Journal of Operations & Production Management, Vol. 21 No. 5/6, pp. 823-839.

Patterson, K. A., Grimm, C.M. and Corsi, T.M., (2004). Diffusion of Supply Chain Technologies. *Transportation Journal*, *43*(3), 12-13

Rajaguru, R. and Matanda, M. (2013). Effects of Inter-Organizational Compatibility on Supply Chain Capabilities: Exploring The Mediating Role of Inter-Organizational Information Systems (IOIS) Integration, Industrial Marketing Management, Elsevier, P.620-632

Sanders, N., (2005). It allignment in supply Chain relationships: A study of supplier benefits. *Journal of Supply Chain Management*, *41*(2), 6

Sheu, C., Yen, H. R., & Chae, B. (2006). Determinants of supplier-retailer collaboration: evidence from an international study. *International Journal of Operations & Production Management*.

Swafford, P. M., Ghosh, S., & Murthy, N. (2008). Achieving supply chain agility through IT integration and flexibility. *International*

Journal of Production Economics, 116(2), 288-297.

Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: insights from a mediation model. *MIS quarterly*, *35*(2), 463-486.

Uğural, M. N. (2020). İnşaat projelerinde zaman maliyet ödünleşim problemi: Örnek olay analizi. *Avrupa Bilim ve Teknoloji Dergisi, 19*, 460-465.

Van Hoek, R.I., Harrison, A. and Christopher, M., (2001). Measuring agile capabilities in the supply Chain. *International Journal of Operations and Production Management, 21* (1/2), 126-147

Vickery, S. K., Droge, C., Setia, P., & Sambamurthy, V. (2010). Supply chain information technologies and organisational initiatives: Complementary versus independent effects on agility and firm performance. *International Journal of Production Research*, *48*(23), 7025-7042.

Wagner, S.M. and Silveira-Camargos, V., (2012). Managing Risks in Just-Insequence Supply Networks: Exploratory Evidence From Automakers. *IEEE Transactions on Engineering Management, 59*(2), 52–64

Wong, C. Y., Boon-Itt, S., and Wong, C. W. (2011). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. *Journal of Operations Management*, *29*(6), 604-615.

Yao, A.C., Carlson, J.G., (2003). Agility and Mixed-Model Furniture Production. *International Journal of Production Economics, 81*(82), 95-102

Yu, W., Jacobs, M. A., Salisbury, W. D., & Enns, H. (2013). The effects of supply chain integration on customer satisfaction and financial performance: An organizational learning perspective. *International Journal of Production Economics*, *146*(1), 346-358.

Yusuf, Y. Y., & Adeleye, E. O. (2002). A comparative study of lean and agile manufacturing with a related survey of current practices in the UK. *International journal of production research*, *40*(17), 4545-4562.

Yusuf, Y. Y., Gunasekaran, A., Adeleye, E. O. and Sivayoganathan, K. J. E. J. O. O. R. (2004). Agile supply chain capabilities: Determinants of competitive objectives. *European journal of operational research*, *159*(2), 379-392.

Zain, M., Kassim, N. M., & Mokhtar, E. (2003). Use of information technology and information systems for organisational agility in Malaysian firms. *Singapore Management Review*, *25*(1), 69-83.

RESEARCH ARTICLE

OPUS ▶

Journal of Society Research

Antecedents of Domestic Tourists' Loyalty: The Role of Place Attachment and Satisfaction[*]

Bilge Çavuşgil Köse[1]

[1] Assisst. Prof., Canakkale Onsekiz Mart University, Canakkale/Turkey
ORCID: 0000-0001-8646-4401
E-Mail:
bilgecavusgilkose@comu.edu.tr

Corresponding Author:
Bilge Çavuşgil Köse

Abstract

Place attachment is conceptualized as a multidimensional construct reflecting the bond between individuals and places. Tourists may also develop an attachment to a destination, and attachment could be an essential measure of tourist satisfaction and destination loyalty. Therefore, this study empirically evaluates a model linking place attachment, satisfaction, and destination loyalty. The study also analyses the mediating effect of satisfaction on the relationship between place attachment and destination loyalty in island tourism destination context. Data were collected from 311 domestic tourists visiting Bozcaada Island, Turkey. An analysis was carried out using a Partial Least Squares (PLS) technique through structural equation modelling to test the theoretical model. After the analysis, significant and positive relationships were determined between place attachment, satisfaction, and destination loyalty variables. With this research, place attachment and satisfaction are defined as the antecedents that have an important place in the formation of destination loyalty. The relations of these antecedents with each other and destination loyalty and their direct and indirect effects on the construction of loyalty are revealed. In line with these effects, a series of suggestions for literature and practice are presented.

Keywords: *Place attachment, Satisfaction, Destination loyalty, Destination marketing, Bozcaada.*

Öz

Yer aidiyeti, bireyler ve yerler arasındaki bağı yansıtan ve farklı disiplinlerde kullanılan bir kavramdır. Turistlerde ziyaret ettikleri destinasyonlara karşı aidiyet geliştirebilirler ve yer aidiyetinin, turist tatmini ve destinasyon sadakatinin ölçümünde önemli bir yeri bulunmaktadır. Bu kapsamda, araştırma yer aidiyeti, tatmin ve destinasyon sadakatini ilişkilendiren bir modeli test etmeyi amaçlamaktadır. Çalışma ayrıca yer aidiyeti ve destinasyon sadakati arasındaki ilişkide tatminin aracılık rolünü de analiz etmektedir. Araştırmanın verileri, Bozcaada'yı ziyaret eden 311 yerli turistten toplanmıştır. Oluşturulan teorik modeli test etmek için Kısmi En Küçük Kareler (KEKK) tekniği kullanılarak yapısal eşitlik modellemesi yoluyla bir analiz yapılmıştır. Gerçekleştirilen analiz sonrasında yer aidiyeti, tatmin ve destinasyon sadakati değişkenleri arasında istatistiksel olarak anlamlı ve pozitif yönlü ilişkiler tespit edilmiştir. Bu araştırma destinasyon sadakati oluşumunda yer aidiyeti ile tatmini önemli birer öncül olarak tanımlamaktadır. Söz konusu bu öncüllerin birbirleriyle ve destinasyon sadakati ile olan ilişkileri ve sadakat oluşumu üzerindeki doğrudan ve dolaylı etkileri ortaya koyulmuştur. Bu etkiler doğrultusunda alan yazınına ve uygulamaya yönelik öneriler sunulmaktadır.

Anahtar Kelimeler: *Yer Aidiyeti, Tatmin, Destinasyon Sadakati, Destinasyon Pazarlaması, Bozcaada.*

---

[*]*This research is the completed version of the paper titled "Antecedents of Domestic Tourists' Loyalty: The Role of Place Attachment and Satisfaction", which was presented at the MTCON2020 event, and its extended abstract was published in the congress abstract book.*

Introduction

The islands have been recognized as heavenly tourism destinations for centuries, offering authentic cultural and natural experiences in unique environments, far from the urbanized and suburban areas that provide the source of tourists (Carlsen & Butler, 2011, p.1). Distant, smaller areas, slower pace of life, different culture, exotic nature and wildlife, and natural environments are some of the main characteristics of the islands (Cheng & Lu, 2013, p.767). Given these characteristics, islands worldwide have become popular tourist destinations for millions of people today.

When the case of island tourism considered Turkey in particular, Bozcaada, one of the two islands of Turkey in the Aegean Sea, stands out as an essential tourist attraction with its delicate and rare natural, physical, and cultural structure. Located four miles from the mainland and the third largest island in Turkey, Bozcaada has transformed into an essential destination for domestic tourism, attracting most domestic tourists in the last decade thanks to its clean beaches and coves vineyards and wines (Okumuş, 2018). The island's architecture bears the traces of Turkish and Greek cultures due to the coexistence of Greeks and Turks for about five hundred years. The entire island is a natural and archaeological site, and the new architectural texture is being preserved (Bozcaada Municipality, 2021). In addition to the natural advantages of being an island, Bozcaada also has importance in terms of a touristic attraction and features such as having a unique historical and architectural texture, castle, and hosting diverse cultures together. Akpınar, Saygın & Karakaya (2011, p.229) indicate that Bozcaada, which possesses a rich cultural heritage of two thousand years, appeals to the tastes of the middle and elite classes. The fact that many writers and artists have preferred Bozcaada in recent years has made the island popular in terms of tourism (Bozcaada District Governorship, 2021).

The island also draws attention thanks to the boutique accommodation concept offered to its visitors (Atsız & Türkmen, 2020a, p.2055) and accommodation establishments, including vineyard cottages, private facilities, and small hostels on the island, are usually open between April 1 to November 1. Tourism facilities on the island offer a sea, sun, and sand product primarily relying on bed and breakfast experiences. In addition to this, new tourism products such as agriculture and wine tourism have been flourished in Bozcaada, where many national and international events have been held recently to prevent seasonal concentration (Bozcaada Master Plan, 2016). Despite the Covid-19 epidemic, it was determined that 41,202 domestic tourists stayed for an average of 2.27 days in the municipal and operating certified facilities on the island in 2020 (Ministry of Culture and Tourism of Republic of Turkey, 2021). These data indicate that the island has maintained its attractiveness for domestic tourists despite the epidemic.

Choosing Bozcaada as the location of this study was primarily based on two reasons. First, according to the Bozcaada Tourism Master Plan (2016), the island has grown in both the number of daily visitors and tourists in the last decade. Second, as stated in the plan, Bozcaada holds a significant repeat visit among domestic tourists. A study conducted by Atsız & Türkmen (2020a, p.2056) on 448 domestic tourists determined that approximately 78% of the participants were tourists revisiting Bozcaada. This data suggests that Bozcaada significantly affects domestic tourists' destination satisfaction and place attachment levels. In brief, Bozcaada is a vital destination for Turkish tourism and constitutes a valuable case study for understanding tourist loyalty and its antecedents. Therefore, the main goal of this study is to evaluate a theoretical model involving place attachment and satisfaction as antecedents of loyalty.

Hou, Lin & Morais (2005, p.223) remark that research on destination attachment helps understand how tourism affects national identity. It can be argued that this information shows the importance of investigating the concept of place attachment for domestic tourists. The study also aims to expand the applicability of place attachment to touristic destinations.

Place Attachment

Place attachment, which stands out as a concept in which researchers from different disciplines investigate its development, antecedents, and results, has been a topic of research in the tourism discipline since the early 1980s (Hwang, Lee & Chen, 2005, p.146). Place attachment is defined as a cognitive and emotional bond between people and particular places in a broad sense. The essential feature of the concept is that the individual tends to maintain his/her affinity to the place to which he/she has a positive bond (Hidalgo & Hernandez, 2001, p.274). Individuals establish emotional bonds to places by developing relationships with specific environments over time. Although it is believed that it would be possible for an individual to develop strong feelings for a place, he/she has never visited, it is argued that attachment to a particular place will generally expand after one or more visits (Chen & Phou, 2013, p.271). In other words, visitors and tourists tend to develop place attachment if their social interactions and involvement in the destination are significant (Dwyer, Chen & Lee, 2019, p.646).

Many studies in the tourism literature indicate that the concept of place attachment helps understand the aspects of an individual's leisure and tourism behavior (Alexandris, Kouthouris & Meligdis, 2006, p. 414). In this respect, studies investigating the antecedents and mediating effects of place attachment come to the fore (Gross & Brown, 2008; Hwang et al., 2005; Lee, Kyle & Scott, 2012; Sağlık & Türkeri, 2015). Although different dimensions were addressed in these studies aimed at measuring the concept of place attachment, two dimensions, "place bonding" and "place identity," were the first to emerge in the measurement of attachment (Korpela, 2012, p. 148) and were the most frequently used. Place bonding is defined as a functional attachment. It is expressed as the various features of the visited region providing the necessary convenience for the tourists to experience the activities they desire.

On the other hand, place identity is defined as an emotional attachment and is expressed as a component of self-identity that increases self-

esteem and one's sense of belonging to the community (Vaske & Kobrin, 2001, p.17). To put it differently, a tourist can develop attachment by evaluating the destination according to how well it fulfills his/her functional needs within the scope of place bonding. One can create a sense of attachment by evaluating the destination according to the symbolic bond they establish with the extraordinary view of the destination within the scope of place identity (Yüksel, Yüksel & Bilim, 2010, p.276). In summary, destination attachment refers to the bond that people establish with a tourism destination. This bond reflects the extent to which the tourist values and identifies with the destination in question (Reitsamer, Sperdin & Sauer, 2016, p. 94).

Satisfaction and Destination Loyalty

Today, the tourism competition experienced on a global scale led to studies and research related to loyalty drawing attention (Su, Cheng & Huang, 2011, p.2721). It is essential for the tourists to realize their expectations or experience satisfaction above their expectations so that they can have a sense of loyalty (Atsız & Türkmen, 2020, p.2054). Tourist satisfaction is defined as the feeling of satisfaction that tourists experience after visiting the destination, and it is regarded as one of the main aims of destination marketing because it affects the destination choice, consumption of products and services, and the decision to revisit (Yoon & Uysal, 2005, p.47).

In touristic destinations, visitor loyalty is considered an important indicator of successful destination development. Many studies on the antecedents of tourist loyalty in different environments such as countries, states, cities, and islands (Prayag & Ryan, 2012, p.342). The concept of destination loyalty, which has been the center of attention of academia for the last three decades, has been addressed as an extension of customer loyalty to destinations and has been measured by construct, visitors' intention to revisit their goal and their intention to spread positive word-of-mouth to family and/or friends (Stylidis, Woosnam, Ivkov & Kim, 2020, p.605). In this context, the fact that tourists visit the same type of

destination or a destination in the same region, their intention to revisit actively disseminating positive information about a particular destination is also defined as positive word-of-mouth communication (Wang, Liu, Hwang & Chen, 2020, p. 499). Also, in the literature, emotional solidarity, place attachment, satisfaction, and destination image are among the most often used variables to clarify destination loyalty (Patwardhan et al. 2020a, p.5).

Research Model and Developing Hypothesis

In recent years, the concept of place attachment has been addressed in the literature mainly within its behavioral consequences. Lee et al. (2012, p.754) aimed to discover the factors that ensure the festival visitors feel loyal to the host destinations. According to the research findings, it was determined that satisfied visitors at a festival develop a moderate level of place attachment to the destination hosting the festival and remain loyal to that destination. Xu & Zhang (2016, p.86) aimed to determine the antecedents of place attachment and the causal relationship between place attachment and destination loyalty, including several factors such as perceived destination attractiveness, activity involvement, tourist satisfaction, and motivation among urban tourists. Data from Western tourists and domestic tourists obtained using tourist survey data collected in Hangzhou, a historical city in China, demonstrated that although place attachment is an important antecedent of destination loyalty, its impact is smaller than tourist satisfaction. Stylos, Bellou, Andronikidis & Vassiliadis (2017, p.15) found out that place attachment softens the relationship between destination image and the UK and Russian tourists' loyalty to Greece. Using the theory of place attachment, Yi, Fun, Jin & Okumuş (2018, p.224) constructed a conceptual exhibition-attachment model that includes a push/pull motivation, attachment, and loyalty. To test the model, empirical data were collected from attendees in a trade fair, and it was determined that both exhibit attachment and exhibition identity had an impact on attendees' loyalty. Plunkett, Fulthorp & Paris (2019, p.36) analyzed

the relationship between place attachment and behavioral loyalty in the urban park setting, data collected from 405 respondents in eight urban parks located in Manhattan Beach, California, showed that frequent use of certain parks for the urban park environment contributes to a stronger place attachment. On the other hand, Patwardhan et al. (2020b, p.36) investigated the effect of religious holiday visitors' place attachment and emotional experiences on destination loyalty and revealed the impact of visitors' emotional experiences and levels of place attachment on loyalty. In light of the above-cited information, the study's first hypothesis was formed.

H₁: Place attachment affects destination loyalty positively.

Hwang et al. (2005, p.143) used the commenting services of five National Parks in Taiwan to examine the relationship between tourist involvement, commenting service quality, and destination attachment. Research findings show that destination attachment positively and significantly affects tourist satisfaction. Veasna, Wu & Huang (2013, p. 511) analyzed a sample consisting of 398 international tourists visiting a famous world heritage tourism destination (Angkor Wat) and a famous skyscraper (Taipei 101) and determined that reliability and destination image could genuinely affect tourists' perceptions of destination satisfaction in terms of destination attachment. In addition, the mediating role of destination attachment and destination image was also confirmed in this study. In a survey conducted by Campón-Cerro, Alves, and Hernández-Mogollón (2015, p.74), place identity and place bonding are the basic dimensions of attachment on tourists' satisfaction and loyalty to rural tourism destinations were evaluated. The data obtained from 464 tourists shows that place bonding has more effect on satisfaction and loyalty towards rural tourism destinations than place identity. Considering the above-cited information, the study's second hypothesis was formed.

H₂: Place attachment affects satisfaction positively.

Yüksel et al. (2010, p.281) investigated the effect of place attachment on customer satisfaction and loyalty. Research findings indicated a statistically significant and robust correlation between the

dimensions of place attachment and customer satisfaction. Another outcome of the research is that place attachment indirectly increases loyalty to the destination by forming destination satisfaction. Prayag & Ryan (2012, p.342) examined a sample of 705 international visitors staying in hotels on the island of Mauritius and determined that destination image, personal involvement, and place attachment were the antecedents of visitors' loyalty. However, this relationship was mediated by their satisfaction levels. In a study conducted by Chen & Phou (2013, p.269) on destination image and tourist behavior, it was determined that tourists establish trust and attachment-involving emotional relationships with destinations. In the study, it was also concluded that satisfaction affects destination loyalty positively. Mohamad et al. (2019, p.228) revealed that destination attractiveness influences destination loyalty in the presence of place attachment and tourist

satisfaction. Yılmazdoğan & Seçilmiş (2020, p.21) conducted a study on domestic tourists visiting Eskişehir and found statistically significant and positive correlations between destination attachment and destination loyalty, and between satisfaction and destination loyalty. Overall, these studies indicate that place attachment is central to tourist satisfaction and loyalty. In this direction, the third and fourth hypotheses of the study were formed.

H₃: Satisfaction affects destination loyalty positively.

H₄: Satisfaction bears a mediating role in the correlation between place attachment and destination loyalty.

The research model, which is discussed in the study's introduction and literature review section and formed based on the information included in the literature, is given in Figure 1.
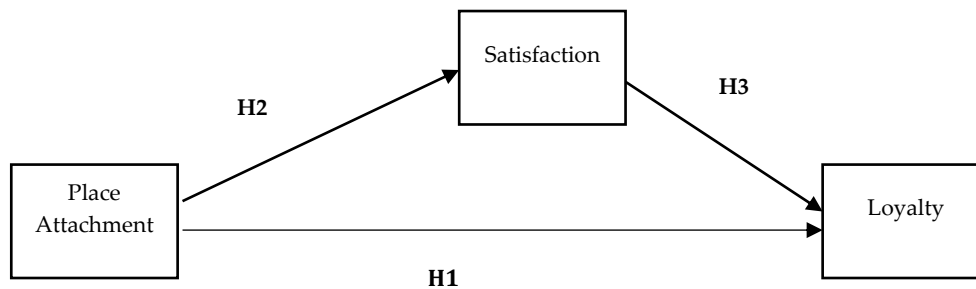
Figure 1. Theoretical model and hypotheses

Method

The study of the population consists of the domestic tourists visiting Bozcaada. Since this study was conducted for heuristic purposes, a questionnaire was used as a data collection tool. The questionnaire was completed with domestic tourists waiting for the ferry to leave the island at Bozcaada ferry port between August 1 and August 31, 2019. The questionnaire form used in the study had thirteen items and consisted of four parts. In the first part, the scale implemented in Prayag & Ryan's (2012) study was used to measure place attachment; the question in the scale consists of eight items. In the second part, the scale implemented in Lee, Yoon & Lee's (2007) study

was used to measure satisfaction, question in the scale consisted of three items. In the third part, the scale implemented in Chen & Phou's (2013) study was used to measure destination loyalty; questions in the scale consisted of two items. On the other hand, Respondents were asked to respond to these statements within the framework of a 5-point Likert scale (1- Strongly Disagree; 5- Strongly Agree). The last part included open-ended and category questions to determine the socio-demographic characteristics of the respondents, such as age, gender, marital status, educational status, and the number of times they have visited Bozcaada.

Atsız and Türkmen (2020b, p.2020) indicated that based on the data of the Ministry of Culture

and Tourism, 15,972 domestic tourists stayed in facilities having either municipality or operation certificates in Bozcaada in 2019. However, it is also known that residents rent their houses to tourists, especially in peak season such as August. There is no data on the people who stay in these rented houses. Similarly, people can visit Bozcaada without requiring any accommodation with same-day tours. For this reason, there is no clear data available on domestic tourists visiting Bozcaada in August 2019. Due to this reason research data were collected by convenience sampling method and 311 convenient questionnaires were obtained. When calculating the sample size within the scope of the research, in line with the suggestion of Hair et al. (2017, p.24) "calculating the minimum number of observations necessary for the model by multiplying at least 10 times the maximum number of arrows pointing to any latent variable" in multivariate studies emphasized. In the research model, the maximum number of arrows pointing to any latent variable is 8. Based on this rule (8*10= 80), the minimum number of sample necessary for estimating the research model is met.

Findings

As a result of analyzing the data obtained based on the purpose of the study, the findings on demographic characteristics of the respondents, the reliability and validity of the scales, and the hypothesis results are explained in detail in this section. Information on the demographic characteristics of the respondents in the study is given in Table 1.

Table 1. Socio-demographic Profile of Sample

Demographics	Frequency Counts	%	Demographics	Frequency Counts	%
Gender			**Highest educational qualification**		
Male	128	41,2	Primary school	8	2,6
Female	183	58,8	High/secondary school	41	13,2
Marital status			Associate degree	46	14,8
Single	113	36,3	Bachelor's degree	144	46,3
Married	198	63,7	Postgraduate degree	72	23,2
Age group (years)			**Visitation level**		
≤25	17	5,5	First-time	46	14,8
25-34	100	32,2	Repeat	265	85,2
35-44	110	35,4	Avg. length of stay (days)	4≥	
45-54	50	16,1	**Number of previous visits**		
55-64	26	8,4	≤2	101	38,2
65 ≥	8	2,4	≥3	164	61,8

Examining Table 1, it is observed that the majority of the respondents are women (58,8%) and married (63,7%), more than half (51,5%) are between the ages of 35 and 54 and well-educated (69,5% with bachelor's or higher degree). It was also found that the majority of the respondents (85,2%) had visited Bozcaada before, and those visiting the island had already visited the island three times or more (61,8%).

Analysis of the Research Model

For the analysis of the research model, SmartPLS 3.2.9 packaged software was used with the Partial Least Squares Structural Equation Modeling (PLS-SEM) method. PLS-SEM has become gradually popular in marketing research in the last decade thanks to its ability to model latent structures under variance-based and non-parametric conditions, unlike traditional covariance-based SEM (Ali, Hussain, Konar & Jeon, 2017, p.364). This exclusive method has also been used in recent studies in hotel management and tourism to analyze structural research models (Ali et al., 2018, p.514). Analyzes are conducted in two phases in the SmartPLS software. In the first phase, validity and reliability analyses of the model variables are performed using the research model and measurement model (outer model). In the second phase, the correlations between independent and dependent latent variables are determined by

using the structural model (internal model) (Yıldız, 2020, p.26).

Validity and Reliability Analysis of Scales

Consistency reliability, convergent validity, and discriminant validity were evaluated to review the validity and reliability of the measurement model of the study. Cronbach's Alpha and Composite Reliability (CR) coefficients were examined for internal consistency reliability. In determining convergent validity, factor loadings and the values of Average Variance Extracted (AVE) were used. It is expected that factor loadings would be ≥0,70; Cronbach Alpha and composed reliability coefficients would be ≥0,70; and the value of average variance extracted would be ≥0,50 (Hair, Hult, Ringle & Sarstedt, 2017; Fornell & Larcker, 1981).

Table 2 below demonstrates the internal consistency reliability and convergent validity of the constructs included in the study.

Table 2. Assessment of the measurement model

Construct/items	Loadings
Place Attachment α=0,937; CR=0,937; AVE=0,650	
Bozcaada is an exceptional destination for me	0,833
I identify strongly with this destination	0,844
No other place can provide the same holiday experience as Bozcaada	0,725
Holidaying in Bozcaada means a lot to me	0,896
I am very attached to this holiday destination	0,803
Bozcaada is the best place for what I like to do on holidays	0,771
Holidaying here is more important to me than holidaying in other places	0,800
I would not substitute any other destination for the types of things that I did during my holidays in Bozcaada	0,765
Satisfaction α=0,905; CR=0,906; AVE=0,763	
Overall, my vacation in Bozcaada is satisfactory	0,901
My vacation in Bozcaada met my expectations.	0,886
My vacation in Bozcaada was worth the time I spent and the cost I made	0,832
Destination Loyalty α=,905; CR=0,905; AVE=0,827	
I will likely revisit Bozcaada in the future	0,918
I will likely recommend Bozcaada to my family and friends	0,900

It can be argued that the internal consistency reliability was maintained because the Cronbach's Alpha coefficients and CR coefficients of the constructs were between 0,905 and 0,937. Looking at the values included in the table, it is understood that the factor loadings are between 0,725 and 0,918. According to Hair et al. (2017, p.113), factor loadings should be ≥0,708. It is also seen that AVE values are between 0,650 and 0,827. In view of such

information, it can be stated that the convergent validity was maintained in the study.

To check discriminant validity Fornell-Larcker Criterion (Fornell & Larcker, 1981) and Heterotrait-Monotrait Ratio (Henseler, Ringle, & Sarstedt, 2015) were used. The results are included in Table-3.

Tablo 3. Discriminant validity analysis

	Fornell-Larcker Criterion			Heterotrait-Monotrait Ratio (HTMT)		
	DL	PA	S	DL	PA	S
Destination Loyalty	(0,956)					
Place Attachment	0,672	(0,833)		0,726		
Satisfaction	0,806	0,696	(0,917)	0,890	0,755	

According to the Fornell Larcker criterion, the square root values of the AVE calculated for each factor must have the highest value in the relevant factors. This criterion is met upon examining Table-3. The heterotrait-monotrait method has been developed by Henseler et al. (2015) due to recent criticisms claiming that the Fornell Larcker criterion remains incapable of discriminant validity. According to this method, the calculation of the heterotrait-monotrait ratio below 0,9 is considered sufficient for discriminant validity. When Table-3 is examined, it can be understood that this criterion is met.

The SmartPLS software also reports the model fit values as a result of analyzing the measurement model. Reported values include standardized root mean square residual (SRMR) and normed fit index (NFI). Values below 0.08 for SMRM and above 0.90 for NFI are designated as good fit values (Hu&Bentler, 1999). Another value calculated by the software is root mean square residual covariance (RMStheta). RMStheta values below 0.12 indicate good fit (Hair et al., 2017, p.209). The SRMR, NFI and RMStheta values of the research are; 0.05, 0.879 and 0.210 respectively. However, Henseler, Hubona & Ray (2016, p.11) specify that if the analyst's aim is to test or compare models, there is no reason to evaluate and report them. Similarly, Hair et al., (2017, p. 194) also claim that the fit values in PLS-SEM are not the focal spots as in the covariance-based structural equation models. The authors noted that researchers may sacrifice predictive power by

placing more focus on a better fit in the model, thus, their usage may even be detrimental.

Structural Model

Following the acceptance of the validity and reliability tests of the measurement model, the SmartPLS 3.2.9 packaged software was implemented to perform the structural equation analysis of the study, and the results of the structural model after the research are shown in Figure 2.
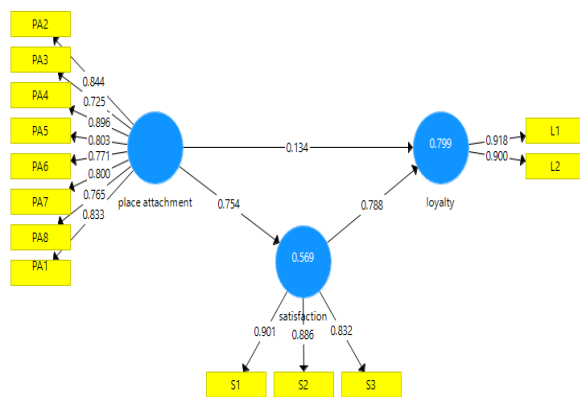

Figure 2. Structural model

Concerning the research model, the PLS algorithm was run to calculate linearity, path coefficients, R^2, and effect size (f^2); on the other hand, blindfolding analysis was also run to estimate the prediction power (Q^2). Table 4 shows VIF, R^2, f^2, and Q^2 coefficients.

Table 4. Research model coefficients

		VIF	R^2	f^2	Q^2
Place Attachment	Loyalty	2,321	0,799	0,038	0,608
Place Attachment	Satisfaction	1,000	0,569	1,321	0,402
Satisfaction	Loyalty	2,321	0,799	1,331	0,608

According to the PLS-SEM method, the R^2 value, which is the coefficient of determination, is used to measure the explanatory power of the model in the evaluation of the internal model. R^2 values range from 0 and 1; and 0,25 and above is considered a weak explanatory ratio, 0,50 and above is a moderate, and 0,75 and above is a substantial explanatory ratio (Henseler, Ringle &

Sinkovics, 2009). Considering the R^2 values in Table 4, it was determined that satisfaction was explained by 57% and destination loyalty by 80%.

Moreover, the effect size (f^2) coefficient is calculated for each independent variable. The f^2 coefficient indicates the share of the independent variables in the explanatory rate of the dependent variables (Yıldız, 2020). Having an effect size coefficient (f^2) of 0,02 and above represents small; 0,15 and above represents medium; 0,35 and above represent significant (Cohen, 1988). Upon evaluating the effect size (f^2) coefficients, the destination loyalty and overall satisfaction were found to have a high-level effect size.

The fact that the prediction power coefficients (Q^2) calculated for the dependent variables are more significant than zero indicates that the research model has the power to predict the dependent variables (Hair et al., 2017). Since the Q^2 values in the table are more significant than zero, it can be implied that the research model has predictive power.

Lastly, according to Hair et al. (2017), VIF (Variance Inflation Factor) coefficients should occur below the threshold value of 5 so that there is no linearity problem between the variables. There is no problem ensuring linearity between the variables as the VIF coefficients in Table 4 is below 5.

The Bootstrap method was run on the research model to calculate the t values and their significance within the scope of the research. 5000 sub-samples were collected from the sample through the derivative sampling method, and t values were calculated. Table 5 shows the results on the effects of the research model.

Table 5. Structural model results

	Beta(β)	S.E.	t-value	p-value
Place Attachment Loyalty	0,730	0,031	23,267	0,000
Place Attachment Satisfaction	0,754	0,034	22,065	0,000
Satisfaction Loyalty	0,788	0,061	10,960	0,000
Place Attachment Satisfaction Loyalty	0,595	0,058	12,995	0,000

To investigate the mediation effect, the mediating variable was removed from the research model at the first stage, and the significance of the path coefficients was tested. It was determined that place attachment affected destination loyalty

(β=0,730; p<0,01). Based on these findings, hypothesis 1 of the study was supported.

At the second stage, the significance of the path coefficients was tested by including the mediating variable in the model. It was determined that place attachment affected satisfaction (β=0,754; p<0,01), and satisfaction, on the other hand, affected destination loyalty (β=0,788; p<0,01). Therefore, hypotheses 2 and 3 of the study were supported as well. Lastly, (taking the indirect effects into account), it was observed that place attachment also affected destination loyalty (β=0,595; p<0,01) through satisfaction.

The analysis of Baron and Kenny's (1986) classical causal step approach was used to test the mediating effect. Baron and Kenny (1986) stated that the independent variables must have significant effects on the dependent variables to mention a mediating effect. At the same time, independent variables should have significant effects on mediating variables, and mediator variables should have a significant impact on dependent variables when mediating variables are also included in the model. In the light of this information, a mediating effect can be mentioned due to the significant effect of place attachment on destination loyalty and satisfaction and the significant effect of satisfaction on destination loyalty.

VAF (Variance Accounted For) values were calculated since the mediating effect was determined. If VAF > 0,80, full mediating effect could be mentioned; if 0,20 ≤ VAF ≥ 0,80, there is partial mediating effect. If it is <0,20, there can be no mediating effect (Doğan, 2018). In VAF calculations, indirect and total effect coefficients are used. The VAF formula used to calculate the VAF coefficient is given below:

$$VAF = \frac{indirect\ effect}{total\ effect}$$

VAF values were calculated as 0,449 on the path of Destination Attachment → Overall Satisfaction → Destination Loyalty. In this direction, hypothesis 4 of the study was also supported. In addition, it was further determined that overall satisfaction had a partial mediating role in the relationship between destination attachment and destination loyalty.

Upon examining the R^2 values obtained from the model, it was determined that the destination loyalty was explained at the rate of 54% in the model without the mediating variable and at the rate of 80% in the model involving the mediating variable. The increase in R^2 value can be interpreted as confirming the identified mediation role.

Conclusion

Since it is a well-known phenomenon that tourists can visit the same destination repeatedly and is usually regarded as an important market criterion for the success of a destination, a significant part of the tourism literature explores destination loyalty and its correlations (Taşcı, Uslu, Stylidis & Woosnam, 2022, p. 432). Destination attachment is defined as tourists' behavioral intentions for revisiting and recommending the destination through positive word-of-mouth communication (Su, Hsu, & Swanson, 2017, p.188). There are many studies conducted in the tourism literature analyzing the role of tourist satisfaction in the formation of destination loyalty (Antón, Camarero & Laguna-García, 2017; Kozak, Bigné, & Andreu, 2005; McDowall, 2010; Özdemir et al., 2012; Prayag & Ryan, 2012; Su et al., 2017; Yoon and Uysal, 2005). As part of the phenomenon of tourism, which is multidimensional by its nature, consumers wish to feel experiences that can satisfy their different needs at the same time and these experiences are mostly emotionally based (Chiappa, Andreu & Gallarza, 2014, p.422). In other words, tourists tend to seek psychological/emotional (attachment, achieving, enjoying, etc.) satisfaction as well as physiological satisfaction in when making preferences for destination (Koç, 2016).

Nevertheless, the destination visitors who are very satisfied with tourist service may even turn to a different destination in search of new experiences and originality (Croes, Shani, & Walls, 2010, p.120). The fact that travelers have almost unlimited choice of destinations (Murdy & Pike, 2012, p.1281) has an impact strengthening this case. However, it is noted that visitors who develop a sense of belonging to the destination tend to change their

preferences less despite the existence of alternative options (Yüksel et al., 2010, p.274). In this context, the main purpose of this study is to examine the antecedents that determine the destination loyalty of domestic tourists. In this context, the concepts of satisfaction and attachment were addressed as loyalty antecedents in the study. The island of Bozcaada, a popular destination for domestic tourists in Turkey, was chosen as the field of implementation.

The research model was evaluated with the PLS technique. It was concluded that the dependent variables, satisfaction, and destination loyalty, had moderate and high explanatory abilities, respectively, in the model in which place attachment was addressed as an antecedent. This outcome is considered the main theoretical conclusion of the study. In addition, the fact that place attachment, directly and indirectly, affects destination loyalty through satisfaction forms another outcome of the study. These determined outcomes were supported by the results of studies conducted in the literature (Alexandris et al., 2006; Campón-Cerro et al. 2015; Prayag and Ryan, 2012; Yılmazdoğan and Seçilmis, 2020; Yüksel et al., 2010). Similarly, the view emphasized in the study conducted by Yüksel et al. (2010) that satisfaction should be a consequence of attachment, rather than an antecedent, was also supported.

There are also theoretical implications in the study. Research findings revealed that the majority of the respondents (85.2%) had visited Bozcaada before. This finding refers to the strong position of Bozcaada in establishing a connection with a place in the context of tourism. In this direction, it can be argued that the efforts to protect, develop and diversify the touristic attractions on the island will also contribute to this strong position of the island. When satisfied visitors, on the other hand, tend to recommend their satisfactory experiences to others, in a sense, they become the brand ambassadors of that destination. Accordingly, this research revealed the solidity and competitiveness of Bozcaada as a tourism destination. However, considering the fact that tourism is becoming a gradually increasing competitive market that allows only the best managed destinations to prosper (Buhalis & Amaranggana, 2015, p.377), it

is recommended that decision makers in Bozcaada should adopt strategies that protect and strengthen this sense of belonging between the island and its visitors in their destination management plans.

The research is a study focusing on the concepts of attachment, satisfaction, and loyalty in domestic tourists. In conclusion, the most crucial limitation of this study is that other variables such as image, emotions, and authenticity that affect destination loyalty were not taken into consideration. Future studies could explain destination loyalty by modeling with variables that may have other determinants for Bozcaada.

References

Akpınar, F., Saygın, N., & Karakaya, E. (2011). Evaluation of the conservation activities in the historical settlement Tenedos-Bozcaada Island. *Sustainable Development and Planning, V.,* 329-343.

Alexandris, K., Kouthouris, C., & Meligdis, A. (2006). Increasing customers' loyalty in a skiing resort: The contribution of place attachment and service quality. *International journal of contemporary hospitality management, 18*(5), 414-425.

Ali, F., Hussain, K., Konar, R., & Jeon, H. M. (2017). The effect of technical and functional quality on guests' perceived hotel service quality and satisfaction: A SEM-PLS analysis. *Journal of Quality Assurance in Hospitality & Tourism, 18*(3), 354-378.

Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management, 30*(1), 514-53.

Antón, C., Camarero, C., & Laguna-Garcia, M. (2017). Towards a new approach of destination loyalty drivers: Satisfaction, visit intensity and tourist motivations. *Current Issues in Tourism, 20*(3), 238-260.

Atsız, N., & Türkmen, S. (2020a). Turist duyguları, turist memnuniyeti, destinasyon aşkı ve destinasyon sadakati arasındaki yapısal ilişkinin belirlenmesi: Bozcaada örneği. *Journal of Tourism and Gastronomy Studies, 8*(3), 2050-2071.

Atsız, N., & Türkmen, S. (2020b). Destinasyon Aşkının Destinasyon Sadakati Üzerindeki Etkisi: Bozcaada Örneği. *Türk Turizm Araştırmaları Dergisi*, *4*(3), 2018-2030.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.

Buhalis, D., & Amaranggana, A. (2015). Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services. *Springer Books*, 377-389.

Bozcaada District Governorship. (2021, May 24). *İlçemiz.* http://www.bozcaada.gov.tr/ulkemizde-koyu-olmayan-tek-ilce-bozcaada

Bozcaada Master Plan. (2016). *Bozcaada Turizm Master Planı 2018-2027.* http://www.bozcaada.bel.tr/wp-content/uploads/2018_2027_Turizm_Master_Plan%C4%B1_Tasla%C4%9F%C4%B1-compressed.pdf

Bozcaada Municipality. (2021, May 24). *Bozcaada hakkında.* http://www.bozcaada.bel.tr/bozcaada/bozcaada-hakkinda/

Campón-Cerro, A. M., Alves, H. M. B., & Hernández-Mogollón, J. M. (2015). Attachment as a factor in generating satisfaction with, and loyalty to, rural tourism destinations. *Tourism & Management Studies*, *11*(1), 70-76.

Carlsen, J., & Butler, R. (2011). Introducing sustainable perspectives of island tourism. *Island Tourism. Sustainable Perspectives, CABI, Ecotourism Series*, *8*(1), 1-7.

Chen, C. F., & Phou, S. (2013). A closer look at destination: Image, personality, relationship, and loyalty. *Tourism Management, 36*, 269-278.

Cheng, T. M., & Lu, C. C. (2013). Destination image, novelty, hedonics, perceived value, and revisiting behavioral intention for island tourism. *Asia Pacific Journal of Tourism Research, 18*(7), 766-783.

Chiappa, G. D., Andreu, L., & Gallarza, M. G. (2014). Emotions and visitors' satisfaction at a museum. *International Journal of Culture, Tourism and Hospitality Research*, *8*(4), 420-431.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences. (2nd Ed.). Hillsdale, NJ*: Lawrence Erlbaum Associates Publishers.

Croes, R., Shani, A., & Walls, A. (2010). The value of destination loyalty: Myth or reality?. *Journal of Hospitality Marketing & Management*, *19*(2), 115-136.

Doğan, D. (2018). *SmartPLS ile Veri Analizi*, US: Charleston SC.

Dwyer, L., Chen, N., & Lee, J. (2019). The role of place attachment in tourism research. *Journal of Travel & Tourism Marketing, 36*(5), 645-652.

Fornell, C. & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Gross, M. J., & Brown, G. (2008). An empirical structural model of tourists and places: Progressing involvement and place attachment into tourism. *Tourism Management, 29*(6), 1141-1151.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM). (2nd Ed)*, Los Angeles: Sage Publications.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing*. Manchester: Emerald Group Publishing Limited.

Henseler, J., Ringle, C.M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal Of The Academy Of Marketing Science, 43*(1), 115-135.

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial management & data systems*, *116*(1), 2-20.

Hidalgo, M. C., & Hernandez, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of environmental psychology*, *21*(3), 273-281.

Hou, J. S., Lin, C. H., & Morais, D. B. (2005). Antecedents of attachment to a cultural tourism destination: The case of Hakka and non-Hakka Taiwanese visitors to Pei-Pu, Taiwan. *Journal of Travel Research, 44*(2), 221-233.

Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.

Hwang, S. N., Lee, C., & Chen, H. J. (2005). The relationship among tourists' involvement, place attachment, and interpretation satisfaction in Taiwan's national parks. *Tourism Management, 26*(2), 143-156.

Koç, E. (2016). *Tüketici Davranışları ve Pazarlama Stratejileri: Global ve Yerel Yaklaşım*. Ankara: Seçkin Yayıncılık.

Korpela, K. (2012). Place attachment. Clayton, S. D. (Ed.). *The Oxford handbook of environmental and conservation psychology*. New York: Oxford University Press.

Kozak, M., Bigné, E., & Andreu, L. (2005). Satisfaction and destination loyalty: A comparison between non-repeat and repeat tourists. *Journal of Quality Assurance in Hospitality & Tourism, 5*(1), 43-59.

Lee, C. K., Yoon, Y. S., & Lee, S. K. (2007). Investigating the relationships among perceived value, satisfaction, and recommendations: The case of the Korean DMZ. *Tourism Management, 28*(1), 204-214.

Lee, J., Kyle, G., & Scott, D. (2012). The mediating effect of place attachment on the relationship between festival satisfaction and loyalty to the festival hosting destination. *Journal of travel research, 51*(6), 754-767.

McDowall, S. (2010). International tourist satisfaction and destination loyalty: Bangkok, Thailand. *Asia Pacific Journal of Tourism Research, 15*(1), 21-42.

Ministry of Culture and Tourism of the Republic of Turkey. (2021, May 24). *https://yigm.ktb.gov.tr/TR-201120/konaklama-istatistikleri.html*

Mohamad, M., Nasir, M. N. M., Ab Ghani, N. I., & Afthanorhan, A. (2019). Parallel mediators of place attachment and tourist satisfaction in destination attractiveness, destination loyalty, and service quality. *International Journal of Innovation, Creativity, and Change, 7*(7), 228-256.

Murdy, S., & Pike, S. (2012). Perceptions of visitor relationship marketing opportunities by destination marketers: An importance-performance analysis. *Tourism Management, 33*(5), 1281-1285.

Okumus, D. (2018). *Rethinking rural transitions: a case of Bozcaada Turkey.* Doctoral dissertation. Newcastle University, England.

Ozdemir, B., Aksu, A., Ehtiyar, R., Çizel, B., Çizel, R. B., & İçigen, E. T. (2012). Relationships among tourist profile, satisfaction and destination loyalty: Examining empirical evidences in Antalya region of Turkey. *Journal of Hospitality Marketing & Management, 21*(5), 506-540.

Patwardhan, V., Ribeiro, M. A., Paying, V., Woosnam, K. M., Mallya, J., & Gopalakrishnan, P. (2020b). Visitors' place attachment and destination loyalty: Examining the roles of emotional solidarity and perceived safety. *Journal of Travel Research, 59*(1), 3-21.

Patwardhan, V., Ribeiro, M. A., Woosnam, K. M., Payne, V., & Mallya, J. (2020a). Visitors' loyalty to religious tourism destinations: Considering place attachment, emotional experience, and religious affiliation. *Tourism Management Perspectives, 36*, 100737.

Plunkett, D., Fulthorp, K., & Paris, C. M. (2019). Examining the relationship between place attachment and behavioral loyalty in an urban park setting. *Journal of Outdoor Recreation and Tourism, 25*, 36-44.

Prayag, G., & Ryan, C. (2012). Antecedents of tourists' loyalty to Mauritius: The role and influence of destination image, place attachment, personal involvement, and satisfaction. *Journal of travel research, 51*(3), 342-356.

Reitsamer, B. F., Brunner-Sperdin, A., & Stokburger-Sauer, N. E. (2016). Destination attractiveness and destination attachment: The mediating role of tourists' attitude. *Tourism Management Perspectives, 19*, 93-101.

Sağlık, E., & Türkeri, İ. (2015). Destinasyon imajının ve kişiliğinin destinasyon aidiyeti üzerine etkisi: palandöken kayak merkezi örneği. *Seyahat ve Otel İşletmeciliği Dergisi, 12*(1), 25-42.

Stylidis, D., Woosnam, K. M., Ivkov, M., & Kim, S. S. (2020). Destination loyalty explained through place attachment, destination familiarity, and destination image. *International Journal of Tourism Research, 22*(5), 604-616.

Stylos, N., Bellou, V., Andronikidis, A., & Vassiliadis, C. A. (2017). Linking the dots among

destination images, place attachment, and revisit intentions: A study among British and Russian tourists. *Tourism Management*, *60*, 15-29.

Su, H. J., Cheng, K. F., & Huang, H. H. (2011). Empirical study of destination loyalty and its antecedent: The perspective of place attachment. *The Service Industries Journal*, *31*(16), 2721-2739.

Su, L., Hsu, M. K., & Swanson, S. (2017). The effect of tourist relationship perception on destination loyalty at a world heritage site in China: The mediating role of overall destination satisfaction and trust. *Journal of Hospitality & Tourism Research*, *41*(2), 180-210.

Tasci, A. D., Uslu, A., Stylidis, D., & Woosnam, K. M. (2022). Place-oriented or people-oriented concepts for destination loyalty: Destination image and place attachment versus perceived distances and emotional solidarity. *Journal of Travel Research*, *61*(2), 430-453.

Vaske, J. J., & Kobrin, K. C. (2001). Place attachment and environmentally responsible behavior. *The journal of environmental education*, *32*(4), 16-21.

Veasna, S., Wu, W. Y., & Huang, C. H. (2013). The impact of destination source credibility on destination satisfaction: The mediating effects of destination attachment and destination image. *Tourism Management*, *36*, 511-526.

Wang, Y. C., Liu, C. R., Huang, W. S., & Chen, S. P. (2020). Destination fascination and destination loyalty: Subjective well-being

and destination attachment as mediators. *Journal of Travel Research*, *59*(3), 496-511.

Xu, Z., & Zhang, J. (2016). Antecedents and consequences of place attachment: A comparison of Chinese and Western urban tourists in Hangzhou, China. *Journal of Destination Marketing & Management*, *5*(2), 86-96.

Yi, X., Fu, X., Jin, W., & Okumus, F. (2018). Constructing a model of exhibition attachment: Motivation, attachment, and loyalty. *Tourism Management*, *65*, 224-236.

Yıldız, E. (2020). *SmartPLS ile yapısal eşitlik modellemesi rekleftif ve formatif yapılar.* Ankara: Seçkin Yayıncılık.

Yılmazdoğan, O. C., & Seçilmiş, C. (2020). The effect of destination attachment and it's antecedents on destination loyalty. *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi*, *21*(1), 21-39.

Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: A structural model. *Tourism Management*, *26*(1), 45-56.

Yüksel, A., Yüksel, F., & Bilim, Y. (2010). Destination attachment: Effects on customer satisfaction and cognitive, affective and conative loyalty. *Tourism Management*, *31*(2), 274-284.

OPUS

RESEARCH ARTICLE

The Relationship Between Women's Self-Confidence, and Conspicuous Consumption Tendency on Social Media

Hasan Selçuk Eti[1]

[1] Asst. Prof., Tekirdağ Namık Kemal University, FEAS, Tekirdağ /Turkey
ORCID: 0000-0002-3792-697X
E-Mail:
hseti@nku.edu.tr

Corresponding Author:
Hasan Selçuk Eti

Abstract

This study aims to examine the relationship between women's self-confidence and conspicuous consumption tendency on social media. The research was designed in a relational screening model. The study sample consists of 311 university students reached by a simple random sampling method. A questionnaire form was used to collect data in the research. The questionnaire form consists of a demographic information form, self-confidence scale, and conspicuous consumption scale. Within the scope of the study, descriptive statistical analyses, correlation analyses, regression analyses, t-tests and ANOVA analyses were conducted. As a result of the analyses, it has been determined that self-confidence has negative and significant effects on conspicuous consumption. In addition, it has been determined that self-confidence differs significantly according to marital status, and income and conspicuous consumption differs significantly according to marital status. In terms of firms and policymakers, the self-confidence of individuals has been concluded that it is an essential factor that determines the purchasing behavior of consumers. In this context, another crucial point is that individuals with high self-confidence have relatively fewer demands for conspicuous consumption.

Keywords: *Social Media, Conspicuous Consumption, Self-Confidence.*

Öz

Bu araştırmada kadınların özgüvenleri ile sosyal medyada gösterişçi tüketim eğilimi arasındaki ilişkinin incelenmesi amaçlanmıştır. Bunun yanında söz konusu değişkenlerin seviyesinin katılımcıların sosyo-demografik özelliklerine göre farklılık gösterme durumları da incelenmiştir. Araştırma ilişkisel tarama modelinde tasarlanmıştır. Araştırmanın örneklemini basit tesadüfi örnekleme yönetimiyle ulaşılan 311 üniversite öğrencisi oluşturmaktadır. Araştırmada veri toplamak maksadıyla anket formu kullanılmıştır. Anket formunda demografik bilgi formu, özgüven ölçeği ve gösterişçi tüketim ölçeği yer almaktadır. Çalışma kapsamında betimsel istatistiksel analizler, korelasyon analizi, regresyon analizi, t-testi ve ANOVA analizleri gerçekleştirilmiştir. Analizler neticesinde özgüvenin gösterişçi tüketim üzerinde olumsuz yönde anlamlı etkisinin olduğu tespit edilmiştir. Bunun yanında özgüvenin medeni duruma ve gelir durumuna göre, gösterişçi tüketimin ise medeni duruma göre anlamlı şekilde farklılık gösterdiği tespit edilmiştir. Bireylerin özgüveninin, firmalar ve politika yapıcılar açısından; tüketicilerin satın alma davranışını belirleyen önemli bir unsur olduğu sonucuna ulaşılmıştır. Bu açıdan bakıldığında, diğer bir önemli nokta ise özgüveni yüksek bireylerin, gösterişli tüketime olan taleplerinin nispeten daha az olmasıdır.

Anahtar Kelimeler: *Sosyal Medya, Gösterişçi Tüketim, Özgüven.*

Introduction

Nowadays, the tendency to buy expensive and unnecessary goods has become a widespread consumer behavior in society. Individuals consume luxury goods to satisfy social needs, be recognized, or be socially accepted. In other words, status products that reflect the self and present an image of social status, prestige and wealth have recently become indispensable in the lives of individuals.

Due to the increasing use of the Internet and social networks and changing consumer lifestyles, conspicuous consumption is becoming increasingly important in societies. When people interact on social media, they can check out the information they get and share positive things. One of them is the abundant consumption of goods and services. Moreover, the advent of social media has changed the landscape of traditional conspicuous consumption theory, as all consumption now has the potential to be conspicuous consumption, depending on how individuals use social media (Widjajanta et al., 2018, p.3-4).

Although there are a considerable number of studies in the literature on the concept of conspicuous consumption, it appears that there are very few studies that examine the motives for such behaviors, and these studies do not reach a consensus. While a substantial body of research has examined the factors influencing conspicuous consumption, little attention has been paid to the role of psychological motives in conspicuous consumption, particularly in the current dynamic environment in which social media significantly alters consumption behavior. Theoretically, it has been suggested that there is an indirect relationship between self-confidence and conspicuous consumption behaviors (Sivanathan and Pettit, 2010; Truong and McColl, 2011; Baker et al., 2013; Wang and Griskevicius, 2013; Thoumrungroje, 2014). However, the lack of empirical research on the effect of self-confidence on conspicuous consumption behavior in social media draws attention as a gap in the literature.

To address this gap in the literature, this study concludes by examining the Relationship Between Women's Self-Confidence and Conspicuous Consumption Tendency on Social Media. In addition, the level of the above variables was also analyzed according to the sociodemographic characteristics of the participants.

Conceptual Framework

The term conspicuous consumption was first coined in the 20th century by Thorstein Veblen, who was the first to discuss the motivation for consumption as a social analyst. Conspicuous consumption is based on the Veblen Theory of The Leisure Class, which proposes a framework in which individuals attempt to mimic the consumption patterns of others with higher social status (Widjajanta et al., 2018, p.6). According to Veblen (1899), ostentatious consumption refers to an individual's generous spending on visible items to make their wealth and income known to others (Qattan and Khasawneh, 2020, p.2). In another definition, conspicuous consumption is the process of gaining status or social prestige through the acquisition and consumption of goods considered to be of high level (O'Cass & Frost, 2002, p. 68).

Conspicuous consumption is behavior in which a person flaunts their wealth by spending heavily on luxury goods and services. The consumerist cultural ideology is characterized by the belief that the meaning of life lies in possessions. Accordingly, to consume is to be fully alive, and it is necessary to consume constantly to survive entirely (Sklair, 1998, p.197). It is said that the desire for social status is an essential incentive for conspicuous consumption. Others observe people due to the increase of communication devices and under these conditions, the only way to evaluate a person's social status is the display of the individuals' possessions (Barzoki, Tavakol & Vahidnia, 2014, p.154).

Social media offers consumers the opportunity to share text, images, audio, and video with each other (Kotler & Keller, 2016, p.642). It is found that

consumers exhibit typical conspicuous consumption behavior in the social media environment and openly display their material values and consumption styles. Any consumption today has the potential to become conspicuous consumption, presented to an extensive network of friends and followers online (Lehdonvirta, 2010, p.884).

Since Veblen's (1899) The Theory of the Leisure Class, conspicuous consumption has been the subject of interest in the literature on social psychology and consumer behavior. In the first demonstrative consumption studies, a structure was proposed in which people try to copy the consumption patterns of other individuals who provide a higher social status. In addition, previous studies have often examined conspicuous consumption within the framework of the social comparison theory (Festinger, 1954), which states that individuals compare themselves to others to obtain self-evaluations. In these studies, it is evident that researchers examine conspicuous consumption from two perspectives, these being mainly their motivations and the industries they dominate (Qattan & Khasawneh, 2020, p.2-3).

Veblen (1899), on the other hand, generally presents a more complex consumer perspective than different needs-based perspectives, noting that negative emotions stimulate individuals and these negative emotions are directly transferred to the material world (Barzoki, Tavakol, & Vahidnia, 2014, p.155). For example, from a self-esteem perspective, it is noted that individuals may be viewed as buyers of conspicuous goods and services due to a lack of self-confidence (Argan & Tokay-Argan, 2018, p.111). Self-confidence is defined as the ability to withstand perceived threats and is considered one of consumers' psychological characteristics (Legendre et al., 2019, p.161).

Previous research has shown that people can use different strategies to deal with their low self-confidence. It is now common knowledge that products are selected for their functional qualities and their symbolic qualities. Consumption of products may convey that the person possesses certain self-characteristics and can serve as a

means of coping with low self-confidence (Gao, Wheeler & Shiv, 2009, p.31).

When the individual is confronted with threats to themselves, self-contradiction arises, based on the tension arising from the incompatibility between the real self and the desired self. One of these threats is a lack of self-confidence. Consumers buy branded products to reclaim their threatened selves and flashy effects with the idea of projecting their desired lifestyle onto important people (Hammad & El-Bassiouny, 2018, p.306). This type of indirect threat defense is an alternative way for individuals to compensate for their deficiencies in one area by revealing their success in other areas when it is impossible to solve the threats directly. Thus, this form of consumption is a reaction to a general lack of "psychological needs satisfaction" by a consumer who cannot obtain sufficient needs satisfaction (Fontes and Fan, 2006, p.646).

The literature shows that situations such as low or threatened self-confidence trigger consumption. For example, it is claimed that the consumption of cosmetics is due to some women's low self-confidence (Barzoki, Tavakol & Vahidnia, 2014, p.160). In the study by Sivanathan and Pettit (2010), it was found that there was a negative relationship between self-confidence and conspicuous use. The study concluded that participants who showed low self-confidence tended to increase their major consumption expenditures (Sivanathan & Pettit, 2010, p.567).

Method

Model and Hypothesis'

This research is a quantitative study designed in the relational screening model (Karasar, 2009, p.81), suitable for determining the degree of change or the presence of a difference between two or more variables. The study adopted the relational screening model to examine the associations between women's self-confidence and propensity for conspicuous consumption on social media. The hypotheses developed during the study are presented below.

H1: Self-confidence negatively and significantly impacts conspicuous consumption.

H2: The level of self-awareness differs significantly by sociodemographic characteristics.

H3: The level of conspicuous consumption differs significantly by sociodemographic characteristics.

Sample

The study sample consists of 311 female students who were reached through a simple random sampling method. The descriptive information of the participants is shown in Table 1.

Table 1. Descriptive Information of the Participants

Variable	Groups	N	%
Age	20 and below	64	20.58
	Between 21-25	186	59.81
	26 and above	61	19.61
Marital Status	Single	262	84.24
	Married	49	15.76
Educational Status	Highschool and lower	229	73.63
	Graduate	50	16.08
	Post Graduate	32	10.29
Income Status	Below 2.500 TL	77	24.76
	Between 2,500-5,000	172	55.31
	Above 5.000 TRY	62	19.94

Means of Collecting Data

To collect data in the research, a questionnaire form consisting of three parts was used that was prepared in a 5-point Likert-type. The first part of the questionnaire contains the demographic information sheet prepared by the researcher. The second part includes the self-confidence scale. The third part comprises the conspicuous consumption scale.

The "self-confidence scale" was developed by Akın (2007). The scale consists of 33 items and two subdimensions (internal and external self-awareness). As a result of the reliability analyses conducted, when the Cronbach's alpha coefficient for the whole scale was 0.94; It was reported that the sub-dimensions of the scale, Inner Self-Confidence and External Self-Confidence, were 0.97 and 0.87, respectively (Akın, 2007).

The Conspicuous Consumption Scale used by Atalar in his study (2019) was used to determine

participants' level of conspicuous consumption tendencies on social media. It was reported that the scale consists of 6 items and one dimension and the Cronbach's alpha reliability coefficient is 0.94 (Atalar, 2019).

In the confirmatory factor analysis, it was observed that the factor loadings of the two-factor self-confidence scale varied from 0.4811 to 0.8766. In contrast, the factor loadings of the single-factor conspicuous consumption scale ranged from 0.5784 to 0.8564. Validity and reliability information on the data collection instruments is presented in Table 2. When looking at Table 2, it can be seen that the scales used in the study meet the validity and reliability criteria.

Table 2. Means of Collecting Data and Findings of the Reliability Analysis

Scale	Number of Items	KMO	Barlett	χ^2/df	TLI	CFI	RMSEA	C.Alpha
Inner Self-Confidence	16							0.96
External Self Confidence	17	0.961	0.000	2.30	0.905	0.915	0.065	0.89
Conspicuous Consumption	6	0.869	0.000	1.66	0.991	0.997	0.046	0.90

Collection of Data and Analysis Thereof

To collect data in the research, the questionnaire form was used, which was explained above. The above questionnaire was applied between July 01st and August 31st, 2021. The data were analyzed using the package programs SPSS and AMOS. Descriptive statistical analyses were conducted to determine participants' self-confidence and conspicuous consumption levels. Pearson Product Moments correlation coefficients (r) were calculated to examine the relationships between the research variables. Regression analyses were performed to examine the influence of self-confidence on conspicuous consumption. T-test and ANOVA analyses were conducted to determine whether research variables differed according to the participants' demographic characteristics.

Findings

Descriptive statistics on research variables

Descriptive statistics for the research variables are presented in Table 3. Participants' self-confidence levels were determined as $\bar{x}$=3.53 (sd=0.91) and conspicuous levels were selected as $\bar{x}$=2.19 (sd=1.07). It was also found that participants' internal self-confidence levels ($\bar{x}$=3.71; sd=1.08) were higher than external self-confidence levels ($\bar{x}$=3.35; sd=0.77). It can be noted that the participants show a relatively high self-confidence and a low tendency for conspicuous consumption.

Table 3. Descriptive values of scales

Scale	Mean	Standard Deviation
Self-Confidence Scale	3.53	0.91
Self-Confidence Scale Size of Inner Self-Confidence	3.71	1.08
Self-Confidence Scale Size of External Self-Confidence	3.35	0.77
Conspicuous Consumption Scale	2.19	1.07

Findings on the relationships between research variables

Pearson correlation coefficients were calculated and presented in Table 4 to determine the relationships between the variables examined in the study. Looking at Table 4, it can be observed that there is a negative and significant relationship between self-confidence and conspicuous consumption (r=-0.65; p<0.01). Moreover, the presence of negative and significant relationships can be observed between conspicuous consumption and the internal self-confidence (r=-0.64; p<0.01) and external self-confidence (r=-0.64; p<0.01) sizes of the self-confidence scale.

Table 4. Results of the correlation analysis

Scale	Self-Confidence Scale	Inner Self-Confidence	External Self Confidence	Conspicuous Consumption
Self-Confidence Scale	1.00			
Size of Inner Self-Confidence	0.99**	1.00		
Size of External Self-Confidence	0.98**	0.95**	1.00	
Conspicuous Consumption Scale	-0.65**	-0.64**	-0.64**	1.00

Insights into the prediction of dependent variables by independent variables

The regression analysis results examining the effects of self-confidence on conspicuous consumption are presented in Table 5. Looking at Table 5, it can be seen that the model is significant (F=232.49; p<0.01) and explains 42.75% of the variance in conspicuous consumption. Looking at the coefficients, it can be seen that self-confidence has a negative and significant influence on conspicuous consumption (β=-0.76; p<0.01).

Table 5. Results of the regression analysis of the relationship between self-confidence and conspicuous consumption

Independent Variable	Dependent Variable	β	t	p	F	Adj.R² P	
Self-Confidence	Conspicuous Consumption	-0.76	-15.25	0.00	232.49	0.42	0.00

The regression analysis results examining the effects of the sub-sizes of the self-confidence scale on conspicuous consumption are presented in Table 6. Looking at Table 6, it can be seen that the model is significant (F=115.91; p<0.01) and explains 42.57% of the variance in conspicuous consumption. Looking at the coefficients, it can be seen that internal self-confidence (β=-0.36; p<0.01) and external self-confidence (β=-0.4079; p<0.05) have negative and significant effects on conspicuous consumption. According to these results, the H1 hypothesis is accepted.

Table 6. Results of the regression analysis of the relationship between self-confidence sizes and conspicuous consumption

Independent Variable	Dependent Variable	β	t	p	F	Adj.R² P	
Inner Self-Confidence	Conspicuous Consumption	-0.36	-2.66	0.00	115.91	0.42	0.00
External Self Confidence		-0.40	-2.10	0.03			

Findings aimed at different analyses'

The results of the ANOVA analysis conducted to determine whether the research variables differed by participant age are presented in Table 7. Looking at Table 7, it was found that participants' self-confidence (F=2.56; p>0.05) and conspicuous consumption (F=0.66; p>0.05) levels did not differ significantly by age. In addition, when the sizes of the self-confidence scale were investigated, it was found that participants' internal self-confidence (F=2.59; p>0.05) and external self-confidence (F=2.41; p>0.05) levels did not differ significantly by age either.

Table 7. ANOVA Analysis Results According to Age

Variable	Age	N	$\bar{x}$	ss	F	p	Different Groups
Self-Confidence Scale	(1) 20 and below	64	3.32	0.89			
	(2) Between 21-25	186	3.56	0.90	2.56	0.07	-
	(3) 26 and above	61	3.67	0.95			
Size of Inner Self-Confidence	(1) 20 and below	64	3.44	1.06			
	(2) Between 21-25	186	3.75	1.05	2.59	0.076	-
	(3) 26 and above	61	3.85	1.11			
Size of External Self-Confidence	(1) 20 and below	64	3.18	0.72			
	(2) Between 21-25	186	3.36	0.76	2.41	0.09	-
	(3) 26 and above	61	3.47	0.80			
Conspicuous Consumption Scale	(1) 20 and below	64	2.30	1.05			
	(2) Between 21-25	186	2.19	1.07	0.66	0.52	-
	(3) 26 and above	61	2.08	1.09			

The t-test results conducted to determine whether the research variables differed according to the participants' marital status are presented in Table 8. Looking at Table 8, it was found that participants' self-confidence (t=-3.06; p<0.01) and conspicuous consumption (t=2.31; p<0.05) levels differed significantly by marital status. According to the results, the self-confidence levels of the married ($\bar{x}$=3.90, sd=0.59) is higher than that of the singles ($\bar{x}$=3.46; sd=0.95) and the conspicuous consumption levels of the married ($\bar{x}$=1.87; sd=0.68) is lower than the singles ($\bar{x}$=2.25; sd=1.12). In addition, when examining the sizes of the self-confidence scale, it was also found that participants' internal self-confidence (t=-3.28; p<0.01) and external self-confidence (t=-2.63; p<0.01) also showed significant differences depending on their marital status. According to the results, the internal self-confidence levels of the

married ($\bar{x}$=4.16, sd=0.68) is higher than that of the singles ($\bar{x}$=3.62; sd=1.11) and the external self-confidence levels of the married ($\bar{x}$=3.61; sd=0.51) is lower than the singles ($\bar{x}$=3.30; sd=0.80).

Table 8. T-Test Results According to Marital Status

Variable	Age	N	$\bar{x}$	ss	F	p	Different Groups
Self-Confidence Scale	(1) 20 and below	64	3.32	0.89			
	(2) Between 21-25	186	3.56	0.90	2.56	0.07	-
	(3) 26 and above	61	3.67	0.95			
Size of Inner Self-Confidence	(1) 20 and below	64	3.44	1.06			
	(2) Between 21-25	186	3.75	1.05	2.59	0.07	-
	(3) 26 and above	61	3.85	1.11			
Size of External Self-Confidence	(1) 20 and below	64	3.18	0.72			
	(2) Between 21-25	186	3.36	0.76	2.41	0.09	-
	(3) 26 and above	61	3.47	0.80			
Conspicuous Consumption Scale	(1) 20 and below	64	2.30	1.05			
	(2) Between 21-25	186	2.19	1.07	0.66	0.52	-
	(3) 26 and above	61	2.08	1.09			

The results of the ANOVA analysis conducted to determine whether the research variables differed by the educational status of the participants are presented in Table 9. Looking at Table 9, it was found that participants' self-confidence (F=2.42; p>0.05) and conspicuous consumption (F=0.24; p>0.05) levels did not differ significantly by educational status. In addition, when the sizes of the self-confidence scale were investigated, it was found that participants' internal self-confidence (F=2.38; p>0.05) and external self-confidence (F=2.37; p>0.05) levels did not differ significantly by educational status.

Table 9. ANOVA Analysis Results According to Educational Status

Variable	Educational Status	N	$\bar{x}$	ss	F	p	Different Groups
Self-Confidence Scale	(1) Highschool and lower	229	3.47	0.92	2.42	0.09	-
	(2) Graduate	50	3.66	0.89			
	(3) Post Graduate	32	3.80	0.88			
Size of Inner Self-Confidence	(1) Highschool and lower	229	3.63	1.07	2.38	0.09	-
	(2) Graduate	50	3.86	1.07			
	(3) Post Graduate	32	4.01	1.01			
Size of External Self-Confidence	(1) Highschool and lower	229	3.30	0.77	2.37	0.09	-
	(2) Graduate	50	3.43	0.71			
	(3) Post Graduate	32	3.58	0.78			
Conspicuous Consumption Scale	(1) Highschool and lower	229	2.22	1.07	0.24	0.78	-
	(2) Graduate	50	2.15	1.06			
	(3) Post Graduate	32	2.09	1.08			

The results of the ANOVA analysis conducted to determine whether the research variables differed by the income status of the participants are presented in Table 10. Looking at Table 10, it was determined that participants' conspicuous consumption did not differ significantly according to income status (F=2.33; p>0.05), while their self-confidence differed significantly according to income status (F= 3.53; p<0.05). As a result of the post-hoc analyses performed to determine the groups which show the difference, the self-confidence of participants with an income status below 2,500 TRY ($\bar{x}$=3.71; sd=0.96) was significantly higher than that of participants with income between 2.500-5.000 TRY ($\bar{x}$=3.41; sd= 0.95).

In addition, when the sizes of the self-confidence scale were investigated, it was found that participants' internal self-confidence (F=3.37; p<0.05) and external self-confidence (F=3.87; p<0.05) levels did differ significantly by income status. As a result of the post-hoc analyses performed to identify the groups which show the difference, it was observed that the internal self-confidence of participants with an income between 2.500-5.000 TRY ($\bar{x}$=3.57; sd=1.14) was significantly lower than the self-confidence of those participants with an income below 2.500 TRY ($\bar{x}$= 3.88; sd=1.09) and an income above 5.000 TRY ($\bar{x}$=3.88; sd=0.89). Additionally, the external self-confidence of participants with an income status below 2.500 TRY ($\bar{x}$=3.53; sd=0.85) was significantly higher than

that of participants with an income between 2.500-5.000 TRY ($\bar{x}$=3.25; sd= 0.78).

Table 10. ANOVA Analysis Results According to Income Status

Variable	Income Status	N	$\bar{x}$	ss	F	p	Different Groups
Self-Confidence Scale	(1) Below 2.500 TL	77	3.71	0.96	3.53	0.03	1>2
	(2) 2.500-5.000 TRY	172	3.41	0.95			
	(3) Above 5.000 TRY	62	3.65	0.67			
Size of Inner Self-Confidence	(1) Below 2.500 TL	77	3.88	1.09	3.37	0.03	1>2 3>2
	(2) 2.500-5.000 TRY	172	3.57	1.14			
	(3) Above 5.000 TRY	62	3.88	0.89			
Size of External Self-Confidence	(1) Below 2.500 TL	77	3.53	0.85	3.87	0.02	1>2
	(2) 2.500-5.000 TRY	172	3.25	0.78			
	(3) Above 5.000 TRY	62	3.40	0.55			
Conspicuous Consumption Scale	(1) Below 2.500 TL	77	2.07	1.18	2.33	0.09	-
	(2) 2.500-5.000 TRY	172	2.16	1.15			
	(3) Above 5.000 TRY	62	2.44	0.55			

According to these results, the H2 and H3 hypotheses were partially accepted.

Result, Discussion and Recommendations

The purpose of this study is to examine how women's self-confidence affects conspicuous consumption tendencies. In addition, the differences in self-confidence and superior consumption levels by sociodemographic characteristics of participants were also examined.

The study first examined the influence of self-confidence on conspicuous consumption. As a result of the performed regression analysis, self-confidence and self-confidence sizes (internal and external self-confidence) were found to have negative and significant effects on conspicuous consumption. According to these results, it can be stated that an increase in self-confidence leads to a decrease in conspicuous consumption or, conversely, a decrease in self-confidence leads to an increase in conspicuous consumption.

It can be seen that this finding of our study is consistent with the literature. Theoretically, it has been suggested that there is an indirect relationship between self-confidence and self-confidence and conspicuous consumption behaviors (Sivanathan and Pettit, 2010; Truong and McColl, 2011; Baker et al., 2013; Wang and Griskevicius, 2013; Thoumrungroje, 2014). Veblen

(1899), on the other hand, generally presents a more complex consumer perspective than different needs-based perspectives, noting that negative emotions stimulate individuals and these negative emotions are directly transferred to the material world (Barzoki, Tavakol, & Vahidnia, 2014, p.155). For example, from a self-esteem perspective, it is noted that individuals may be viewed as buyers of conspicuous goods and services due to a lack of self-confidence (Argan & Tokay-Argan, 2018, p.111). Consumption of products may convey that the person possesses certain self-characteristics and can serve as a means of coping with low self-confidence (Gao, Wheeler & Shiv, 2009, p.31). The literature shows that situations such as low or threatened self-confidence trigger consumption. For example, in the study by Sivanathan and Pettit (2010), it was found that there was a negative relationship between self-confidence and conspicuous use. The study concluded that participants who showed low self-confidence tended to increase their major consumption expenditures (Sivanathan & Pettit, 2010, p.567). As a result, it can be concluded that the findings obtained within this extend in our study are consistent with the relationships between the relevant concepts in the literature and previous research findings.

Within the extend of the study, the t-test and ANOVA analyses were performed to examine differences in self-confidence and conspicuous consumption according to participants' sociodemographic characteristics. As a result of the analyses, it was found that self-confidence differs significantly according to marital status and income level. Accordingly, it was determined that the self-confidence levels of married participants with an income of less than 2.500 TRY were significantly higher than that of single participants with an income of 2.500-5.000 TRY. Additionally, conspicuous consumption was found to vary significantly by marital status. Accordingly, the primary consumption levels of married people were found to be lower than that of single people. In addition, self-confidence was not found to differ significantly by age and education level, and conspicuous consumption was not found to differ significantly by age, education level and income status. The literature shows different results regarding differences in self-confidence and apparent consumption levels by sociodemographic characteristics. It is believed that the difference in results obtained in our study and in other studies in the literature may be due to the context of the studies.

Based on the results of the study, it can be suggested that individuals with low self-confidence should solve this problem by seeking psychological support, parents should show love and interest to their children and show appropriate behavior to raise individuals with high self-confidence, teachers should show similar behavior and refer students with self-confidence problems to counseling units. For companies on the other side of the coin, whose raison d'être is to make a profit, it is suggested that they see conspicuous consumption as an opportunity to position their products as luxury. Researchers are advised to examine exceptionally diverse psychological variables such as self-respect, which may affect conspicuous consumption, or the regulating effect of female, age, and income status.

References

Akın, A (2007). Özgüven ölçeğinin geliştirilmesi ve psikometrik özellikleri. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 7*(2), 167-176.

Argan, M., & Tokay-Argan, M. (2018). Fomsumerism: A theoretical framework. *International Journal of Marketing Studies, 10*(2), 109-117.

Atalar, S. (2019). *Sosyal medya bağımlılık düzeyinin gösterişçi tüketim eğilimleri üzerine etkisinin tespiti.* Yayımlanmamış Yüksek Lisans Tezi. Osmaniye Korkut Ata Üniversitesi, Sosyal Bilimler Enstitüsü, İşletme Ana Bilim Dalı.

Baker, A. M., Moschis, G. P., Ong, F. S., & Pattanapanyasat, R. P. (2013). Materialism and life satisfaction: The role of stress and religiosity. *Journal of Consumer Affairs, 47*(3), 548-563.

Barzoki, M. H., Tavakol, M., & Vahidnia, A. (2014). Effects of sexual objectification on

conspicuous consumption and materialism. *Sexuality Research and Social Policy, 11*(2), 153-162.

Festinger, L. (1954). A theory of social comparison processes. *Human relations, 7*(2), 117-140.

Fontes, A., & Fan, J. X. (2006). The effects of ethnic identity on household budget allocation to status conveying goods. *Journal of Family and Economic Issues, 27*(4), 643-663.

Gao, L., Wheeler, S. C., & Shiv, B. (2009). The "shaken self": Product choices as a means of restoring self-view confidence. *Journal of Consumer Research, 36*(1), 29-38.

Hammad, H., & El-Bassiouny, N. (2018). 'I shop therefore I am': social and psychological transformations in conspicuous consumption. *Luxury Research Journal, 1*(4), 303-324.

Karasar, N. (2009). *Bilimsel araştırma yöntemi* (20.Basım). Ankara: Nobel Yayın Dağıtım.

Kotler, P., & Keller, K. L. (2016). *Marketing management.* Edinburgh: Pearson Education, Inc.

Legendre, T. S., Jo, Y. H., Han, Y. S., Kim, Y. W., Ryu, J. P., Jang, S. J., & Kim, J. (2019). The impact of consumer familiarity on edible insect food product purchase and expected liking: The role of media trust and purchase activism. *Entomological Research, 49*(4), 158-164.

Lehdonvirta, V. (2010). Online spaces have material culture: goodbye to digital post-materialism and hello to virtual consumption. *Media, Culture & Society, 32*(5), 883-889.

O'Cass, A., & Frost, H. (2002). Status brands: Examining the effects of non-product-related brand associations on status and conspicuous consumption. *Journal of Product and Brand Management, 11*(2), 67–88.

Qattan, J., & Al Khasawneh, M. (2020). The Psychological Motivations of Online Conspicuous Consumption: A Qualitative Study. *International Journal of E-Business Research (IJEBR), 16*(2), 1-16.

Sivanathan, N., & Pettit, N. C. (2010). Protecting the self through consumption: Status goods as affirmational commodities. *Journal of Experimental Social Psychology, 46*(3), 564-570.

Sivanathan, N., & Pettit, N. C. (2010). Protecting the self through consumption: Status goods as affirmational commodities. *Journal of Experimental Social Psychology, 46*(3), 564-570.

Sklair, L. (1998). The transnational capitalist class and global capitalism: the case of the tobacco industry. *Political Power and Social Theory, 12*, 3-44.

Thoumrungroje, A. (2014). The influence of social media intensity and EWOM on conspicuous consumption. *Procedia-Social and Behavioral Sciences, 148*, 7-15.

Truong, Y., & McColl, R. (2011). Intrinsic motivations, self-esteem, and luxury goods consumption. *Journal of Retailing and Consumer Services, 18*(6), 555-561.

Veblen, T. (1899). Mr. Cummings's Strictures on" The Theory of the Leisure Class". *Journal of Political Economy, 8*(1), 106-117.

Wang, Y., & Griskevicius, V. (2014). Conspicuous consumption, relationships, and rivals: Women's luxury products as signals to other women. *Journal of consumer research, 40*(5), 834-854.

Widjajanta, B., Senen, S. H., Masharyono, M., Lisnawati, L., & Anggraeni, C. P. (2018). The impact of social media usage and self-esteem on conspicuous consumption: Instagram user of Hijabers Community Bandung member. *International Journal of eBusiness and eGovernment Studies, 10*(2), 1-13.

OPUS▶

Journal of Society Research

RESEARCH ARTICLE

The Relationship between City and Women in Turkish Cinema

Aslı Ekici ¹ I Derya Çetin ² I İkbal Bozkurt Avcı ³

¹ Asisst. Prof. Dr., Selcuk University, Communication Faculty, Konya/Turkey
ORCID: 0000-0002-7185-2572
E-Mail:
easliekici@gmail.com

² Asisst. Prof. Dr., Bolu Abant Izzet Baysal University, Communication Faculty, Bolu/Turkey
ORCID: 0000-0003-3520-4436
E-Mail:
deryacetin@ibu.edu.tr

³ Asisst. Prof. Dr., Samsun University, Faculty of Economics Administrative and Social Sciences , Samsun/Turkey
ORCID: 0000-0002-9604-7291
E-Mail:
ikbal.avci@samsun.edu.tr

Corresponding Author:
Derya Çetin

Abstract

Femininity and masculinity –as a social construction- is reconstructed with the spatial disintegrations just as the other dynamics. Woman is drawn the line –time varying- by patriarchal structure within the context of relationship with the space. Social and economical conditions may constrict or cause to yawn these borders. Feminist theorists draw attention to the relationship between gender and space. Cinema is one of the fields to find clue about the connection between these areas –gender and space- In this context this study focuses on the relation between woman and city in Turkish Cinema after 2000s and how femininity is constructed in these films. In the study, according to the purposive sampling method, the films Last Stop: Salvation (Yusuf Pirhasan, 2012) and But Muzeyyen, This is a Deep Passion (Cigdem Vitrinel, 2014) were determined as samples. According to the results obtained from the feminist analysis of the films, it can be said that the relationship between female characters and space contains some crack lines. In the movie Last Stop Salvation, female characters make domestic spaces safe through solidarity. In But Muzeyyen This is a Deep Passion, the female character freely takes place in the city, plaza and beach. The strong subject position of Muzeyyen is in harmony with the diversity and publicity of the spaces in which she takes place. Especially the fact that she wanders freely and aimlessly on the streets of the city allows Muzeyyen to be read as a female flaneur.

Key Words: *Turkish Cinema, Gender, Woman, City.*

Öz

Toplumsal bir inşa olarak kadınlık ve erkeklik, diğer dinamikler gibi mekânsal çözülmelerle yeniden inşa edilir. Kadın, mekânla ilişki bağlamında ataerkil yapının -zamana göre değişen- çizgisi tarafından belirlenir. Sosyal ve ekonomik koşullar bu sınırları daraltabilir veya esnemesine neden olabilir. Feminist teorisyenler toplumsal cinsiyet ve mekan arasındaki ilişkiye dikkat çekerler. Sinema, bu alanlar -toplumsal cinsiyet ve mekan- arasındaki bağlantıya dair ipucu bulabilecek alanlardan biridir. Bu bağlamda bu çalışma, 2000'li yıllardan sonra Türk Sinemasında kadın ve şehir ilişkisine ve bu filmlerde kadınlığın nasıl inşa edildiğine odaklanmaktadır. Çalışmada amaçsal örneklem yöntemine göre Kurtuluş Son Durak (Last Stop: Salvation, Yusuf Pirhasan, 2012) ve Fakat Müzeyyen Bu Derin Bir Tutku (But Muzeyyen, This is a Deep Passion, Çiğdem Vitrinel, 2014) filmleri örneklem olarak belirlenmiştir. Filmlerin feminist çözümlemesinden elde edilen sonuçlara göre kadın karakterler ve mekan arasındaki ilişkinin bazı çatlak hatları içerdiği söylenebilir. Kurtuluş Son Durak filminde kadın karakterler, domestik mekanları dayanışma yoluyla güvenli hale getirmektedir. Fakat Müzeyyen Bu Derin Bir Tutku filminde ise kadın karakter şehir, plaza ve plajda özgürce yer almaktadır. Müzeyyen'in güçlü özne konumu yer aldığı mekanların çeşitliliği ve kamusallığı ile uyum içindedir. Özellikle şehrin sokaklarında özgürce ve amaçsızca dolaşması, Müzeyyen'in kadın flaneur olarak okunmasına olanak sağlar.

Anahtar Kelimeler: *Türk Sineması Toplumsal Cinsiyet, Kadın, Şehir.*

Introduction

The term of gender (Segal, 1992, p.98) which was put forward by Robert Stoller in 1968 in order to indicate that how it differs from the biological gender is generally used as "the cultural differentiation between man and woman" (Mutlu, 1995, p. 330). Gender is a social system which places more strain on women than men, and patriarchy forms this system (Humm, 1997, p.5). The patriarchal structure based on male dominance defines both women and men in a certain roles. In this definition, the relation that is established by man and woman with the place also gains importance. As a social construction, womanhood and manhood are re-constructed with spatial segregation as in other dynamics. In this re-construction process, the relation established by the woman with space specific to private sphere / public sphere also changes / transforms. The frequency of participation of women, who are currently taking part in the business life more efficiently compared to the past, has also increased. In the context of her relation with space, borderlines changing / changeable in due course are drawn by the patriarchal structure. Social and economic conditions either narrow or stretch these borderlines. In this context, the degree to which women have / could have a say in daily practices becomes importance.

Gaston Bachelard, Raymond Williams, Noèl Burch, Walter Benjamin and Henri Lefebvre are one of the important theorists writing articles about space (Berry, 2000, p.2).[i] Lefebvre sets the space as an explicit focal point in *Production of Space* (*La Production de l'Espace*, 1974) (Beebe, Davis & Gleadle, 2015, p.5). In his article in which he starts with the words "Space! This term did not remind anything other than a geometric term; a term of an empty area a few years ago" (2014, p.33), Lefebvre says the space (social) is a product but it is not easy to comprehend the space as a social product (2014, p.23, 56).

During 1980s, "place" was problematized as "space". The articles of David Harvey in 1980s, especially *The Limits to Capital* (1982) and *The Urbanization of Capital* (1985), had influence in preference of "space" instead of "place". In these articles, Harvey makes use of Marxist analysis to discuss that space reflects commodity production. Space is dynamic, constructed and open to discussion. Issues such as sexuality, race, class and gender are created in the space (Beebe, Davis & Gleadle, 2015, p. 2). As underlined by Henri Lefebvre in *the Production of Space*, space which could not be considered to be passive and nothing is a basis for economic and social relations, a means for control and thereby for dominance and power (2014, p.24, 56). "Dynamic and changeable space is in a dialectic relation with time and social assets […] Common experiences are locked up and sealed in time; and its traces may be followed in space" (Akbal Süalp, 2004, p.104, 105).

The city does not simply refer to a set of buildings in a particular place. Rather, it denotes the space produced by the interaction of historically and geographically specific institutions, social relations of production and reproduction, governmental practices, mode of communication, and the media (Donald, 1992, p.422). As stated by David Harvey, city is a space where people of every kind and class gather together even if reluctantly and make an ever-changing, temporary however a joint experience. This joint experience forms an indispensable subject for the articles and representations out of a wide range such as novel, film, painting and etc. trying to catch deeper meanings thereof. Daily activities and struggles of the individuals and social groups form social life of the city and thereby a joint framework in which all people could live is established (Harvey, 2013, p.117, 126). "No matter how much we struggle to define the city, this will never form in our minds in a complete and entire manner. Compared to the other objects, the city has a characteristics which is much more complex operationally and potentially, aims at being researched, uncovers itself inch-by-inch, gets slightly tired, is probably never worn out" (Lefebvre, 2011, p.146).

The city, which is a constantly changing/transforming and constructed space, and cinema are in a close relationship. Mark Shiel explains the relationship between cinema and the city as follows: "There is an important relationship between cinema, which is the most important

'cultural form' in the twentieth century, and the city, which is the most important 'organizational form'. This relationship operates and is experienced in society as a lived social reality" (Shiel, 2001, p.1). Cinema, city and individual relations, gender stereotypes, power relations, private-public distinction etc. It has a key role both in determining social relations and in the formation of an individual's identity. As Alison Butler has stated, spaces in cinema are gendered in line with gender stereotypes. The space, constructed in line with its relationship with gender, is divided into "man's and woman's" both within the frame and throughout the narrative, and shows parallelism with other elements (Butler, 2002, p.32). Although there are studies on the relationship between the city and women in cinema, it is seen that the studies on the relationship between city and women are limited in Turkish cinema (Kabadayı & Yılmazkol, 2013; Özdemir, 2016). The main problem of this study is to reveal how the spaces in the city are gendered in the context of the relationship between women and the city in Turkish cinema. In the study, the films *Last Stop: Salvation* (Yusuf Pirhasan-2012) and *But Muzeyyen, This is a Deep Passion* (Cigdem Vitrinel-2014) were analyzed according to the feminist film analysis to reveal the relationship between women and the city.

Gendered Space in Cinema

Narratives and affective images 'involving' relations to space, such as the street, the house, and the car in particular, affect how people experience and inhabit these spaces. Spaces exist in time and in representation: they are lived through historical and affective imaginaries (Ceuterick, 2020, p.5). In Elizabeth Grosz's account of the philosophical underpinnings of gendered conceptualizations of the city, she links the oppositions time/space and movement/stasis to the pairings interiority/exteriority and subject/object. In the history of philosophy (and in the stories of myth and religion), Grosz writes, "space is conceived as a mode . . . of exteriority, and time as the mode of interiority." This may explain, she continues, why

"time is conceived as masculine (proper to a subject, a being with an interior) and space is associated with femininity… Woman is/provides space for man, but occupies none herself." (Grosz, 1995, as cited in Thornham et al., p.2016). Filmic narratives of travel, such as the road movie, tend to situate their characters within dichotomous systems that oppose, for instance, 'masculine' / 'feminine', mobility / stasis, road / house, traveller / strayed wanderer, desiring / aimless, and autonomy / dependency. Meanwhile, scholars writing about gender and space on screen also seem to overtly focus upon how female characters seem trapped in both passive roles and within domestic space. Having noted the prevalence of binaries, we need to ask how the patriarchal status quo affects women's (as in those who identify or are identified as 'women') freedom of movement and habitation of space (Ceuterick, 2020, p.1). The city on screen is unequally gendered by placing women as victims of urbanization (Metaveevinij, 2019, p.135). Life in today's cities is a complex mixture of both positive and negative experiences, but the portrayal of cities in film has often focused on the negative (Kennedy & Lukinbeal, 1997, p.42). Both urban and cinematic spaces can be analysed in relation to power (Metaveevinij, 2019, p.135). As stated by Harvey, by keeping in mind the argument maintained by Marx in *Capital* that "Between equal rights, force decides", we are required to face with the question as to whom this right defined therein belongs. How to define this right is also in itself subject of struggle (Harvey, 2013, p.36). City is always designed hierarchically on the basis of the segregation principle. Segregation results from gender (Hayward, 2000, p.31). As mentioned by Wilson, city towers are "masculine" in terms of their appearance but "feminine" in terms of their surrounding / inclusion, non-centralization like a labyrinth and their ambiguity. City life relies on stereotyped, routinized order and pleasurable anarchy, continuous struggle between the male and female dichotomies. City is constructed from several contrasts: natural, unnatural, single-piece / monolithic, partite; private, public; rich, poor.

Main contrast is man, woman; culture, nature (Wilson, 1991, p.7, 8).

Cities and sexualities both shape and are shaped by the dynamics of human social life. They reflect the ways in which social life is organized, represented, perceived and understood, and how various groups deal with and respond to these conditions (Knopp, 2004, p.136). "Physical space is a significant indicator which determines human experience of woman and man in a society, its scope and boundaries" (Çakır, 2009, p.76). Spatial segregations and relations with space are of critical importance in the process of social structuring (restructuring) of manhood and womanhood definitions in terms of their gender roles. "Nature of structuring (restructuring) of the gender relations both reflects and influences the variable structure of the socio-spatial structure" (Alkan, 2009, p. 13). As underlined by Lefebvre, representation spaces will form in the site as from Rome. While free citizen, politic soldier, participant locationally imagine order of the world taking shape in their own sites, women, servants, slaves and children will have their own times and spaces. All historical societies have reduced the importance attached to the woman and limited impact of the womanhood. Woman's place has been determined to be in home such as somewhere around altar and cooker (Lefebvre, 2014, p.255, 258).

Both space and place reflect and influence construction and interpretation means of the gender. Control established over the women via space and identity is related to cultural segregation between public and private areas. Attempt to restrict woman in the family life is especially a spatial control, and thereby social control is established over the identity. Construction of "home" as a place belonging to woman paves the way for its perception as a source of stability, confidence and honesty (Massey, 2001, p.179, 180). Representation of woman in cinema also shows parallelism with positioning of woman in the society. It is possible to mention, in Turkish cinema, about the inference of Susan Hayward on woman representation of the French cinema in Paris. According to this inference: "She finds herself as the 'deviant' (temptress, whore, fallen woman, liar, cheat, murderer), even in comedies (neglectful mother, for example) – *or* she is represented as in distress (suicidal – possibly mad – so still deviant really), or confused either by being in the city or in mortal danger. Rarely is she represented as heroic. Rarely does she express her own subjectivity" (Hayward, 2000, p.26-27).

Methodology

The aim of this research is to reveal the relationship between women and the city in Turkish cinema. For this purpose, two films selected from Turkish cinema were analyzed according to the feminist film theory. Feminist film critics have examined the problem of female identity and the presentation of women in film images as a scene/appearance or as an object of exchange between men (Hayward, 2012, p.138). Based on the concept of gender, critics focused on how space is gendered through the distinction between private and public spaces. In this direction, it has been tried to determine how private spaces such as "home and summer house" and public spaces such as "streets, bars, cafes and hairdressers" are constructed in the context of gender.

Sample of the Research

Focusing on woman's relation with city in Turkish cinema[ii] after 2000 and how womanhood is dealt with in these films, this study discusses two films namely *Last Stop: Salvation* (Yusuf Pirhasan, 2012), *But Muzeyyen, This is a Deep Passion* (Ciğdem Vitrinel, 2014). These films were determined by purposive sampling method. The basic logic of this technique is to select the unit that is considered to be most suitable for the purpose of the research as the sample (Taylan, 2015, p.79-81). Each film produced in different years by different directors, *But Muzeyyen, This is a Deep Passion* was directed by a woman director. Common point of these two films to be examined is their backgrounds consisting of streets, bars, cafes and the Bosporus and the city that is Istanbul. İstanbul has been the main place for many Turkish films from past to present.

Findings

In this part of the study, the findings regarding the relations they have established with space in line with the feminist analysis of *'Last Stop: Salvation'* and *'But Muzeyyen, This is a Deep Passion'* are emphasized.

Findings on Feminist Film Analysis of Last Stop: Salvation

The first film to be dealt with in this study, *Last Stop: Salvation* directed by Yusuf Pirhasan, starts with a film scene in which a woman travels in a taxi along the Istanbul streets. The story of this film is meeting of the woman in that taxi, Eylem (Belcim Bilgin), with five women residing in Saadet apartment located in Kurtulus when she moves to that apartment. Each of these five women has her own different story. Gulnur (Ayten Soykok) is exposed to violence resorted by her husband.[iii] Her daughter, Tulay (Damla Sonmez), also shares the same fate with her mother. Vartanus (Demet Akbag) has looked after her father for many years. Goncagul (Nihat Yalcin) has spent years in the hope of getting married in the future with her boyfriend who is mafia, married and has children. Füsun operates the hairdresser which is on the ground floor of the apartment. This hairdresser is beyond a place where all women visit not only to receive care but also to convene and share their experiences, pour out their grief to each other and where they are in solidarity. All women in the film endeavour to overcome their unhappiness by taking antidepressant. All women in the film endeavour to overcome their unhappiness by taking antidepressant. At the time when they act together and realize their strengths, the situation changes: They, all together, resist against the male violence. Main space of the film is the apartment where women characters reside. Women are always viewed in their apartment (in their own houses / each other's houses) Apartment is represented as a place where there may occur dangers such as domestic violence but also a place where there may also exist probabilities such as women solidarity.

Eylem experienced great sorrow when her fiancé waived from getting married two weeks prior to their marriage and she became aware that her fiancé had relation with her close girlfriend. Eylem, who did not success in her suicide attempt, starts to evaluate her own life and experiences of other women residing in the apartment from a different perspective. Eylem, who says other women in a speech among them "If we act together, we will be strong", advises other women to be together against the violence used by men. Because, steps taken alone by Eylem against Gulnur's husband's –Recep- violence remained ineffective. Eylem called police when Gulnur was exposed to Recep's violence. Police was coincidentally one of Recep's friends. Police did not take Eylem's complaint seriously by saying "I both know Mr. Recep and Mrs. Gulnur. It is true they have minor problems; but all of us have, do not we?". The police even accused Eylem of disturbing the apartment's peace. The state police does not support the woman exposed to violence but supports the man resorting to violence. This fact is also underlined in any scene of the film by one of the characters in the film named Goncagul with the words "money and police are on the side of men". As specified by Ecevit, the police's abstaining from intervene in the violence suffered by a married woman could be explained as "respect" for privacy of the family. However, there is a serious contradiction between the state's intervention in the private life of the women with its laws and practices and its non-intervention as considering the family as a private field (Ecevit, 1993, p.33).

Hayward notes that woman in this city is deprive of a recognized / accepted voice and is effectively caused to be silent (Hayward, 2000, p.27). Woman's voice is not / cannot be mainly heard in the classic story narration. As underlined by Gledhill, the crucial point in the feminist film criticism is not representation of women in the cinema as women, non-audibility of women's points of view and in this connection their having no voice (1984, p.18). As stated by Kuhn, women's voice and discourse are not systematically present in the dominant cinema or are smothered; and the

controlling discourse is in almost all cases / always man (1994, p. 85, 86). In mainstream cinema, women are mostly vocalized in a synchronised manner with their bodies. The film differs from classic narration method. While Eylem organizes other women in the film to be together against violence as women, Eylem's voice is accompanied with the images in which these women prepare food, wear fancy dresses as if they went to a party in order to stand with Gulnur when her husband comes home in the evening. Eylem's voice is unsynchronized with her body. Thereby, thanks to Eylem's voice heard independently from her body, the film turns over a new leaf in use of voice which is as important as the look for the women's construction in the cinema and allows for women's discourse and point of view in the films.

Eylem and other women kill the men in their lives in a tragicomic manner. One day when Eylem arrives in her home, she finds her ex-fiancé in the wash-basin filled with foams. That man makes advances to her. Eylem leans back on the cupboard behind her and music set in the cupboard falls down by accident. He dies because of electric shock as the music set has fallen into the wash-basin. There is police in the apartment at that time and then arrives in Eylem's house. Police wants to arrest Eylem. The women in the apartment do not allow the police to do so and take him hostage. Tulay, daughter of Gulnur, calls all women she could reach thorough her blog on the net to act together. Women gather in front of the apartment holding placards at their hands. A reporter making a live broadcast in front of that building starts her speech by saying "Turkey where women are killed like a mosquito". Thereby, protest of women who gathers in the street against man violence is shown in the film. City is a public place where protests are organized.

Findings on Feminist Film Analysis of But Mzeyyen, This is a Deep Passion

Other film which is discussed is *But Muzeyyen, This is a Deep Passion*[iv]. This film is about getting acquainted of Arif, who tries writing a novel about a woman's and a man's relationship, with Muzeyyen and their relation. Arif participates in wedding party of his friends with whom he works in the same bar. Wedding takes place on a boat on the Bosporus. Muzeyyen is viewed for the first time during this scene in the open space. One of the important aspects of this scene is non-presentation of the woman who will be introduced to us as Muzeyyen as fetish object. As Mulvey said there are three different looks associated with cinema, namely look of the camera recording the events, look of the spectators watching the completed product and look of the characters to each other[v], play an important role in displaying woman as an image which is both looked and displayed (Mulvey, 1997, p. 41, 46). As underlined by Smelik, masculine perspective may only gain functioning when feminine character is represented as an image, objectivised and fetishized (2008, p. 97). In the mentioned scene of the film, the perspective differs from the conventional conduct specified by Mulvey. When Arif takes one cigarette from his cigarette case, he starts to talk to himself. Arif who is in front of the frame is clearly viewed. Muzeyyen is on the right part, behind the frame and flue. Although we could not clearly see Muzeyyen's face, we realize that she looks toward Arif. For this stage, the person who looks toward is Muzeyyen who is not viewed from Arif's perspective. Muzeyyen is a pretty, well-groomed and self-confident woman with messy and wavy hair.

Muzeyyen who is created as a strong character who does not need "protection" of a man, offers Arif, who starts staying in the hotel after breaking up with his lover, to live with her. How Muzeyyen takes their relation to next stage by offering him to live together, she also ends their relation by wanting him to leave the home. Muzeyyen breaks up with Arif with a note posted on the refrigerator: "Dear Arif, please forgive me for this. I do not want to terminate our relation in such a manner but I have to leave. I am sure you acknowledge me to be right if you know what I feel. I will not be hereabouts for a while. Please do not seek me. You may leave the key to the doorman when you leave. Best regards. Muzeyyen."

In one scene of the film, boss of Muzeyyen says Arif "It is both a chance and at the same time a great misfortune to be her boyfriend". In the film, Muzeyyen is characterized as an independent and

strong woman who pursues her own desires, leaves men both her ex-husband Burak and Arif without any valid reason and has free sexual intercourses. In this regard, she is *femme fatale* and uncanny. After many years, Arif comes across with Muzeyyen in seaside town where he is with his girlfriend. When Arif asks her "Why did you leave me, Muzeyyen?", Muzeyyen says "I love him. I did not want to make you upset but I could not give up myself". This speech takes place in the final scene of the film, and to emphasize Muzeyyen's freedom, we see her in another open area – on the beach – the first time we see her in an open area - on the boat.

As underlined by Connell, it is possible to experience the same ones with the structures of gender relations established by family and state (1998, p.183), "directly the whole street primarily belongs to men… women rarely walk in many parts of the city especially when it gets dark. If so, street is an area under the occupation of men" (Connell, 1998, p. 181). On the other hand, Muzeyyen walks around on the street with a man / Arif with whom she has recently got acquainted. Accordingly, the link between Muzeyyen and the city and city streets becomes different. Relation of Muzeyyen, who freely walks around the city streets and bars, with the city is not limited with indoor space. We could view her in public areas several times.

We face with a woman image which turns her back in different scenes of the film as *leit-motive*. In the first scene when we first see the woman who is heroine of Arif's novel, she sits in a café by facing back. Thereafter, this woman whose face we have not seen yet starts walking and wanders about on the city streets at leisure and like a *flaneur*. *Flaneur* is the person of nineteenth century who walks around the city aimlessly and lounges about (Benjamin, 2002, p.92). Walter Benjamin uses *flaneur* as the person who walks around the whole city at leisure. *Flaneur* is a key figure in Paris in the nineteenth century and in Berlin in the beginning of the twentieth century (Mennel, 2008, p.27). Benjamin states that taking a turtle around is an elegant act in Paris in 1840s and that walking tempo of *flaneur* is determined by the turtles (Mennel quoting from Benjamin, 2008, p.27).

As stated by Mennel, definition of *flaneur* by Benjamin gets shaped by social sex discrimination (2008, p.28). Anke Gleber also suggests that feminine *flaneur* is not present in the public space. Feminine *flaneur* is a figure which is not present in public area of the modernity (Mennel quoting from Gleber, 2008, p.28). Although it is possible to map the city in terms of its passage by women, the flâneur world is still masculine (Wolff, 2015, p. 131). Woman appears only as a sexual object (Mennel, 2008, p.28). Thereby, this woman wandering about the city in the film causes a turning point for attribution of being *flaneur* to men.

While Arif is moving along behind the woman, we also hear inner voice of Arif over the scenes: "Have I looked for such a woman? A woman who appears never belonging to me; who walks indifferently as if she had no place to get to; with whom I may wake up together with the sunshine coming from the window; who is a little bit friendly, leaves away, is both chaser and faithful. May she be this woman?" In this scene when Arif starts chasing up her, there is a picture, on the billboards, of a woman who is facing back on the beach. This picture bears a resemblance to Muzeyyen's walking towards the beach by facing back at the end of the film. Another example for these facing back women in the film is present on the painting placed on the wall of the hotel room where Arif stays. Towards the end of the film, we see that Arif completes the novel which he is trying to write. On the cover page of this novel titled *Oyunbozan* (*Killjoy*), there is also a woman facing back. In fact, these women remind the woman specified in Italio Calvino's book, Invisible Cities *(Le Citta Invisibili)*. Calvino states in his book about establishment of Zobeide city: "men of various nations had an identical dream. They saw a woman running at night through an unknown city; she was seen from behind, with long hair, and she was naked. They dreamed of pursuing her. As they twisted and turned, each of them lost her. After the dream, they set out in search of that city; they never found it, but they found one another; they decided to build a city like the one in the dream. In laying out the streets, each followed the course of his

pursuit; at the spot where they had lost the fugitive's trail, they arranged spaces and walls differently from the dream, so she would be unable to escape again. This was the city of Zobeide, where they settled, waiting for that scene to be repeated one night. None of them, asleep or awake, ever saw the woman again" (Calvino, 1990, p.53).

As underlined by Teresa De Lauretis, Zobeide is "a city built from a dream of woman". This city is a representation of woman who is the dream's object of desire and it is built to capture men's dream. Woman is both the basis and object of desire. The city is a clear representation and it is the text which tell the story of the man desire producing the woman like a text and inscribing woman's absence. The woman cannot reach codes of this invisible city which represent and ignores her (De Lauretis, 1984, p.10-35).

One of the further scenes of the film recalls what Calvino says about the city of Zobeide. In this scene, men discuss upon Arif's question "how a woman you desire" in a coffeehouse where there is no woman. Men talk about characteristics of an ideal woman: "I think, women must be self-sacrificing and be mature. She must collect, wrap and protect me."; "Woman must be beautiful. When she flings her skirt, our soul flutters about. You could not keep your eyes off her hair, lips and hips"; "Okay, she must be beautiful but be wise at the same time. She must be aware of politics, diplomacy and football"; "Woman must be good in bed. She must be active during the sex and will not lie as a dead on the bed. She must be chirpy"; "However she should not be so keen on sex", "She must be skilful. For example, she must know how to sew a zipper so that you will not have to search for a tailor for a small tear"; "She would not drive us insane. She would not raise a laugh unnecessarily"; "She would not call us to account and swear"; "If possible, she never talks".

Muzeyyen criticizes that the male-dominated society codifies woman as a prostitute / good dichotomy and invites the spectators to examine this discourse from a critical point of view. When Arif wants her to belong to him while having a sex, Muzeyyen firstly makes fun of him. Thereafter, Muzeyyen says "then, I declare myself to be your woman before the sun but I in fact want to be your

prostitute. I want you to love me for my body. I want you to love my breasts, my hips. Being a great women is very tiring; do you understand me?". In another scene, Arif's inner voice underlines women's frustration. Arif's inner voice says: "In our hometown, our women are restricted in a disgrace, ban and sin triangle. However, it seems that Muzeyyen has already eliminated this triangle and turned it into a devil's triangle."

Discussion and Conclusion

In this study, which focuses on the films *Last Stop: Salvation* (Yusuf Pirhasan, 2012), *But Muzeyyen, This is a Deep Passion* (Ciğdem Vitrinel, 2014) in terms of the relationship between gender and space, it can be said that the relationship between the female characters and the space contains some crack lines. In the movie *Last Stop: Salvation*, five female characters are included in the interiors of almost the entire movie. However, the hairdresser's salon, located on the ground floor of their apartments, stands out as a place that only women can enter, and where women's solidarity is established. Through violence, women make the home that is threatened by the men in their lives, safe again. They resist the police siege. However, in the movie *But Muzeyyen, This is a Deep Passion*, the main female character Muzeyyen takes place freely in the city, plaza and beach throughout the movie. The strong subject position of Muzeyyen, who is portrayed as a maverick, is in harmony with the diversity and publicity of the spaces in which she takes place. Especially the fact that he wanders freely and aimlessly in the streets of the city allows Muzeyyen to be read as a female flaneur.

Consequently, as underlined by Wilson, "[i]t is time for a new vision, a new ideal of life in the city –and a new, 'feminine' voice in praise of cities" (1991, p.11). If we do not raise the freedom and autonomy which may be obtained by all classes and groups to the maximum level, we can never solve the problems about living in the city. In this scope, we must give up considering the city as a dangerous and irregular place for women and others (Wilson 1991, p. 9). When the city is enabled to provide its sources equally for everyone without making any discrimination on the basis of race,

class or gender, the city will have much potential for becoming a more liveable and democratic place. What ideal is a city life where everyone's right to life is respected.

References

Akbal Süalp, Z. T. (2004). *Zaman mekân kuram ve sinema: melez zamanlar, mekân gölgeleri, iklimler, rüzgârlar ve gece haritaları.* İstanbul: Bağlam Yayınları.

Beebe, K., Davis, A. & Gleadle, K. (2015). Introduction: Space, place and gendered ıdentities: feminist history and the spatial turn. K. Beebe and A. Davis (Ed.). *Space, place and gendered ıdentities: feminist history and the spatial turn* (p.1-10) in. London & New York: Routledge.

Benjamin, W. (2002). *Pasajlar.* (A. Cemal, Çev.). İstanbul: Yapı Kredi Yayınları.

Berry, D. (2000). Underground cinema: French visions of the metro. *Spaces in European cinema*, 8-22.

Calvino, I. (1990). *Görünmez kentler.* (I. Saatçıoğlu, Çev.). İstanbul: Remzi Kitabevi.

Ceuterick, M. (2020). *Affirmative aesthetics and wilful women: gender, space and mobility in contemporary cinema.* Switzerland: Springer Nature.

Connell, R. W. (1998). *Toplumsal cinsiyet ve iktidar: toplum, kişi ve cinsel politika.* (C. Soydemir, Çev.). İstanbul: Ayrıntı Yayınları.

De Lauretis, T. (1984). *Alice doesn't: Feminism, semiotics, cinema.* Bloomington: Indiana University.

Donald, J. (1995). Metropolis: The city as tex. R. Bocock and K. Thompson (Ed.). *Social and cultural forms of modernity* (p.417-461) in. Cambridge: Polity Press.

Duncan, N. (2005). Renegotiating gender and sexuality in public and private spaces. Nancy Duncan (Ed.), *Body space: destabilizing geographies of gender and sexuality* (p.127-144) in. Taylor & Francis e-Library.

Ecevit, Y, (1993). Aile, kadın ve devlet ilişkilerinin değerlendirilmesinde klasik ve yeni yaklaşımlar. *Kadın Araştırmaları Dergisi, 1*, 9-34.

Elsaesser, T., & Hagener, M. (2011). *Le cinéma et les sens.* Rennes: Press Universitaires de Rennes.

Forgacs, D. (2000). *Antonioni: Space, place, sexuality.* D. Forgacs (Ed.), Spaces in European Cinema (p.101-111). Exeter: Intellec Books.

Gledhill, C. (1984). Developments in feminist film criticism. (M. A. Doane, P. Mellencamp & L. Williams (Ed.), *Re-vision Essays in Feminist Film Criticism* (p.18-48) in. Los Angeles & California: University Publications of America.

Harvey, D. (2013). *Asi şehirler: Şehir hakkından kentsel devrime doğru.* (A. D. Temiz, Çev.). İstanbul: Metis Yayınları.

Hayward, S. (2000). The city as narrative: Corporeal paris in contemporary french cinema (1950s-1990s). Myrto Konstantarakos (Ed.), *Spaces in European Cinema* (p.23-34) in. Exeter: Intellect Books.

Hayward, S. (2012). *Sinemanın temel kavramları.* (U. Kutay & M. Çavuş). İstanbul: Es Yayınları.

Humm, M. (1997). *Feminism and film.* Indiana: Indiana University Press.

Kabadayı, L. & Yılmazkol, Ö. (2013). "Şehrin ışıkları": son dönem Türk filmlerinde insan/şehir ilişkisinin kültürel çalışmalar açısından irdelenmesi. M. Bilal Arık, Ahmet Ayhan & Onur Öksüz (Ed.). *1. Uluslararası Medya Çalışmaları Sempozyumu,* 20-23 Kasım 2013, Antalya, Türkiye, Bildiriler içinde (p.33-38). Antalya: Akdeniz Üniversitesi İletişim Fakültesi.

Kalvo, M., (Producer). & Vitrinel, Ç. (Director). (2014). *But Muzeyyen, This is a Deep Passion* [Film]. Turkey: Mars Production.

Kennedy, C., & Lukinbeal, C. (1997). Towards a holistic approach to geographic research on film. *Progress in Human Geography, 21*(1), 33-50.

Knopp, L. (2004). Sexuality and urban space a framework for analysis. D. Bell & G. Valentine (Ed.), *Mapping desire* (p.136-146) in. London & New York: Routledge.

Kuhn, A. (1994). *Women's pictures: feminism and cinema. London.* New York: Verso.

Lefevbre, H. (2011). Kent Hakkı (Le droit à la ville). *Education Science Society Journal, 9*(36), 140-152.

Massey, D. (2001). *Space, place and gender.* Minneapolis: University of Minnesota Press.

Mennel, B. (2008). *Cities and cinema.* London & New York: Routledge.

Metaveevinij, V. (2019). Negotiating representation: Gender, city and nation in south east asian transnational cinema. *South East Asia Research, 27*(2), 133-149.

Mutlu, E. (1995). *İletişim sözlüğü.* Ankara: Ark Yayınları.

Özdemir, B. G. (2018). Şimdiki zaman: Kadın karakterlerin film mekanlarındaki temsilinin feminist film eleştirisi çerçevesinde incelenmesi. *Sinecine, 9*(2), 131-164.

Özkazanç, A. (2013). *Cinsellik, şiddet ve hukuk: feminist yazılar.* Ankara: Dipnot Yayınları.

Öztürk, S. R. (2012). Türkiye'de sinema. F. Alpkaya & B. Duru (Ed.), *1920'den günümüze Türkiye'de toplumsal yapı ve değişim,* (p.457-478) içinde. Ankara: Phoenix.

Segal, L. (1992). *Ağır çekim: değişen erkeklikler değişen erkekler.* (V. Ersoy, Çev.). İstanbul: Ayrıntı Yayınları.

Sever, A. (Producer). & Pirhasan, Y. (Director). (2012). *Last Stop: Salvation* [Film]. Turkey: BKM&Biber Yapım.

Shiel, M. (2001). Cinema and the city in history and theory. M. Shiel & T. Fitzmaurice (Ed.), Cinema and the city-film urban societies in a global context, (p.1-18) in. UK: Blackwell Publishers.

Taylan, A. (2015). Nitel ve nicel araştırmalarda evren ve örneklem seçimi ve sorunlar. B. Yıldırım (Ed.), *İletişim araştırmalarında yöntemler: uygulama ve örneklerle,* (p.47-83) içinde. Konya: Literatürk.

Thornham, S. (2016). Space, place, and realism: Red road and the gendering of a cinematic history. *Feminist Media Histories, 2*(2), 133-154.

Wilson, E. (1991). *The sphinx in the city: Urban life, the control of disorder, and women.* Berkeley and Los Angeles, California: University of California Press.

Wolff, J. (2015). The artist and the flaneur: Rodin, Rilke and Gwen John in Paris. K. Tester (Ed.), *The flâneur,* (p.111-137) in. London & New York: Routlegde.

Notes

[i] On the other hand, André Gardies shows the value of space in both literature and cinema narration. Although Mikhail Bakhtin does not write on the film, the terms defined by him are adapted to cinema by Gérard Genette, Julia Kristeva, Robert Stam. Although Bakhtinian terms such as "Carnivalisation", "dialogism" are discussed thoroughly, the term of "chronotope", which means "space-time" in Greek, has not drawn much attention (Berry, 2000, p. 2, 3).

[ii] Öztürk stresses that despite of excessive numbers of films on woman in 1980s, films on man which are about male friendship of the ends of 1990s and beginnings of 2000s have attracted the attention; and that female characters have gradually decreased. This situation is related to macho culture and nationalism increasingly prevailing in the society (Öztürk, 2012, p. 471).

[iii] Private part of home is the space where men apply force to women to gain control over them. Feminists became aware of the wife beating towards the end of the nineteenth century and attempted to open this private space and issue of male-dominated family to public discourse. Although wife beating has been officially unlawful since the nineteenth century, this issue has not gained public attention adequately. Laws are implemented in a highly insufficient manner (Duncan, 2005, p. 131, 132).

[iv] The film was adapted from the novel of İlhami Algor titled "*But Muzeyyen, This is a Deep Passion*".

[v] "Gaze" being the centre of feminist film theory has led to many debates from the mids of 1970s to the mids of 1980s. The article of Laura Mulvey titled "Visual Pleasure and Narrative Cinema" is a simple study in this regard. (Elsaesser & Hagener, 2011, p. 176).

OPUS▶

RESEARCH ARTICLE

Comparison of the Performances of MCDM Methods under Uncertainty: An Analysis on Bist SME Industry Index

Mahmut Baydaş[1]

[1] Dr. Lecturer, Necmettin Erbakan Univerity, Faculty of Applied Sciences, Konya/Turkey
ORCID: 0000-0001-6195-667X
E-Mail:
mbaydas@erbakan.edu.tr

Corresponding Author:
Mahmut Baydaş

Abstract

MCDM is a sort of ranking and selection methodology widely used both in daily life and in disciplines such as social, science, health, informatics, and engineering. However, the selection of an appropriate MCDM method is a common and chronic problem of these disciplines. Because the issue of determining the most appropriate method among MCDM methods has not been clarified yet. Since the algorithms of more than a hundred MCDM methods currently that are in use are different, the ranking they produce or the "best alternative" often varies. Although all these methods claim to suggest the best alternative, it is unclear which method should be chosen for the decision maker. In fact, it can be said that input capabilities are focused more in the selection of MCDM methods. On the other hand, besides the potential capabilities of MCDM methods, the results they produce are also important in comparison. In this direction, MCDM-based financial performance measurement of companies was made in this study. The performance of WSA and FUCA methods was evaluated according to Spearman rho and entropy values. Accordingly, the method with the highest capacity is clearly FUCA, because this method showed a clearly higher performance in 10 of 12 problems/terms according to both criteria.

Keywords: *Performance of MCDMs, Multi Criteria Analysis, Share Price, Entropy, Financial Performance.*

Öz

Çok Kriterli Karar Verme (ÇKKV) hem günlük hayatta hem de sosyal, fen, sağlık, bilişim ve mühendislik gibi disiplinlerde yaygın olarak kullanılan bir tür sıralama ve seçme metodolojisidir. Ancak uygun bir ÇKKV yönteminin seçimi bu disiplinlerin ortak ve kronik bir problemidir. Çünkü ÇKKV yöntemleri içinde hangisinin en uygun yöntem olduğu konusu halen açıklığa kavuşturulamamıştır. Hali hazırda kullanılmakta olan yüzden fazla ÇKKV yönteminin algoritmaları farklı olduğu için ürettikleri sıralama ya da "en iyi alternatif" çoğu zaman değişkenlik göstemektedir. Yöntemlerin hepsi en iyi alternatifi kendilerinin önerdiğini iddia etse de karar verici için hangi yöntemin seçilmesi gerektiği belirsizdir. Esasen ÇKKV yöntemlerinin seçiminde daha çok girdi yetenekleri üzerine odaklanıldığı söylenebilir. Diğer taraftan, ÇKKV yöntemlerinin potansiyel yeteneklerinin yanında ürettikleri sonuçlar da karşılaştırmada önemlidir. Bu doğrultuda çalışmada firmaların ÇKKV bazlı finansal performans ölçümü yapılmıştır. Spearman rho ve entropy değerlerine göre WSA ve FUCA yöntemlerinin performansı değerlendirilmiştir. Buna göre kapasitesi en yüksek yöntem açık bir şekilde FUCA'dır, çünkü bu yöntem her iki ölçüte göre toplam 12 problemin/baz dönemin 10'unda net biçimde daha yüksek bir performans göstermiştir.

Anahtar Kelimeler: *ÇKKV'lerin Performansı, Çok Kriterli Analiz, Hisse Fiyatı, Entropi, Finansal Performans.*

Introduction

Financial performance evaluation of companies is a critical activity that affects the decisions of decision makers such as managers, shareholders, investors and policy makers. Measuring financial performance in an accurate framework is as important as measuring it. A company's multidimensional performance cannot be measured by a single criterion. It is useful to summarize all dimensions in a holistic evaluation system. This comprehensive approach is fully compatible with the MCDM paradigm. Therefore, the capabilities and solutions offered by MCDM methods have been used for financial performance measurement, in the past (Zopounidis and Doumpos, 2002; Diakoulaki, Mavrotas, and Papayannakis, 1995; Feng and Wang, 2000; Ertuğrul and Karakaşoğlu 2009; Pineda, Liou, Hsu, and Chuang, 2018; A. Ban, O. Ban, Bogdan, Popa, and Tuse, 2020).

With MCDM, an accurate consensus-based measure of financial performance is possible. However, due to the multidimensional nature of MCDM, an optimal solution does not seem possible, so the search for more accurate measurements still exists. In order to support this attempt, not only in the field of finance but also in other applied science fields, the need to improve or develop MCDM methods has arisen. Starting from the initial matrix that constitutes the MCDM procedure, continuous suggestions are made for data normalization, weighting techniques and especially the main calculation algorithm. Suggestions to improve the MCDM procedure are synonymous with improving the capabilities of the inputs. However, what it means to improve inputs or what effect it has on results has not been much commented on and discussed. The reason for this is obvious: there is a lack of objective criteria that is required to compare MCDM results.

In the literature, there are more than a hundred MCDM methods that can be recommended for analysis, but it is a difficult task to determine the most appropriate one is. For this reason, it is necessary to make a detailed examination and comparison of MCDM methods. Although some methods seem more appropriate under certain conditions and scenarios, there is no single method that can deal with all problems (Danesh, Ryan, and Abbasi, 2017). In general, MCDM method selection is a serious problem. Of course, the solution is difficult and uncertain (Triantaphyllou, 2000). Despite all this uncertainty and scarce opportunities, it is necessary to create an objective framework for the selection of MCDM. Developing at least an objective benchmark can be a positive step towards the start of this framework. Exploring the capacity of MCDM methods can be interesting and exciting. An evaluation can be made based on the final scores they produce. Here, the first thing is to determine the characteristics and unique tendencies of MCDM methods through evaluating the results they produce. In other words, the results produced by MCDM methods may bear traces of their identities. And if we can objectively identify that identity, it might be much easier to evaluate their characteristics.

The MCDM method capturing a better relationship with real life or a third arbitrator can be considered more successful. Baydaş and Elma (2021) and Baydaş and Eren (2021) base their studies on the share price as a third party representing real life. Accordingly, they compared the MCDM-based financial performance of companies with their simultaneous share price in the stock market, and found that there was a significant relationship between them. In the next stage, they only changed the MCDM methods, keeping the share price constant. And a remarkable interesting and original result was obtained. Both studies concluded that some MCDM methods predominantly produced higher correlations with share price. In other words, some MCDM methods clearly capture real life consistently better. This implies that there is something unique about the ranking results they produce. At the same time, these objective findings show that the hidden capacities of MCDM methods can be revealed. Moreover, this approach refers to a new key attempt as an introductory framework for the discussion of an automatic MCDM selection.

In this study, the MCDM method, which provides the relationship between financial performance and share price at a higher and stable

manner, was determined and recommended to the decision maker. Moreover, a second criterion was proposed and confirmation was made with the first criterion. The objective information amount of the final scores produced by the MCDM methods were measured with the entropy criterion. The MCDM method, which has a higher amount of objective information, was considered to be more important and more capable.

The next part of the study covers literature review that is divided into three. First of all, opinions about the selection of MCDM methods will be discussed. In the next part, MCDM-based studies in the literature were examined in search of an appropriate financial performance. In particular, there are few studies investigating the relationship between share price and MCDM-based financial performance. The literature on different approaches to Entropy, which is the MCDM capacity measure that is recommended, was also reviewed. In the application part of the study, the financial performance scores of companies were calculated by using FUCA and WSA methods on the basis of 31 companies (alternative) and 5 ratios (criteria). The relationship between the final scores obtained and the share price was measured with Spearman Rho. FUCA and WSA were compared with the Rho criterion. Finally, the Entropy values of these methods were calculated and compared. In the discussion part of the study, the results of the comparison were evaluated.

Literature Review

In this part, approaches and research gap about the selection of an appropriate MCDM method were reviewed. Then, a few studies that use "the degree of correlation between the share price and financial performance of companies" as an objective alternative to the uncertainty in the choice of MCDM was evaluated. This unique approach may be important for determining the specific capacity of MCDM methods, because the nuance point that directly affects the correlation between the two variables in question is the MCDM method itself. Lastly, the significance and different uses of Entropy, which was used in this study for the first

time as a MCDM performance comparison criterion, was evaluated, because it is considered to reveal the information content (amount) of MCDM methods in the literature.

Comparison of Objective Performance of MCDM Methods

The algorithms or calculation process of MCDM methods are designed to suggest the best alternative, but the best alternative can often differ according to the MCDM method that is used (Karaoğlan and Şahin, 2018). Different MCDM methods can produce inconsistent results in different problem scenarios, and applying the wrong methods to the wrong problem reduces the quality of the best alternative or ranking proposal (Wątróbski, Jankowski, Ziemba, Karczmarczyk, and Zioło, 2019). In this sense, it is vital to evaluate MCDM method alternatives appropriately. On the other hand, there is not yet a clear and generalizable consensus on selection of the most appropriate MCDM method for particular problem scenarios. According to Ozernoy (1992), there has never been a perfect MCDM method. In general, MCDM method selection is a serious problem and its solution is either difficult or uncertain (Triantaphyllou, 2000).

Each method has its own scope and performance characteristics (Kashid, Kashid, and Mehta, 2019). Although this may seem like the case, it may actually be possible to select an appropriate MCDM method by paying attention to some certain frameworks. Some MCDM methods are better applied to certain scenarios. It is beneficial to choose and apply a more appropriate MCDM method for certain problems (Danesh et al., 2017). Careful and accurate guidance is essential for the selection of an appropriate MCDM method. In this sense, a good expert guidance, who has mastered the technical details, can suggest an appropriate MCDM method according to the answers of decision maker for some questions, and by paying attention to the qualities that define the problem (Eldrandaly, Ahmed, and AbdelAziz, 2009). Although it is difficult to define the framework that best fits each decision maker's problems, it is an important procedure. At this

point, all dimensions of the decision process, the role of the decision maker, the diversity of methods and available information should be taken into account (Mota, Campos, and Neves-Silva, 2012).

As can be seen from the above literature, many attempts have been made to define the MCDM framework that best fits each decision maker's problems. Recently, MCDM methods have started to be compared according to the ranking results they produce on the basis of outputs as an alternative to only inputs (Sałabun and Urbaniak, 2020). The development of the objective criteria for comparison of final results occurs very rarely in recent literature. In this context, the capacity and characteristics of MCDMs can be handled with a different and realistic approach. It can be thought that MCDM methods that are more related to real life may have a higher capacity. For example, according to Baydaş and Elma (2021), the dynamic relationship between the financial performance of companies that are measured by MCDM methods and their share prices offers an interesting and specific solution opportunity for solving the MCDM selection problem. Accordingly, when you change the MCDM methods, when the share price remains constant, the relationship increases or decreases.

It has been discovered that some MCDM methods consistently provide better statistical relationships between financial performance and share price of companies. These methods have at least a certain capacities. Therefore, these capacities are required to be confirmed by continuously iterative analysis. In this study, this approach was used as the first criterion. On the other hand, the category of objective evaluation method is used as a second criterion that can help in this regard. Although objective weighting methods are normally recommended for criterion weighting, they have also been proposed and used in the evaluation of normalized MCDM scores. For example, B. Zaidan, A. Zaidan, Abdul Karim, and Ahmad (2017) partially used the Standard Deviation method. Considering the final scores produced by MCDM techniques, it was determined that TOPSIS had the highest standard deviation value, while WSM had the lowest standard deviation value. In this study, it is

suggested that MCDM results can be compared with the Entropy method. Thus, by applying the same weighting procedure, it can be revealed which MCDM method has more information. Similar to this first criterion, it can help to discover the special capacity of the MCDM methods. However, it is required to test these two criteria in other scenarios, so their claim can be concretely proven.

Financial Performance Measured by MCDM

Performance is an important indicator that reveals the extent to which a company has achieved its goals (Ayhan and Önder, 2021). MCDM methods are frequently used to summarize different and sometimes conflicting financial performance dimensions of enterprises with a single performance result (Diakoulaki et al., 1995). There is a search for an accurate measurement in the literature. And for this, different MCDM and weighting methods have been tried. In order to test the methods in different problem scenarios, performance measurements were created countless times by changing the country, sector, rate and time period constraints (Feng and Wang, 2000; Yükçü and Atağan, 2010; Yalçın, Bayrakdaroglu, and Kahraman, 2012; Tavana, Khalili-Damghani, and Rahmatian, 2015; Shen and Tzeng 2016; Karakul and Özaydın, 2019; Gümüş, Öziç and Sezer, 2019; Ban et al., 2020; Ağ ve Kuloğlu, 2020).

Although there are numerous MCDM-based financial performance studies, there is not much information about the selection of MCDM methods. In part, it appears that a choice may have been made on the assumption of strong mathematical abilities based on formulations of methods. On the other hand, the remarkable results of MCDM and financial performance measurement studies, which summarize the process from the distant past to the present, can be listed in general (De Almeida-Filho, De Lima Silva, and Ferreira, 2020). Firstly, the number of studies using MCDM methods is increasing rapidly. Secondly, AHP and TOPSIS methods are the two most widely used methods. Thirdly, ranking results of MCDM methods are generally similar

statistically. Fourthly, profitability and risk factors are used as financial criteria. And finally, measurement of financial performance based on MCDM is one of the most studied topics in finance.

There unique study using the relationship between financial performance and return on stock to measure the capacity of MCDM methods belongs to Baydaş and Elma (2021). In this study, a strong and significant relationship was found between the share price and the financial performance rankings that are produced by MCDM methods. Then, it has been determined that PROMETHEE is the most appropriate method in financial performance analysis in terms of the results it produces. It is noteworthy that the return on share is proposed not as an investment proposal, but as a real-life reference solution/arbitrator to a methodological problem.

Exploring the Information Content of Final Scores of MCDMs: Entropy Approach

It is necessary to choose and adopt the most appropriate MCDM algorithm in order to evaluate the financial performance of companies comparatively. In this sense, the performances of MCDM methods should also be compared, but this is a difficult issue. Considering that different MCDM methods produce different scores, it would not be appropriate to compare them directly on the scores. To justify a reasonable comparison, the final ranking scores of the MCDM methods should be normalized. For MCDM techniques, the normalized score should be used to describe the closeness and difference in the curve model of each MCDM algorithm (Zaidan et al., 2017).

The category of objective assessment methods may be helpful in this regard. Objective weighting methods have also been used in the evaluation of normalized MCDM scores, although they are recommended for criterion weighting in general. For example, Zaidan et al. (2017) have used the standard deviation method partially. However, there is no any other example in this regard in the literature. On the other hand, Munier (2021) has an interesting suggestion in a social academic platform for researchers (www.researchgate.net).

He suggests that entropy can be used to evaluate the ranking results produced by different types of fuzzy species. Thus, an insight can be obtained about which type of fuzzy to choose or which is better. In short, there is no any applied studies where the entropy of MCDM final scores is used as an objective benchmark for MCDM methods.

Basically, objective weight methods are mathematical estimations. They are built on a believed or assumed acceptance. It can be said that the greater the "difference between the values of each cell" in the criteria column, the more "valuable" the information contained in the criterion (indicator) for these methods. For instance, when all cell values in a criterion column are equal, the amount of information in that column is zero. In addition, criterion is not important in the evaluation and is worthless in this case. In other words, the weight of a criterion increases in direct proportion to the amount of information (Mukhametzyanov, 2021).

It is possible to evaluate methods like Entropy to discover the amount of information on the final scores of MCDMs. According to this objective approach, there is no formal or rational obstacle to calculate the entropy value of the final scores of MCDM methods. Therefore, entropy is suggested to be used in order to compare different MCDM methods. Thus, critical discussion issues such as the unique trends, performance, and capacity of MCDM methods and even the selection of the most appropriate MCDM method can be resolved objectively. On the other hand, according to the current classical understanding for any MCDM selection, this approach is a more objective and alternative solution under uncertainty.

In this study, Entropy approach was suggested for the first time to reveal the information content of the final scores of MCDM methods. In this direction, instead of detailed mathematical theoretical explanations, an evaluation directly on the data results was preferred. This situation is also appropriate for the "decision analytics" approach, which is one of the popular topics of today. Decision analytics is the science of using quantitative methods and technology to extract meaning or patterns from data to solve problems and make informed decisions (Tavana, 2021).

Decision analytics methods are used to understand what the facts are by analyzing historical data and drawing retrospective views about the past. Answering why something happened by measuring historical data with other data; using the findings to determine what will happen; and finally, answering the question of what to do by using the results can be counted as important stages of decision analytics. Similarly, in this study, it is investigated whether the rankings produced by MCDM methods have specific and significant patterns through Entropy method and Rho coefficient.

Research Methodology

In this study, first of all, performance measurement is made to compare the financial performances of companies by using different MCDM methods with a classical approach. Each financial ratio (criterion) represents a different objective (e.g., profit yield, risk and value generation). And they produce different information. However, using a single ratio does not allow for an overall assessment of the company's performance. For this reason, MCDM methods are frequently used in intercompany comparisons, because they can reflect the multidimensional performance of modern enterprises. MCDM methods are used to summarize different purposes of enterprises with a single performance system (Diakoulaki et al., 1995). In this sense, firstly, the final scores and rankings of companies are produced by measuring financial performance based on the equal weighting technique, and using FUCA (Faire Un Choix Adéqua) and WSA (Weighted Sum Approach) methods in terms of six financial ratios. According to the study of Baydaş, Elma and Pamučar, (2022), FUCA, which is used to measure financial performance, is the method with the highest, consistent and sustainable correlation with stock returns among the 10 MCDM methods. In addition, WSA was used for comparison purposes in this study, as it is one of the closest methods to the calculation method (simple weighted aggregation) used in daily life problems (university ranking, personnel selection, etc.).

In the next step, the use of two metrics with suggested validation mechanisms were focused for the determination of MCDM capacities: Rho coefficient and Entropy. Rho as the first criterion refers to a degree of statistical similarity with individual "return to share price" rankings of different rankings of financial performance obtained by different MCDM methods. The Spearman Rho coefficient measure is an indirect measure of MCDM capacity. In other words, the MCDM method, which produces the most significant and strongest correlation (Rho) with the share price among the alternatives, is suggested as the most capable and appropriate model for financial decision makers. The second criterion, entropy, is evaluated as follows. After the final scores of the MCDM methods are normalized, the Entropy values of each cluster are calculated. In the next step, the method with the highest amount of entropy information, which is calculated similarly to the entropy weighting procedure, was evaluated as more important or capable.

Performance Metrics

Although there are many ratios that represent the performance of companies, the number of representative ratios that can be used on critical issues such as risk, profitability and value creation is limited. In particular, the number of talented indicators that can establish a sustainable relationship with stock returns is less. Moreover, some ideal value demanding ratios such as current ratio, liquidity ratio, cash ratio, liabilities/equity ratio cannot be used directly in the MCDM procedure. Therefore, it is necessary to find meaningful, value-generating and suitable ratios that can be used for MCDM selection, and options are limited. In addition, MVA derivatives, and profitability ratios are more similar among themselves. But some ratios, although similar, do not have the same purpose and have different meanings. This indicates that they are useful for MCDM.

In this study, 5 performance criteria were determined to measure the financial performance of SME companies traded in BIST with two different MCDM methods to ensure comparability.

These criteria are ROE, ROA that refers to a company's profitability yield, MVA margin, MVA spread value generation, and Altman-Z that mostly refers to future risk although it has other capabilities. These criteria were calculated on a dynamic, not static basis, based on growth (change).

In the next step, different MCDM methods were compared with the share price return, which is a third and independent party, in order to compare the financial performance rankings obtained with these methods. The preferred technique for making this statistical comparison is Spearman's correlation, a type of rank correlation measurement. Thus, it was determined which MCDM method provides a better and stronger relationship with the share price.

Table 1 shows the objective MCDM benchmarks, performance criteria, and MCDM methods that are included in the study.

Table 1. MCDM Objective Comparison Methods, MCDM Methods and Performance Indicators in the Study

MCDM Benchmarks	MCDM Methods	Financial Performance Criteria
Entropy, Rho (Correlation with Share Return)	FUCA WSA	ALTMAN-Z SCORE, ROE, ROA, MVA Margin, MVA Spread

Market Value Added Margin (MVA Margin)

Considering that the most important goal of modern businesses is to maximize market value, it is critical to generate value. In this sense, MVA shows the difference between the market value of a company and the capital invested, which is the only indicator that clearly expresses the value production. MVA is used as a very important benchmarking tool to compare companies in terms of periodic value generation. MVA margin, on the other hand, is one of the MVA-based ratios that is derived to eliminate the scale (size) effect of companies in terms of MVA. It can be defined as the level of MVA that is created by sales. Like ROS, it measures the efficiency of sales but is based on the value produced, not the profit. It is desirable to increase this ratio, because it can be classified as a benefit-oriented indicator (Stewart, 2013).

Market Value Added Spread (MVA Spread)

As stated above, MVA represents value creation when market value exceeds the capital invested in the company by investors, whereas the opposite situation means that the company's values is eroded. For the use of MVA in the evaluation of companies, it is necessary to eliminate the size effect of companies. In other words, to ensure comparability, the ratio of MVA to invested capital is a solution, and this is expressed as the 'MVA spread' (Stewart, 2013). The 'MVA spread' ratio for financial performance shows the MVA that is generated by companies over their invested capital. In terms of efficiency, it shows how efficiently a company creates value, which is a benchmarking tool for those companies. An increase in the MVA spread is desirable, so it is a useful indicator.

Altman-Z Score

In an application by Altman (1968), Altman-Z Score was originally designed as a discriminant model that predicts financial distress, failure or bankruptcy. This model can be used in many ways not only to predict bankruptcy risk, but also to evaluate financial performance practices in the context of companies' relationship with success, risk and return on stock. According to Carton (2004), the exchange-based Altman-Z Score acts similarly to the stock return and is one of the ratios that best represents shareholder value in this respect. The Altman-Z score is an excellent all-round financial indicator. It is a benefit-oriented indicator since its increase is desired. It is useful to use this indicator in MCDM-based financial performance measurement studies, as it measures risk and uncertainty well. It is also essential to note that many ratios such as current ratio, cash ratio, liquidity ratio and foreign source/equity are not benefit/cost oriented, but they rather require ideal value. It is clear that the direct use of these ratios in the MCDM methods is mathematically problematic and risky.

Return on Equity (ROE)

The ROE ratio is widely used in the evaluation of company's performance. ROE measures the efficiency of net profit relative to equity. Thus, company partners gain important insight into whether their equity capital is being used optimally or not. On the other hand, investors get a comparative idea by looking at the rate of return they get from the capital they invest and the average of their competitors. ROE is defined as the ratio of net income to equity (Brigham and Houston, 2019). It is desirable for companies to increase ROE, and therefore this ratio is evaluated in MCDM approaches as a benefit-oriented criterion.

Return on Assets (ROA)

The ROA ratio is a classic type of ratio that has been used for a long time to analyze the financial performance of companies. It is another way of measuring profit efficiency. There is a nuance difference from ROE that ROA essentially reflects the company's indebtedness. It can be defined as a ratio showing the degree of effective use of assets (Brigham and Houston, 2019). Increasing ROA is a desirable ratio. And in this respect, it is also a benefit-oriented performance indicator for MCDM approaches.

The preferred financial indicators and formulations in this study can be seen in Table 2 below.

Table 2. Financial Indicators and Formulations in the Study

Indicators	Formulas	References
MVA Spread	MVA / Invested Capital	Stewart (2013)
MVA Margin	MVA / Sales	Stewart (2013)
ROE	Net Income / Common Equity	Brigham and Houstan (2019)
ROA	Net Income / Total Assets	Brigham and Houstan (2019)
ALTMAN-Z Score	1.2 (Working Capital / Total Assets) + 1.4 (Retained Earnings / Total Assets) + 3.3 (EBIT / Total Assets) + 0.6 (Market Value of Equity / Book Value of Total Liabilities) + 1.0 (Sales / Total Assets)	Carton (2004)
Share Price	(Closing Share Price – Initial Share Price) / Initial Share Price	*Carton (2004)*

MCDM Methods

In this study, primarily FUCA and WSA methods were used for a more accurate financial performance measurement. For FUCA, values in all criteria cells were converted to rank value in comparison. Even if the criteria are in different units, there is no need for normalization for the FUCA method. In this respect, it can be said that FUCA has an assumption or an indirect preference function. It has aspects similar to ORESTE or PROMETHEE. In a way, FUCA methodologically carries the characteristics of the European "outranking" school rather than the value or utility school. FUCA is a simple but highly efficient method. WSA, on the other hand, is a practical "simple weighted summation" method that is closest to daily life use. The only difference between WSA and the popular SAW method is the type of normalization that is used.

On the other hand, it can be said that the algorithm, equation or inputs of MCDM methods have been an effective reason for the adoption or selection of these methods. Of course, this basic calculation procedure is important in the development and selection of MCDM methods. However, it is essential to consider that the final results (scores of the alternatives), which are the outputs of the MCDM methods, are also important factors in comparing the methods. For example, the relation of outputs to real life or formally objective information potential is essential. Moreover, direct comparison with inputs is not possible, but these two directly imply MCDM capacity. The capacity determination thus opens the way for an objective benchmarking procedure that cannot be ignored for the next step for MCDM selection. Briefly, in this study, it was revealed which of the MCDM methods is more relevant to real life. In addition, insightful findings were obtained about which MCDM method has the highest amount of objective information. Consequently, the path to a suitable performance measurement seems to be related to the selection of an appropriate MCDM method. Therefore, this study makes an important contribution to the

literature with its proposed objective MCDM selection framework.

FUCA (Faire Un Choix Adéquat)

This method is based on ranking the alternatives for each criterion. The first row has the best value, while the last row (n) is assigned the worst value. Then, the weighted sum of the values for each solution point is calculated and the solution with the smallest total value is the best chosen solution (Mendoza, Luis Fernando, Escobedo, Azzaro-Pantel, Pibouleau, Domenech, and Aguilar-Lasserre, 2011). The most important advantage of this method, which is relatively new and less known in the literature, is that it is simple and easy to calculate. The steps of the method can be explained as follows (Wang and Rangaiah, 2017):

Step 1: For each criterion, the best value is assigned as 1, and the worst value is assigned in the m row. If the criteria direction is maximization, the best value is the largest value in the column, otherwise the best value is the smallest value in the column.

Step 2: A weighted sum is calculated for each optimal solution. A weighted sum (i) is calculated for the solution of each alternative. Here, r_{ij} is the degree of solution i for target j. The solution with the smallest v_i is the suggested optimal solution (Wang and Rangaiah, 2017).

Table 3. Stages of FUCA Calculation

	FUCA
1	For each of the criteria values, 1 is assigned to the best value, m is assigned to the worst value.
2	Weighted Final Scores: $$v_i = \sum_{j=1}^{n} (r_{ij} \times w_j)$$

Source: Wang and Rangaiah (2017)

WSA (Weighted Sum Approach)

The weighted sum approach (WSA) is a method that aims to determine the option that provides the maximum benefit from the set of alternatives. This method is based on calculating the global use value of alternatives by taking into account the normalized criterion weights. It basically consists of two stages. These are normalization and determination of total utility (Taşabat, Cinemre,

and Şen, 2015). It is the closest and simplest method to daily life use (WSM) with a few subjective limitations. If the units of measure are different, the criteria values are normalized and the total score of each alternative is obtained after summing according to the criteria weight. This method consists of the following two stages (Şen, 2014):

Step 1. Normalization of values

Here; i refers the rank of the alternative, j refers the rank of the criterion, yij refers the original value of the j criterion for alternative i, Hj is the maximum value of the j criterion representing the ideal option, and Dj is the minimum value of the alternative. Criterion j represents the ideal option. Accordingly, when the maximum benefit (Rij) is equal to 1, it is also obtained when the minimum benefit is 0.

Step 2. Calculation of the total benefit

At this stage, the utility value of each alternative is calculated. This is the sum of the normalized values that are multiplied by the specified criteria weights:

Table 4. Stages of WSA Calculation

Stages	WSA Calculation Process
1	Normalization of values: $$r_{ij} = \frac{y_{ij} - D}{H_j - D_j}$$
2	Calculation of the total benefit $$u(a_i) = \sum_{j=1}^{k} r_{ij} \cdot v_j$$
3	Find the largest $u(a_i)$

Source: Şen (2014)

Benchmarks for MCDM Methods

This part covers bencmarks for MCDM methods that are Entrophy and Spearman Rho Coefficient.

Entropy Method

Information entropy, a measure of uncertainty, was first introduced by Shannon (1948). According to the idea of information entropy, which is widely used in many fields (Chen and Qu, 2006), the number or quality of information obtained from the decision-making environment is one of the accuracy and reliability determinants of the decision-making problem. Therefore, entropy is a very good measure when it is applied to different

evaluation or evaluation situations in different decision making processes. Similarly, entropy can be used to measure the amount of useful information provided by the data itself (Wu, Sun, Liang, and Zha, 2011).

Entropy method can be considered in the context of the purpose of this study. The entropy weighting method is based on the amount of objective information about the criteria included in the decision matrix. The amount of this information is a parameter that can explain how important a criterion or ranking is. The smaller the value of entropy, the greater the weight based on entropy, so the more information the specific criterion provides. And that criterion or ranking set becomes so significant in the decision-making process (Li, Wang, Liu, Xin, Yang, and Gao, 2011). Entropy weighting method evaluates the ranking set by measuring the degree of differentiation between the values in the criterion ranking. The higher the dispersion degree of the measured rank, the higher its degree of differentiation, and more information can be obtained (Zhu, Tian, and Yan, 2020).

The main purpose of this study is to make a more accurate performance measurement. In this direction, the selection of an appropriate MCDM as very critical. Therefore, it is necessary to focus on MCDM results for a suitable MCDM selection. Entropy values of MCDM scores are the primary benchmark here.

As mentioned above, the Entropy method is based on a measure of uncertainty in information that is formulated with probability theory. If there is a large variation in the values of an objective among non-dominated solutions, a relatively higher weight is assigned to that objective. This method consists three steps (Wang, Parhi, Rangaiah, and Jana, 2020):

Step 1. Normalize the objective matrix with m rows (solutions) and n columns (targets) by applying sum normalization as is commonly used.

Step 2. Entropy is calculated for each criterion column.

Step 3. The weight of each target is determined.

Table 5. Stages of Entropy Method

Stages	Entropy Calculation Process
1	Normalize the objective matrix: $F_{ij} = \dfrac{f_{ij}}{\sum_{k=1}^{m} f_{kj}}$ $i \in \{1,2,\dots,m\}; j \in \{1,2,\dots,n\}$
2	Calculate the Entropy of values of each objective: $E_j = -\dfrac{1}{\ln(m)} \sum_{i=1}^{m} (F_{ij} \ln F_{ij})$ $j \in \{1,2,\dots,n\}$
3	Determine the weight for each objective: $w_j = \dfrac{1 - E_j}{\sum_{j=1}^{n}(1 - E_j)}$ $j \in \{1,2,\dots,n\}$

Source: Wang et al. (2020)

Spearman Rho Coefficient

The main purpose of this study is to make a more accurate performance measurement of MCDM methods. For this, the selection of an appropriate MCDM is considered to be critical. Thus, the focus was on MCDM results for a suitable MCDM selection. Entropy values of MCDM scores were the first benchmark as mentioned above. The second benchmark is the statistical correlation of MCDM results with real life or a third party. In this respect, MCDM-based financial performance results can be compared with real-life return results as a third party (arbitrator) (Baydaş and Elma, 2021; Baydaş and Eren, 2021; Baydaş et al., 2022).

The degree of similarity between two or more rankings is essential especially for the interpretation of comparisons. In this context, the degree of similarity of the rankings produced by the MCDM methods that are calculated for the same problem can be important. Moreover, a similar approach in the relationship with a third party, as in this study, is another matter of curiosity. Spearman's rank correlation coefficient, a widely used non-parametric measure of rank correlation coefficient, shows the statistical dependence of rank between two variables (Sałabun and Urbaniak, 2020). The calculation formula for this traditional data analysis tool is below:

$r_s = 1 - \dfrac{6 \sum di^2}{n (n^2 - 1)}$ Here r_s represents Spearman's Rho coefficient, while di represents the difference in binary rankings. And n represents the number of states in the formula.

In this study, the "Spearman Rho" similarity coefficient was used to compare the results of

MCDM methods. The correlation levels between MCDM-based financial performance results and the share price variable, which is a real-life example, were compared. Therefore, the success of the MCDM method, which provides the highest correlation with the third party in a stable and meaningful way, can be evaluated as a sign of talent or capacity.

Application

In this section, firstly, the data set and the experimental process were explained. Second, the findings and discussions were presented. Finally, the results of the application were evaluated.

Data Set and Experimental Process

For the purpose of the study, financial performance of 31 companies traded in the BIST-SME Industry Index in Turkey were measured on the basis of MCDM. As the decision criteria, five different performance indicators, which express profit efficiency, value generation and risk, were used. The period of the study is six years in total, including the years 2015-2020. The financial performances of the companies were calculated separately for each year/period.

In order to measure more accurate financial performance by choosing an appropriate MCDM method, this study consists of certain processes. First of all, the financial performances of the companies were calculated for each period with FUCA and WSA based MCDM methods. Then, the financial performance MCDM scores of the companies were compared in terms of both the percentage change of the share price, its relationship (rho) and the Entropy value. Thus, objective results were revealed for each period regarding the capacity, tendency, characteristics or significance of the MCDM method under a dual verification mechanism. These objective results proves that the most appropriate MCDM method is recommended depending on the performance success for those who want to evaluate the company's performance under certain constraints. In this study, FINNET data software was also used

to obtain financial performance indicators and share price data.
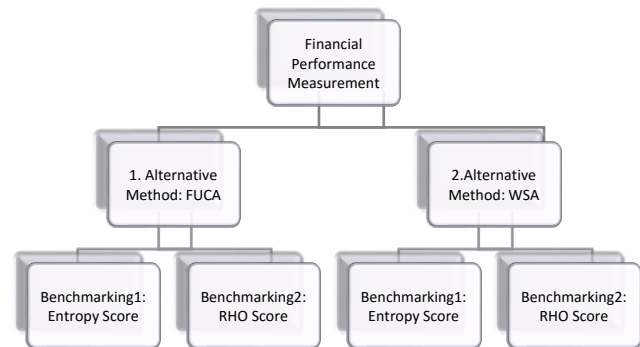
Figure 1. The Diagram of the Experimental Process

The flowchart of the study is simply shown in Figure 1. This chart follows the following steps.

Step 1: Preparation of Initial Decision Matrix

In order to calculate MCDMs, the criteria values obtained in the first step were placed in the decision matrix. Here, each of the five different ratio/indicator columns is a separate financial performance criterion. An initial decision matrix was created with these data for the MCDM calculation.

Step 2: Preparation of Weighted Decision Matrix

Equal weighting method was applied to all criteria.

Step 3: MCDM Calculation Operations

Microsoft Excel program was used to execute the MCDM process steps. A total of 12 different MCDM ranking results that belong to 31 companies were produced on the basis of six periods for two different MCDM methods. In other words, since a company's MCDM scores is calculated 12 times, it is possible to make more reliable and valid insights based on single-period MCDM results.

Step 4: Interpretation of MCDM Ranking Results

The correlation (Rho) between share price and financial performance were evaluated to understand which of the MCDM rankings yielded stronger results. In addition to this evaluation, for the first time in the literature, we proposed a second benchmark. Entropy analysis was

performed to measure MCDM capacity with a structured procedure similar to objective weighting methods. For all these processes, MINITAB and Excel program were used together.

Step 5: Comparison of Performance Results of MCDM Methods

MCDM methods were compared against the Rho and Entropy benchmarks. As a result of separate calculations for these two criteria, it has been suggested that both the period-based method and the method with the best average may be more important or appropriate.

Considering that a MCDM model is primarily designed to solve real-life problems (Munier, 2006), it is appropriate to base the share prices of companies as an arbitrator (third party) (Baydaş and Eren, 2021; Baydaş and Elma, 2021). It also means that the underlying type of financial performance is compatible with the goal of shareholder value maximization. This type of performance metric is an attractive idea for decision makers. On the other hand, as a benchmark for determining the capacity of MCDMs, the amount of objective information (calculated by Entropy) of MCDM results may be appropriate as a second verification mechanism.

As it is known, MCDM methods come into play as a kind of decision support element in order to make quality and healthy decisions under uncertainty. The proposed selection procedure for the most appropriate MCDM method has potential to increase the accuracy of the decisions made. Because each MCDM method has different formulations and assumptions, so the results they produce are often different. The random choice of a MCDM method influences any decision. Therefore, the selection of an appropriate MCDM can directly affect the decisions in a positive way.

Findings and Results

There are more than a hundred MCDM methods in the literature, and all of them claim to suggest the best alternative. However, there is complete "uncertainty" about which is the best MCDM method. Most of the MCDM methods often produce different ranking results as they have different computational procedures. In fact, this feature shows that they have different and special features. The "Entropy" objective evaluation procedure that was recommended for weighting criteria in the normal procedure can also be used to determine the specific feature or capacity of MCDM scores. Secondly, the "Rho" coefficient level, which expresses the correlation between financial performance and share price (percentage change), can be suggested as another confirmatory criterion.

The results obtained with these suggested criteria (Entropy and Rho) are shown in the tables below. Final scores produced by FUCA and WSA methods were compared according to Entropy and Spearman Rho criteria. Spearman Rho and Entropy values that were calculated for six years periods between 2015 and 2020 show remarkable and unique results. Accordingly, it is clear that the MCDM method, which gives better results, is the FUCA for both criteria. These results clearly show that some MCDM methods have specific capacities. It can be said that the rankings that were produced by the FUCA and WSA methods have a very consistent and unique trend. Entropy value results show that FUCA has higher objective information content compared to WSA method. The Rho results similarly demonstrate that FUCA captures real life better. Thus, it has been more strongly confirmed that the FUCA method has a special capacity with a dual verification mechanism. Table 6 below shows the unnormalized MCDM scores.

Table 6. Unnormalized Final Scores of MCDM Methods in Six Period (2015-2020)

	2020	2020	2019	2019	2018	2018	2017	2017	2016	2016	2015	2015
	FUCA	WSA	FUCA	WSA	FUCA	WSA	FUCA	WSA	FUCA	WSA	FUCA	WSA
ACSEL	17.4	0.0987	15.8	0.3810	8.2	0.6522	22.4	0.3253	22.2	0.4115	10.2	0.5451
BLCYT	24.2	0.0409	10	0.4544	10.4	0.5848	11.8	0.4696	21	0.5028	12.8	0.4784
BRKSN	13.2	0.1451	23	0.3392	19.8	0.5380	20.6	0.4413	9	0.5744	19.4	0.4332
BURCE	17.4	0.1013	24.6	0.3267	11.8	0.5788	22.6	0.4167	10.2	0.5813	22.6	0.4088
BURVA	8.2	0.3286	10.4	0.5443	24	0.5216	10.6	0.5113	18.2	0.5216	11.8	0.4890
DAGI	22.2	0.0812	17	0.3904	22.8	0.5197	14.2	0.4579	25.4	0.4778	13.8	0.4468
DITAS	21	0.0905	20.8	0.3290	15	0.5769	6.4	0.5486	24	0.4907	26.2	0.3152

DOBUR	14.6	0.1707	20.2	0.3345	11.4	0.6097	12.2	0.4690	17.6	0.4415	17.2	0.4407
DOGUB	13.2	0.1212	14.2	0.4702	13.4	0.5583	13.6	0.4559	20.6	0.4288	7.8	0.6609
EMKEL	22	0.0832	13.4	0.4069	22.8	0.5125	23.2	0.3797	15.6	0.5557	11.4	0.4801
ERSU	17.2	0.0927	10.2	0.4803	22.4	0.5264	11.2	0.4695	12.8	0.5695	20.2	0.4247
FMIZP	10	0.2861	10.6	0.6369	6.6	0.7816	21.2	0.4430	19.6	0.3996	11.6	0.5061
FRIGO	22	0.0787	8.2	0.4311	8.2	0.5820	13.6	0.4892	9	0.6137	18.4	0.4053
GEDZA	13.4	0.1154	21	0.3433	12.4	0.5870	18	0.4534	6.4	0.6016	23.6	0.3963
IZFAS	16.4	0.1010	18.4	0.3790	29.6	0.4386	10.2	0.5963	13.4	0.5576	24	0.3611
IZTAR	12.2	0.1388	29	0.2525	7.2	0.5967	14	0.4579	13.6	0.5347	19.8	0.4268
LUKSK	21.8	0.0757	15.2	0.3960	13	0.5613	21.4	0.3498	10.2	0.6281	15	0.4600
MAKTK	19.2	0.0816	25.4	0.3298	17.2	0.5711	3.4	0.5967	10	0.6565	13	0.4802
MERKO	11.8	0.1900	12.8	0.4310	22.2	0.4412	20.8	0.3426	24.6	0.4790	20.4	0.3231
NIBAS	12	0.5437	10.4	0.5016	11.6	0.6461	19.2	0.4263	18.6	0.4762	18.8	0.4479
OYLUM	21.6	0.0863	11.2	0.4130	18.6	0.5695	21	0.4334	9.2	0.5699	16.2	0.4575
OZBAL	14	0.3476	20.2	0.3881	19.2	0.5055	21.6	0.3554	13.4	0.6282	10.8	0.4665
POLTK	7.4	0.2232	3	0.7386	13.2	0.6366	12.2	0.5223	23.4	0.4376	7	0.6330
PRZMA	20.8	0.1015	9.6	0.5651	18.4	0.5590	27.6	0.3020	7.8	0.6127	19.6	0.3594
RODRG	18.6	0.0831	21.2	0.3495	18.6	0.5688	18.8	0.4337	11.2	0.5631	6.2	0.5349
SAMAT	8.2	0.2263	23.2	0.2701	12.8	0.5671	18.4	0.4471	16.2	0.5217	12.6	0.4697
SANFM	19.4	0.0930	11.8	0.3892	16.8	0.5564	12	0.4671	10.2	0.6315	27.6	0.2959
SELGD	17.4	0.0912	18.6	0.3821	10.4	0.5716	10.8	0.4911	24.2	0.4532	9	0.5105
TMPOL	28.2	0.0445	10.4	0.4473	25.8	0.5221	23.4	0.3761	19.6	0.5092	7.8	0.6085
VANGD	4.2	0.3484	20.2	0.3038	21	0.3632	5.4	0.8147	18	0.4991	24.6	0.3217
YAPRK	6.8	0.2110	16	0.3688	11.2	0.5726	14.2	0.4504	20.8	0.5136	16.6	0.4591

Table 7 above shows normalized MCDM scores. In order to calculate the Entropy value of the scores produced by the MCDM methods, they should firstly be normalized.

Table 7. Normalized Final Scores of MCDM Methods in Six Period (2015-2020)

	2020	2020	2019	2019	2018	2018	2017	2017	2016	2016	2015	2015
	FUCA	WSA	FUCA	WSA	FUCA	WSA	FUCA	WSA	FUCA	WSA	FUCA	WSA
ACSEL	0.0351	0.0205	0.0319	0.0298	0.0165	0.0375	0.0452	0.0229	0.0448	0.0250	0.0206	0.0388
BLCYT	0.0488	0.0085	0.0202	0.0356	0.0210	0.0337	0.0238	0.0331	0.0423	0.0306	0.0258	0.0341
BRKSN	0.0266	0.0301	0.0464	0.0266	0.0399	0.0310	0.0415	0.0311	0.0181	0.0349	0.0391	0.0308
BURCE	0.0351	0.0210	0.0496	0.0256	0.0238	0.0333	0.0456	0.0294	0.0206	0.0354	0.0456	0.0291
BURVA	0.0165	0.0682	0.0210	0.0426	0.0484	0.0300	0.0214	0.0360	0.0367	0.0317	0.0238	0.0348
DAGI	0.0448	0.0168	0.0343	0.0306	0.0460	0.0299	0.0286	0.0323	0.0512	0.0291	0.0278	0.0318
DITAS	0.0423	0.0188	0.0419	0.0258	0.0302	0.0332	0.0129	0.0386	0.0484	0.0298	0.0528	0.0224
DOBUR	0.0294	0.0354	0.0407	0.0262	0.0230	0.0351	0.0246	0.0330	0.0355	0.0269	0.0347	0.0314
DOGUB	0.0266	0.0251	0.0286	0.0368	0.0270	0.0321	0.0274	0.0321	0.0415	0.0261	0.0157	0.0471
EMKEL	0.0444	0.0173	0.0270	0.0319	0.0460	0.0295	0.0468	0.0267	0.0315	0.0338	0.0230	0.0342
ERSU	0.0347	0.0192	0.0206	0.0376	0.0452	0.0303	0.0226	0.0331	0.0258	0.0346	0.0407	0.0302
FMIZP	0.0202	0.0593	0.0214	0.0499	0.0133	0.0450	0.0427	0.0312	0.0395	0.0243	0.0234	0.0360
FRIGO	0.0444	0.0163	0.0165	0.0337	0.0165	0.0335	0.0274	0.0345	0.0181	0.0373	0.0371	0.0289
GEDZA	0.0270	0.0239	0.0423	0.0269	0.0250	0.0338	0.0363	0.0319	0.0129	0.0366	0.0476	0.0282
IZFAS	0.0331	0.0209	0.0371	0.0297	0.0597	0.0252	0.0206	0.0420	0.0270	0.0339	0.0484	0.0257
IZTAR	0.0246	0.0288	0.0585	0.0198	0.0145	0.0343	0.0282	0.0323	0.0274	0.0325	0.0399	0.0304
LUKSK	0.0440	0.0157	0.0306	0.0310	0.0262	0.0323	0.0431	0.0246	0.0206	0.0382	0.0302	0.0327
MAKTK	0.0387	0.0169	0.0512	0.0258	0.0347	0.0329	0.0069	0.0420	0.0202	0.0399	0.0262	0.0342
MERKO	0.0238	0.0394	0.0258	0.0337	0.0448	0.0254	0.0419	0.0241	0.0496	0.0291	0.0411	0.0230
NIBAS	0.0242	0.1128	0.0210	0.0393	0.0234	0.0372	0.0387	0.0300	0.0375	0.0290	0.0379	0.0319
OYLUM	0.0435	0.0179	0.0226	0.0323	0.0375	0.0328	0.0423	0.0305	0.0185	0.0347	0.0327	0.0326
OZBAL	0.0282	0.0721	0.0407	0.0304	0.0387	0.0291	0.0435	0.0250	0.0270	0.0382	0.0218	0.0332
POLTK	0.0149	0.0463	0.0060	0.0578	0.0266	0.0366	0.0246	0.0368	0.0472	0.0266	0.0141	0.0451
PRZMA	0.0419	0.0211	0.0194	0.0442	0.0371	0.0322	0.0556	0.0213	0.0157	0.0373	0.0395	0.0256
RODRG	0.0375	0.0172	0.0427	0.0274	0.0375	0.0327	0.0379	0.0306	0.0226	0.0342	0.0125	0.0381
SAMAT	0.0165	0.0469	0.0468	0.0211	0.0258	0.0326	0.0371	0.0315	0.0327	0.0317	0.0254	0.0334
SANFM	0.0391	0.0193	0.0238	0.0305	0.0339	0.0320	0.0242	0.0329	0.0206	0.0384	0.0556	0.0211
SELGD	0.0351	0.0189	0.0375	0.0299	0.0210	0.0329	0.0218	0.0346	0.0488	0.0276	0.0181	0.0363
TMPOL	0.0569	0.0092	0.0210	0.0350	0.0520	0.0300	0.0472	0.0265	0.0395	0.0310	0.0157	0.0433
VANGD	0.0085	0.0723	0.0407	0.0238	0.0423	0.0209	0.0109	0.0574	0.0363	0.0304	0.0496	0.0229
YAPRK	0.0137	0.0438	0.0323	0.0289	0.0226	0.0330	0.0286	0.0317	0.0419	0.0312	0.0335	0.0327

Table 8 below shows the Entropy value (ej), 1-Entropy value (1-e) and final significance value (wj) of the MCDM methods. Accordingly, FUCA has a higher amount of information in all the remaining five years except 2020.

Table 8. Comparison Results for Significance Levels of FUCA and WSA by Entropy Values in Six Period (2015-2020)

	ej FUCA	ej WSA		1-e FUCA	1-e WSA		wj FUCA	wj WSA
2020	0.980086	0.939177	&	0.019914	0.060823	&	*0.246651*	***0.753349***
2019	0.978747	0.99167	&	0.021253	0.00833	&	***0.718416***	*0.281584*
2018	0.980277	0.997631	&	0.019723	0.002369	&	***0.892762***	*0.107238*
2017	0.978487	0.99419	&	0.021513	0.00581	&	***0.787359***	*0.212641*
2016	0.981152	0.997462	&	0.018848	0.002538	&	***0.881342***	*0.118658*
2015	0.979528	0.994776	&	0.020472	0.005224	&	***0.796691***	*0.203309*

It is clearly seen from the Table 8 that the Entropy significance level of the scores produced by the FUCA method is higher. Moreover, the average entropy significance value of FUCA for the other years except 2020 is almost double that of the other method.

The comparison results (wj) in Table 8 were calculated according to the following formula: (Value of Method 1-e/Value of Total 1-e). In this sense, it was confirmed that FUCA scores have a higher entropy significance value than WSA scores (Total) in all base periods. In other words, the information content of FUCA is higher.
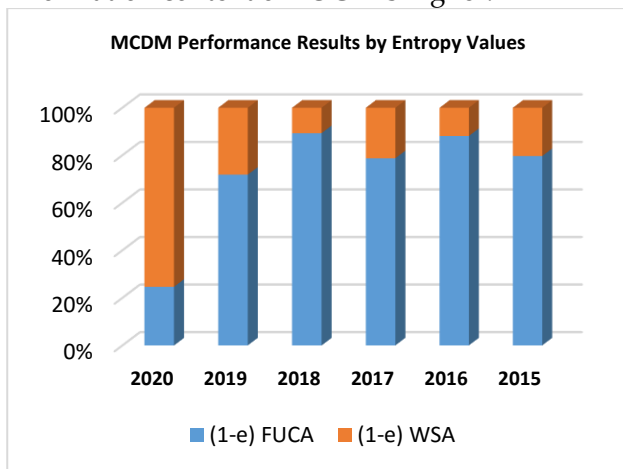

Figure 2. MCDM Comparison Results by Entropy Values in Six Period (2015-2020)

According to Figure 2, FUCA is higher than WSA scores in all base periods (except 2020).

Another criterion recommended to compare MCDM methods is the Rho coefficient, which expresses the degree of relation to real life. The statistical correlation results between MCDM-based financial performance and share price are shown in Table 9 below.

Table 9. MCDM Comparison Results by Spearman Rho Coefficient between FP and SR in Six Period (2015-2020)

	2020	2019	2018	2017	2016	2015	
	Rho	Rho	Rho	Rho	Rho	Rho	Rho Mean
FUCA	**0.581**	**0.603**	**0.743**	0.591	**0.639**	**0.455**	**0.602**
p-value	0.001	0.000	0.000	0.000	0.000	0.01	0.0018
WSA	0.55	0.456	0.642	**0.592**	0.384	0.323	0.4912
p-value	0.001	0.01	0.000	0.000	0.033	0.076	0.02

Table 9 displays that FUCA scores have higher Rho coefficients than WSA scores in other base periods, except for one base period (2017).
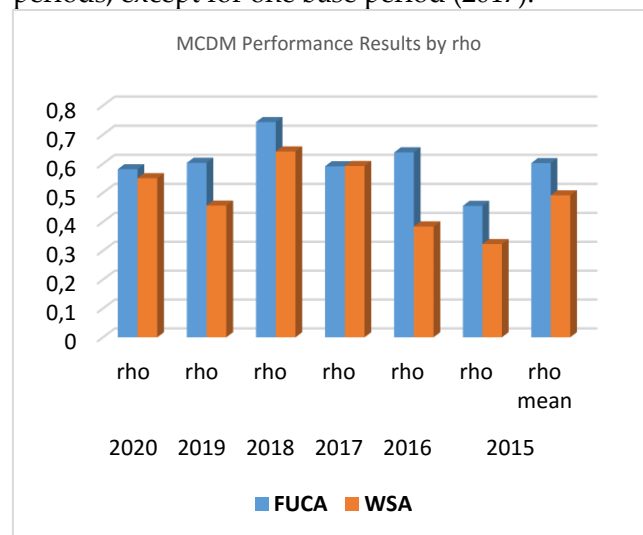

Figure 3. MCDM Comparison Results by Rho Values in Six Period (2015-2020)

According to Figure 3, FUCA scores have higher Rho coefficients than WSA scores in all base periods.

Table 10. Average Entropy Scores and RHO Coefficients According to FUCA and WSA Scores

Entropy (formal)	MEAN	RANK	rho (actual)	MEAN	RANK
FUCA	0.7205	1	**FUCA**	0.602	1
WSA	0.2794	2	**WSA**	0.4912	2

According to Table 10, FUCA scores have higher average Entropy scores and rho coefficients

than WSA scores if the average of the periods is taken as a basis.

The above results contain very stable, satisfactory and consistent information for the comparison of MCDM methods. Both validation measures confirm that FUCA's performance is higher. Both criteria tell us the same thing. It is clear that FUCA is more successful than WSA. Another common point of the two methods is that WSA is more successful only in one base period than the other.

Discussion

Entropy, which is one of the objective weighting or estimation methods, determines the information content as a paradigm. In this respect, it is based on a believed or assumed acceptance. In general, the greater the difference between the values in the column, the more valuable the information contained in that column (criterion, indicator) for objective weight estimation methods. In other words, the weight of a criterion is higher in direct proportion to the information content (Mukhametzyanov, 2021). So the column should not necessarily be a criterion or indicator of any MCDM. In fact, the result scores or values of the MCDM methods are also included in a column. And they also have an amount of information content. Thus, the Entropy approach can formally be used to explore the informational content of the final scores produced by MCDM methods. This approach can be evaluated if the comparative results are consistent, stable and meaningful. This comparison has clearly been applied in this study, and the results are significantly consistent.

There is no rational or formal obstacle in calculating the Entropy of the MCDM final scores. The interpretation of comparisons actually depends on the originality and consistency of the results. In this study, after the final scores of the MCDM methods were normalized, their Entropies were calculated to make comparison. This different approach creates an objective alternative, especially for unexperienced decision makers who have difficulty in deciding on the most appropriate MCDM method. There is no any other study that

has applied this approach in this way before in the literature.

In this study, the second MCDM selection criterion is related to real life as an objective criterion. Some recent studies (Baydaş and Elma, 2021; Baydaş and Eren, 2021; Baydaş et al., 2022) indicate that the financial performance field potentially has a natural and specific MCDM selection solution. The focus of this solution is on the significant relationships between at least two variables. There are significant correlations between the share and the financial performance rankings that are produced by MCDM methods for different periods. In the mentioned study, it was emphasized that some MCDM methods such as PROMETHEE and FUCA consistently provided higher correlations between share price and financial performance of companies. In this study, FUCA achieved a similar success. It can be said that FUCA clearly captures or models real-life situations better. The following two objective verification mechanisms were proposed to reveal the hidden capacities of MCDM methods. The results of this study are interesting and unique in the literature. The evaluations of this study are the following:

- The most important finding of the study is that there are strong evidences about how beneficial to use entropy in MCDM comparison as an objective method. In other words, the ranking scores of an MCDM method contains some patterns as a set. And these patterns can be unique and characteristic. These patterns can even express superiority. Thus, based on these patterns, an appropriate and efficient MCDM method can be selected.
- This study is different from the classical and followed the entropy procedure, because it focuses on MCDM outputs (sort results) instead of inputs (criteria). Since the criteria are mainly been used for weighting in the classical entropy procedure, different criteria may be more essential in different base periods. In other words, the degree of significance of the weights changes frequently. On the other hand, in this study, entropy was used to

compare the amount of information of MCDM methods, and the entropy results are quite stable and consistent. The Rho performances of MCDM methods, which expresses both entropy and relationship with real life, are also similar. In other words, FUCA has mainly showed a better performance compared to the WSA method in some periods in terms of both entropy and rho criteria.

- As in this study, it is possible to measure the amount of information of MCDM methods through Entropy. The results of the study clearly demonstrate that FUCA has higher capacity, and it is more significant. As a trend, the WSA method has consistently maintained its second-ranked position.

- Entropy and Rho validation mechanism both agreed that FUCA outperformed WSA.

- WSA and FUCA methods are alternatives from two different schools to rank performance for multiple criteria. The analysis results for six periods confirm that FUCA is more efficient than WSA. It is noteworthy that FUCA can work without normalization.

- The subjective choice of any MCDM method also influences the determination of the best alternative. And this can affect the quality of the decision to be taken. As in this study, an appropriate financial performance measurement can be a good decision support for financial information users (company partners, creditors, suppliers, investors) who are interested in companies.

- While determining the most appropriate MCDM method, the relationship with real life and the amount of information can be used as a dual verification mechanism, as in this study. Thus, according to these criteria, a MCDM method with more capacity can be selected. Table 11 below clearly shows that the best performing companies can differ according to MCDM methods. In addition, the companies with

the best financial performance according to the FUCA and WSA methods are also available in the table. Therefore, the decision maker needs to consider different results according to the MCDM selection.

Table 11. Top Performer Companies According to Different MCDMs in Six Period (2015-2020)

Period	Best Company for FUCA	Best Company for WSA
2015	RODRG	DOGUB
2016	GEDZA	MAKTK
2017	MAKTK	VANGD
2018	FMIZP	FMIZP
2019	POLTK	POLTK
2020	VANGD	NIBAS

Conclusion

For more than 20 years, MCDM-based recommendations have been made for the measurement of an appropriate and accurate financial performance. It is a hard task to determine the most appropriate MCDM method to use in a multi-criteria measurement. There are more than a hundred MCDM methods, and they all claim to suggest the best alternative. The best alternative is often different depending on the MCDM method chosen under different conditions. This situation represents an uncertainty for the decision maker. It is difficult to recommend an appropriate MCDM selection procedure in this uncertain environment. Most of the time, MCDM method selection is affected by factors such as the capabilities, compatibility with the problem, popularity, and software support of the method.

In this study, two different objective verification mechanisms are proposed for the automatic selection of a MCDM method. The first is the idea that the MCDM method with higher relations to real life is more appropriate. The second type of validation is formally the idea that whichever MCDM result string contains the higher amount of information, the MCDM method is more appropriate and has better capacity. While the first idea has already been applies in few studies and got positive results, the second idea has not been applied until this study. Interestingly, the second idea displayed consistent results in this study.

In this study, MCDM calculations were made for six-year base periods over 31 SME companies

in terms of five financial criteria. Spearman rho and Entropy as objective comparison criteria to compare FUCA and WSA methods. Rho and Entropy values confirm with each other. Accordingly, FUCA has higher values in five of the six base periods for both criteria. In other words, FUCA produced a higher correlation with real life (share price) than the WSA method, and at the same time, the amount of information (entropy) it contained was higher. This shows that MCDM methods have different characteristics, tendencies and special capacities. Moreover, this shows that some MCDM methods can be compared according to this determined capacity value, and then more appropriate method can be selected.

References

Ağ, A. R., Kuloğlu E. (2020). İşletmelerin finansal performansının veri zarflama analizi yöntemiyle tespit edilmesi: borsa istanbul'da işlem gören enerji işletmelerine yönelik bir uygulama. *OPUS Uluslararası Toplum Araştırmaları Dergisi*, *16*(29 Ekim Özel Sayısı), 3756-3772.

Ayhan, E. and Önder, M. (2021). İnsan kaynaklarının kurumsal performansa etkisi: Gençlik STK'ları üzerine ampirik bir araştırma. *Sosyoekonomi*, *29*(48), 443-472.

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance, 23(4)*, 589-609.

Ban, A. I., Ban, O. I., Bogdan, V., Popa, D. C. S. and Tuse, D. (2020). Performance evaluation model of Romanian manufacturing listed companies by fuzzy AHP and TOPSIS. *Technological and Economic Development of Economy, 26*(4), 808-836.

Baydaş, M. and Elma, O. E. (2021). An objective criteria proposal for the comparison of MCDM and weighting methods in financial performance measurement: An application in Borsa Istanbul. *Decision Making: Applications in Management and Engineering, 4*(2), 257-279.

Baydaş, M. and Eren, T. (2021). Finansal performans ölçümünde ÇKKV yöntem seçimi problemine objektif bir yaklaşım: Borsa İstanbul'da bir uygulama. *Eskişehir Osmangazi Üniversitesi İktisadi ve İdari Bilimler Dergisi, 16*(3), 664-687.

Baydaş, M., Elma, O. E. and Pamučar, D. (2022). Exploring the specific capacity of different multi criteria decision making approaches under uncertainty using data from financial markets. *Expert Systems with Applications*, Volume *197*, 116755.

Brigham, E. F. and Houston, J. F., 2019. *Fundamentals of financial management* (15th Ed.). Boston: Cengage Learning.

Carton, R. B. (2004). *Measuring organizational performance: An exploratory study*. Doctoral dissertation. University of Georgia.

Chen, Y. and Qu, L. (2006). Evaluating the selection of logistics centre location using fuzzy MCDM model based on entropy weight. *2006 6th World Congress on Intelligent Control and Automation*, p.7128-7132)..

Danesh, D., Ryan, M. J. and Abbasi, A. (2017). A systematic comparison of multi-criteria decision making methods for the improvement of project portfolio management in complex organisations. *International Journal of Management and Decision Making, 16*(3), 280-320.

De Almeida-Filho, A. T., De Lima Silva, D. F. and Ferreira L. (2020). Financial modelling with multiple criteria decision making: A systematic literature review. *Journal of the Operational Research Society, 72*(10), 2161-2179.

Diakoulaki, D., Mavrotas, G. and Papayannakis, L. (1995). Determining objective weights in multiple criteria problems: The critic method. *Computers & Operations Research, 22*(7), 763-770.

Eldrandaly, K., Ahmed, A. H. and AbdelAziz, N. (2009). An expert system for choosing the suitable MCDM method for solving a spatial decision problem. *9th International conference on production engineering, design and control.*

Ertuğrul, İ. and Karakaşoğlu, N. (2009). Performance evaluation of Turkish cement firms with fuzzy analytic hierarchy process and TOPSIS methods. *Expert Systems with Applications, 36*(1), 702-715.

Feng, C. M. and Wang, R. T. (2000). Performance evaluation for airlines including the consideration of financial ratios. *Journal of Air Transport Management, 6*(3), 133-142.

Gümüş, U. T., Öziç, H. C. and Sezer, D. (2019). BİST'te inşaat ve bayındırlık sektöründe işlem gören işletmelerin SWARA ve ARAS yöntemleriyle finansal performanslarının değerlendirilmesi. *OPUS Uluslararası Toplum Araştırmaları Dergisi*, *10*(17), 835-858.

Karaoğlan, S. and Şahin, S. (2018). BİST XKMYA işletmelerinin finansal performanslarının çok kriterli karar verme yöntemleri ile ölçümü ve yöntemlerin karşılaştırılması. *Ege Akademik Bakış Dergisi, 18*(1), 63-80.

Karakul, A. K. and Özaydın, G. (2019). Topsis Ve Vikor Yöntemleri ile finansal performans değerlendirmesi: XELKT üzerinde bir uygulama. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, 60*, 68-86.

Kashid, U. S., Kashid, D. and Mehta, S. N. (2019). A Review of Mathematical Multi-Criteria Decision Models with A case study. *International Conference on Efficacy of Software Tools for Mathematical Modeling (ICESTMM'19).*

Mendoza, M. Luis Fernando, J. L. Perez Escobedo, C. Azzaro-Pantel, L. Pibouleau, S.Domenech, and A. Aguilar-Lasserre (2011). Selecting The Best Portfolio Alternative from A Hybrid Multiobjective GA-MCDM Approach for New Product Development in the Pharmaceutical Industry. *2011 IEEE Symposium on Computational Intelligence in Multicriteria Decision-Making (MDCM), Paris*, p.159–166.

Mota, P., Campos, A. R. and Neves-Silva, R. (2012). First look at MCDM: Choosing a decision method. *Advances in Smart Systems Research, 3*(1), 25.

Mukhametzyanov, I. (2021). Specific character of objective methods for determining weights of criteria in MCDM problems: Entropy, CRITIC and SD. *Decision Making: Applications in Management and Engineering, 4(2)*, 76-105.

Munier, N. (2021). Retrieved from *https://www.researchgate.net/post/How_can_the_performance_of_fuzzy_sets_compare_in_fuzzy_multi-criteria_decision_making* on 25.01.2022

Munier, N. (2006). Economic growth and sustainable development: Could multicriteria analysis be used to solve this dichotomy?. *Environment, Development and Sustainability, 8*, 425–443.

Li, X., Wang, K., Liu, L., Xin, J., Yang, H., and Gao, C. (2011). Application of the entropy weight and TOPSIS method in safety evaluation of coal mines. *Procedia Engineering, 26*, 2085-2091.

Pineda, P. J. G., Liou, J. J., Hsu, C. C. and Chuang, Y. C. (2018). An integrated MCDM model for improving airline operational and financial performance. *Journal of Air Transport Management, 68*, 103-117.

Sałabun, W. and Urbaniak, K. (2020). A new coefficient of rankings similarity in decision-making problems. *International Conference on Computational Science* (p.632-645). Springer, Cham.

Shannon, C. E. (1948). A mathematical theory of communication. *The Bell System Technical Journal, 27*(3), 379-423.

Shen, K. Y. and Tzeng, G. H. (2016). Combining DRSA decision-rules with FCA-based DANP evaluation for financial performance improvements. *Technological and Economic Development of Economy, 22*(5), 685-714.

Stewart, B. (2013). Best-practice EVA: the definitive guide to measuring and maximizing shareholder value. John Wiley & Sons.

Şen, S. (2014). *Farklı ağırlıklandırma tekniklerinin denendiği çok kriterli karar verme yöntemleri ile Türkiye'deki mevduat bankalarının mali performans değerlendirmesi*. Yayınlanmamış Yüksek Lisans Tezi. Mimar Sinan Güzel Sanatlar Üniversitesi, Fen Bilimleri Enstitüsü / İstatistik Ana Bilim Dalı, İstanbul.

Ozernoy, V. M. (1992). Choosing the "Best" multiple criterlv decision-making method. *INFOR: Information Systems and Operational Research, 30*(2), 159-171.

Taşabat, S. E., Cinemre, N. and Şen, S. (2015). Farklı ağırlıklandırma tekniklerinin denendiği çok kriterli karar verme yöntemleri ile Türkiye'deki mevduat bankalarının mali performanslarının değerlendirilmesi. *Sosyal Bilimler Araştırma Dergisi, 4*(2), 96-110.

Tavana, M., Khalili-Damghani, K. and Rahmatian, R. (2015). A hybrid fuzzy MCDM method for measuring the performance of publicly held pharmaceutical companies. *Annals of Operations Research, 226*(1), 589-621.

Tavana, M. (2021). Decision analytics in the world of big data and colorful choices. *Decision Analytics Journal, 1*, 100002.

Triantaphyllou, E. (2000). *Multi criteria decision making methods: A comparative study*. London: Kluwer Academic Publishers.

Wang, Z. and Rangaiah, G. P. (2017). Application and analysis of methods for selecting an optimal solution from the Pareto-optimal front obtained by multiobjective optimization. *Industrial & Engineering Chemistry Research, 56*(2), 560-574.

Wang, Z., Parhi, S. S., Rangaiah, G. P., Jana, A. K. (2020). Analysis of weighting and selection methods for pareto-optimal solutions of multiobjective optimization in chemical engineering applications. *Industrial & Engineering Chemistry Research 59*(33), 14850-14867.

Wątróbski, J., Jankowski, J., Ziemba, P., Karczmarczyk, A. and Zioło, M. (2019). Generalised framework for multi-criteria method selection. *Omega, 86*, 107-124.

Wu, J., Sun, J., Liang, L. and Zha, Y. (2011). Determination of weights for ultimate cross efficiency using Shannon entropy. *Expert Systems with Applications, 38*(5), 5162-5165.

Yalçın, N., Bayrakdaroglu, A. and Kahraman, C. (2012). Application of fuzzy multi-criteria decision making methods for financial performance evaluation of Turkish manufacturing industries. *Expert systems with applications, 39*(1), 350-364.

Yükçü, S. and Atağan, G. (2010). TOPSIS yöntemine göre performans değerleme. *Muhasebe ve Finansman Dergisi, 45*, 28-35.

Zaidan, B. B., Zaidan, A. A., Abdul Karim, H. and Ahmad, N. N. (2017). A new approach based on multi-dimensional evaluation and benchmarking for data hiding techniques. *International Journal of Information Technology & Decision Making, 16*, 1-42.

Zopounidis, C. and Doumpos, M. (2002). Multi-criteria decision aid in financial decision making: methodologies and literature review. *Journal of Multi-Criteria Decision Analysis, 11*(4-5), 167-186.

Zhu, Y., Tian, D. and Yan, F. (2020). Effectiveness of entropy weight method in decision-making. *Mathematical Problems in Engineering, Volume 2020*, ArticleID:3564

RESEARCH ARTICLE

Hospital Selection of Health Tourists: A Study with Ahp and Topsis Methods[1]

Kevser Şahin [1] ∎ Esra Çiğdem Cezlan [2]

[1] Master Degree, Istanbul Medipol University, Institute of Health Sciences Istanbul/Turkey
ORCID: 0000-0002-2103-2672
E-Mail: kevser.sahin@std.medipol.edu.tr

[2] Assist.Prof., Istanbul Medipol University, Faculty of Health Sciences, Istanbul/Turkey
ORCID: 0000-0002-9238-4907
E-Mail: eccezlan@medipol.edu.tr

Corresponding Author:
Esra Çiğdem Cezlan

Abstract

Developments in transport and communication technologies have made traveling easier between countries. In addition to these developments, the search for low-cost and high-quality health services has been effective in the development of the health tourism sector. This study aims to determine the hospital preferences of health tourists with Analytical Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) methods in line with expert opinions. Within the scope of this study, the criteria affecting the hospital preferences of health tourists were weighted with the AHP method, and ideal hospital alternative for health tourists was selected with the TOPSIS method by using the criteria weights obtained. The opinions of seven experts, who are experts in their field at least ten years, were taken by using the 9-scale evaluation scale developed by Saaty. As a result of expert opinions; it has been determined that qualified health personnel, quality of medical care applied, modern equipment of the hospital, recommendability of the hospital and health personnel are more effective. For a preferable hospital strategy within the scope of health tourism, deficiencies of health personnel in terms of foreign language and professional experience should be eliminated, and devices that will increase the preferability of the hospital by following technological developments should be used. In addition, necessary improvements should be made by applying satisfaction surveys to health tourists.

Keywords: Health Tourism, Multi-Criteria Decision Making, AHP, TOPSIS.

Öz

Ulaşım ve iletişim teknolojilerinde yaşanan gelişmeler ülkeler arası seyahatleri daha kolay hale getirmiştir. Bu gelişmelere ek olarak düşük maliyetli ve kaliteli sağlık hizmeti arayışı sağlık turizmi sektörünün gelişmesinde etkili olmuştur. Bu çalışmanın amacı, sağlık turistlerinin hastane tercihlerini uzman görüşleri doğrultusunda AHP ve TOPSIS yöntemleri ile belirlemektir. Çalışma kapsamında Analitik Hiyerarşi Süreci (AHP) yöntemi ile sağlık turistlerinin hastane tercihlerini etkileyen kriterler ağırlıklandırılmış, elde edilen kriter ağırlıkları kullanılarak Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) yöntemi ile sağlık turistleri için en ideal hastane alternatifi seçilmiştir. Çalışmamızda Saaty tarafından geliştirilen 9 ölçekli değerlendirme skalası kullanılarak alanında en az on yıllık uzmanlığı olan yedi kişinin görüşü alınmıştır. Uzman görüşleri sonucunda; kalifiye sağlık personelinin, uygulanan tıbbi bakım kalitesinin, hastanenin sahip olduğu modern cihazların, hastane ve sağlık personelinin tavsiye edilebilirliğinin daha etkili olduğu saptanmıştır. Sağlık turizmi kapsamında tercih edilebilir bir hastane stratejisi için, yabancı dil ve mesleki deneyim açısından sağlık personelinin eksiklikleri giderilmelidir, teknolojik gelişmeler takip edilerek hastanenin tercih edilebilirliğini arttıracak cihazlar kullanılmalıdır. Ayrıca sağlık turistlerine memnuniyet anketleri uygulanarak gerekli iyileştirmeler yapılmalıdır.

Anahtar Kelimeler: Sağlık Turizmi, Çok Kriterli Karar Verme, AHP, TOPSIS.

---

[1] *This study is derived from the master's thesis numbered 10416226, which was completed by Kevser Şahin on 02.08.2021 under the supervision of Assist.Prof Esra Çiğdem Cezlan.*

Introduction

With the technological developments in today's world, international travel has become easier. As a result of these developments, there has been a rapid increase in tourism activities (Şahin & Tuzlukaya, 2013). Health tourism, which is one of the tourism types, has also been the type of tourism with the highest growth rate in this increase. When the data of the Turkish Statistical Institute is examined, it is seen that the number of health tourists coming to our country has increased over the years. While 163,252 health tourists came to our country in 2010, this number increased to 662,087 in 2019. Expenditures were made within the scope of health tourism; while it was 443,398 dollars in 2010, it is 1,065,105 dollars in 2019 (Tengilimoğlu, 2021).

There are many criteria and hospital alternatives in the hospital selection of health tourists. In cases where there are multiple criteria and alternatives, multi-criteria decision-making techniques are used in order to make the best decision. In this study, hospital selection of health tourists will be examined with Analytical Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) methods from multi-criteria decision-making (MCDM) techniques. The AHP method is one of the multi-criteria decision-making techniques developed by Thomas Saaty. TOPSIS method, one of the multi-criteria decision-making techniques, was also developed by Hwang and Yoon (Paksoy, 2017). In the TOPSIS method, the closest distance to the positive ideal solution and the farthest distance to the negative ideal solution is determined as the best alternative (Özbek, 2019).

Analytical Hierarchy Process method was used in a study that made strategy suggestions in order to increase Turkey's health tourism market share. As a result of the study, the lack of sufficient legal sanction for faulty practices, lack of coordination with agencies and insurance companies abroad, and the lack of qualified health personnel who speak foreign languages were determined as the shortcomings of our country within the scope of health tourism (Demir Uslu, et al., 2021). In a study examining medical tourism in Turkey, the

integrated SWOT and Analytical Hierarchy Process method was used. In the study, Turkey's strengths in medical tourism were determined as affordable price advantage, experienced health personnel and short waiting time. Inadequate marketing was evaluated as a weakness. The location advantage was evaluated as an opportunity. Increasing competition is considered as a threat (Görener, 2016). In another study examining the development of medical tourism in Turkey with SWOT and AHP methods, the criterion with the highest weight value was affordable price advantage (Yiğit & Demirbaş, 2020).

Within the scope of this study, using the AHP method, which is one of the multi-criteria decision-making techniques, weighting the criteria that are effective in the hospital selection of health tourists and ideal hospital selection process for health tourists with the TOPSIS method.

Health Tourism

Health tourism is defined as individuals traveling outside of the regions where they are permanently residing to protect, improve or be treated their current health status. It is also defined as "health tourist" to individuals who travel with the aim of protecting, improving and treating their current health status. (Kaya, Yıldırım, Karsavuran & Özer, 2013).

Health tourism, where two different sectors such as health and tourism come together, is a sector with high added value. For this reason, many countries make significant investments in health tourism. Among the leading countries in health tourism such as India, Hungary, Thailand and Malaysia (Zengingönül, Emeç, İyilikçi, & Bingöl, 2012).

There are a number of factors that motivate people about health tourism. Some of these factors are as follows (Şahin & Tuzlukaya, 2013);

- Access to health services is difficult in the country of residence,
- Providing better quality and appropriate opportunities in different countries for some rare diseases,

- Health services being more expensive in the country of residence,
- The lack of a sufficient number of health facilities in the country of residence,
- İnsufficient education and professional experience of physicians in the country of residence,
- Confidentiality request regarding the health services,
- Advice from an acquaintance,
- Long waiting times in the country of residence.

Health tourism is examined four sub-headings according to the treatment methods and the types of resources used in these methods. These sub-headings are; medical tourism, thermal tourism, spa and wellness tourism, geriatrics and disabled tourism (Şahin & Tuzlukaya, 2013).

Medical Tourism

Medical tourism is the travel of individuals outside the countries where they are permanently residing in order to receive medical treatment (Connell, 2006). In another definition, medical tourism is expressed as the travels of individuals in order to be treated in overseas countries due to the expensive health services and long waiting times in their own countries (Tengilimoğlu & Kahraman, 2013). Unlike other types of health tourism, there is no need to use natural resources. In this type of health tourism, health personnel such as physicians, nurses and well-equipped health institutions such as hospitals and clinics are needed (Zengingönül et al., 2012).

There are a number of factors that direct people to medical tourism. Some of these factors are; the length of the waiting periods, the ease of transportation between countries, the treatments not covered by insurance or the lack of necessary health services in their own countries can be listed as the opportunity to visit different countries (Buzcu & Birdir, 2019; Ergen & Aydemir, 2020). Medical tourism includes advanced treatments that can be offered in secondary and tertiary health institutions (Ergen & Aydemir, 2020). Some of the treatments offered within the scope of medical tourism are as follows; cosmetic surgery, cardiology, orthopedics, eye surgery, dental treatment, organ and tissue transplantation (Lunt, et al., 2011).

Thermal Tourism

Thermal tourism is the benefit of the services provided in order to have a positive effect on the current health status of individuals with the contribution of environmental and climatic conditions in the regions where thermal waters are located. These services are offered under the supervision of a doctor. In addition to the services offered within the scope of thermal tourism, services such as physical therapy and rehabilitation, diet, exercise, and psychotherapy are also offered (Bostan, 2020).

The aim of thermal tourism is to apply the treatment under the control of specialist doctors in thermal waters that are determined to be medically curative. In addition, within the scope of thermal tourism, a healthy environment is created for individuals to rest, have fun and stay fit. Thermal tourism, unlike other types of tourism; the fact that tourism activities are active throughout the year, thermal tourism facilities have high occupancy rates, create an important potential for employment, high interaction with other types of tourism, offer opportunities such as entertainment and rest in addition to thermal services, thermal tourism facilities have high profitable and competitive potential. (Erdoğan & Aklanoğlu, 2008).

Spa Wellness Tourism

The word SPA is of Latin origin and means "health that comes with water" (Şahin & Tuzlukaya, 2013). Besides this, the word wellness refers to the physical, mental and spiritual well-being of individuals (Tengilimoğlu, 2021). The services offered within the scope of spa wellness are the treatment method applied by experts in order to rest the human body and reduce pain and suffering. During this treatment method, water and aromatic cures are used. Spa; it consists of special care using water and mud. It also expresses the physical, mental and spiritual well-being of

individuals (Yalçın, 2018). The spa is a therapy method in which rest and relaxation are experienced as a result of hot, cold or different applications of water. Based on the meaning of the concept of wellness, the services offered in this context aim to make people physically, mentally and spiritually well. The services offered for this purpose are; massages, skincare, mud baths, algae treatments (Değer, 2020).

Geriatrics and Disabled Tourism

Advanced age tourism, also known as third age tourism, is a type of health tourism that includes the treatment of individuals aged 65 and over. Those who participate in touristic activities within the scope of advanced age tourism are generally retired and individuals with flexible time. For this reason, old age tourism has an off-season income-generating effect (Zengingönül et al., 2012). Disabled tourism is the participation of disabled people in tourism activities in order to be treated, to benefit from medical care services or health services such as rehabilitation. This type of tourism; rehabilitation service includes therapies, special care and excursions (Tengilimoğlu, 2021).

Multi-Criteria Decision Making Methods

Multi-Criteria Decision-Making (MCDM) methods developed to make decisions in situations where there are multiple criteria and alternatives. The focal point of MCDM methods is to make the right decision. For this purpose, the most appropriate one among the alternatives is selected, sorted or classified (Paksoy, 2017).

Analytical Hierarchy Process Method (AHP)

Analytical Hierarchy Process (AHP), one of the MCDM problems, is a method developed by Thomas Saaty (Ayçin, 2019). The AHP method

makes the knowledge and experience of decision-makers measurable (Paksoy, 2017). The AHP method can shorten the decision-making process as it is understandable and easy to apply (Topdemir, 2019).

In the AHP method, first of all, the purpose of the problem is determined. Then, the criteria and sub-criteria affecting the purpose are determined. Expert opinion and survey studies can be used to determine the criteria (Özbek, 2019). In order to solve the problem correctly, the criteria and alternatives must be determined completely (Çelikbilek & Özdemir, 2020).

In the AHP method, the problem is handled hierarchically. In this hierarchical structure; goals, criteria and alternatives are included (Topdemir, 2019). With the created hierarchical structure, complex problems are easier to understand (Ayçin, 2019). An example of the hierarchical structure is shown in the figure below (Saaty, 2000).
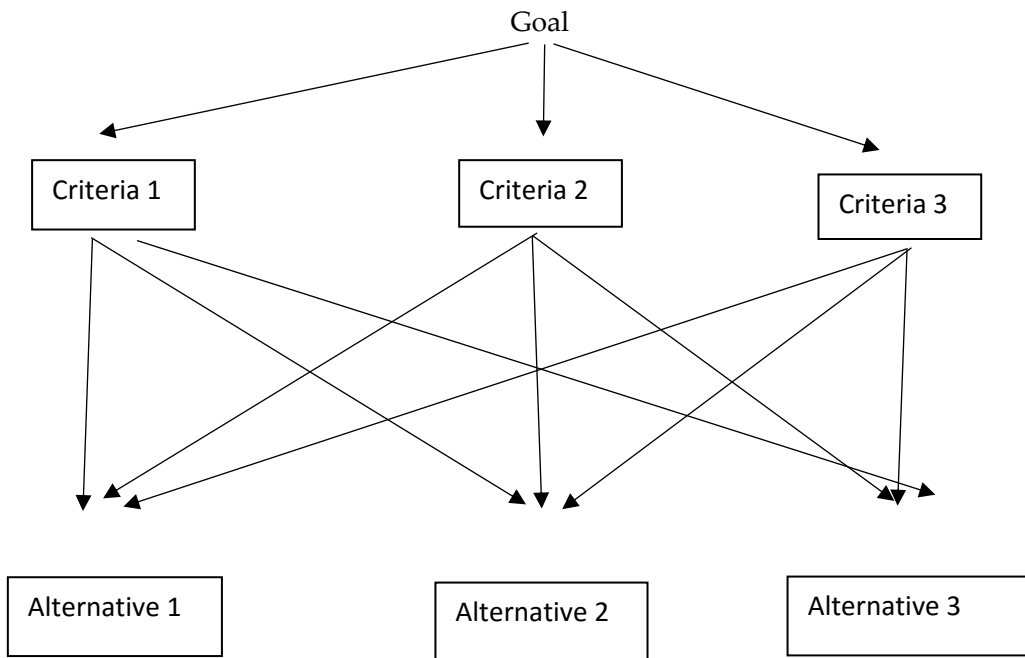
Figure 1. AHP hierarchical structure

A pairwise comparison matrix is created for each level of the hierarchical structure. With the pairwise comparison matrix, the relative importance of the factors in the hierarchical structure against each other is determined (İpek, 2019). The scale below is used when performing the pairwise comparison (Çelikbilek and Özdemir, 2020). With the help of this scale, it is determined how important the criterion i is compared to the criterion j (İpek, 2019).

Table 1. Saaty's pairwise comparison scale

Intensity of importance	Definition
1	Equally importance
3	Moderately importance
5	Strongly importance
7	Very strongly importance
9	Extremely importance
2, 4, 6, 8	Intermediate

References: (Saaty, 2000).

After the pairwise comparison matrix is created, the elements in the columns of the matrix are added and each element is divided by the column sum. In this way, the normalization process is carried out. The rows of the normalized matrix are summed and divided by the number of

elements. In this way, the priority vector is obtained (Özbek, 2019). With this process, the importance levels of the criteria and alternatives are determined (Akman, 2019).

It is necessary to check whether the pairwise comparison matrix is consistent within itself. As a result of these calculations, the consistency ratio is expected to be less than 0.1. If the consistency ratio is found to be greater than 0.1 as a result of the operations, it is understood that the comparison matrix is inconsistent. In this case, the pairwise comparison matrix should be revised (Özbek, 2019).

TOPSIS Method

TOPSIS (Technique for Order Preference by Similarity to Ideal Solution), one of the MCDM methods, was developed by Hwang and Yoon in 1981 (Paksoy, 2017). The TOPSIS method focuses on two concepts: the positive ideal and the negative ideal solution. In this method, the optimal alternative is closest to the positive ideal solution and farthest away from the negative ideal solution (Özbek, 2019).

Defining the problem is the first stage of the TOPSIS method (Çelikbilek & Özdemir, 2020). The

second stage of the TOPSIS method is the creation of the decision matrix. In the rows of the matrix there are alternatives, and in the columns there are criteria. This matrix is the initial matrix formed by decision-makers (Özbek, 2019).For the normalization of the decision matrix, the square root of the sum of squares of each element of the criterion columns contained in the decision matrix is taken. Then each element is divided into the resulting value. Along with this process, the normalization process is performed. The normalized decision matrix values are multiplied by the importance weights of the criteria and the normalized matrix is obtained (Çelikbilek & Özdemir, 2020). Maximum and minimum values in the columns of the weighted normalized matrix; give positive ideal solution and negative ideal solution values. In order to obtain the positive ideal solution value, the maximum value of each column of the weighted decision matrix is selected (Ayçin, 2019). In the negative ideal solution, it is determined by choosing the minimum value of each column of the weighted decision matrix (Paksoy, 2017).

Each criterion in the weighted normalized matrix is subtracted from the positive ideal solution values and taken as squares. Then the obtained values were collected and their square roots were taken. Along with this process, the distance to the positive ideal solution is calculated. The same process has been repeated to calculate the distance to negative ideal points. At this stage, each criterion is subtracted from negative ideal solution values. Finally, the negative ideal distance is divided into the total distance value and the relative proximity value is obtained (Ayçin, 2019).

Method

The Purpose of Research

This study aims to determine the hospital preferences of health tourists in line with expert opinions by using AHP and TOPSIS methods which are multi-criteria decision-making techniques. Within the scope of this study, it is aimed to weight the criteria affecting the hospital preferences of health tourists with the AHP

method and to make an ideal hospital selection with the TOPSIS method.

The Limitations of the Research

The data collected in research is limited to seven experts and eleven criteria that are effective in the hospital selection of health tourists.

Data Collection Tool

In the study, the data were collected with a questionnaire obtained as a result of the literature review. The criteria affecting the hospital selection of health tourists in the survey; qualified health personnel, affordable medical treatment, touristic features, advice, modern equipment, accreditation, promotion and advertising, hospital image, language, quality of medical care, regional and cultural proximity (Belber, 2015; Işık et al., 2016; Kurumehmet, 2018; Taş et al., 2018; Tütüncü et al., 2011; Zengingönül et al., 2012). Criteria and symbols of criteria are given in 2.

Table 2. Criteria for implementation

Symbol	Criteria
C1	Qualified Health Personnel
C2	Affordable Medical Treatment
C3	Touristic Features
C4	Advice
C5	Modern Equipment
C6	Accreditation
C7	Promotion and Advertising
C8	Hospital Image
C9	Language
C10	Quality of Medical Care
C11	Regional and Cultural Proximity

This questionnaire for pairwise comparisons of criteria consists of 55 questions. During the preparation of the questionnaire was used Saaty 9-scale. This scale is given in Table 1. By using the values in the table, pairwise comparisons of the criteria were made within the scope of the AHP method. After the criterion weights were obtained with the AHP method, an ideal hospital selection process was carried out with the TOPSIS method. At this stage, hospital A, hospital B and hospital C, which were determined as hypothetical, were evaluated in terms of criteria. The evaluation of hospitals on the basis of criteria was made by assigning numerical values between 1-9.

Data Collection

This study was conducted between March 2021 and April 2021 by taking the opinions of seven experts. Seven people participating in the study; their opinions were sought because they are experts in health tourism and dominate the field. Within the scope of the study, 6 experts were interviewed face-to-face and 1 expert was interviewed online. The interviews lasted approximately 25 minutes. This questionnaire, which was prepared by using the 9-scale evaluation scale developed by Saaty, is for pairwise comparisons of the criteria. During the interviews, experts were asked to compare each criterion in pairs regarding the purpose of choosing a hospital for health tourists. Within the scope of the survey, experts asked, "Is the criterion of qualified health personnel important, unimportant or equally important when compared to the criterion of affordable medical treatment?" they were expected to express their views on the questions asked. If it is considered important or unimportant, it is asked to what level it is. The obtained questionnaires were converted into numerical data with Table 1 and paired comparison matrices were obtained.

Method and Analysis of the Research

In this study, AHP and TOPSIS methods from MCDM techniques were used to determine the hospital choice of health tourists. In the study, seven expert opinions were taken at the stage of data collection. One of the experts is a professor and six of them are employees of the International Patient Services Unit of a private hospital in Istanbul.

Pairwise comparison matrices were created in the MSExcel program of the data collected within the scope of the research. In order to combine the obtained pairwise comparison matrices into a single matrix, the geometric averages of the pairwise comparisons were taken. In our study, geometric mean was used to obtain a single decision matrix from seven different matrices obtained as a result of expert opinions. Since the

arithmetic mean is highly affected by the extreme values, the geometric mean was found suitable for this study, the arithmetic mean was not found appropriate (Krejčí & Stoklasa, 2018). The elements in the columns of the pairwise comparison matrix are summed and each element is divided by the column sum. With this process, a normalized matrix was obtained. Priority vectors were obtained by averaging the rows of the normalized matrices. A consistency test was conducted to determine whether the results obtained at this stage were consistent. As a result of these calculations, the consistency ratio is expected to be less than 0.1. After weighing the criteria with the AHP method, the TOPSIS normalization matrix was created to evaluate the 3 hypothetical hospitals. A weighted normalized matrix was created by using the normalized values. At this stage, in the columns of the weighted normalized matrix; the maximum values give the positive ideal solution values, and the minimum values give the negative ideal solution values. Then, by calculating the distance values and calculating the relative proximity, an ideal selection and ranking was made among the alternative hospitals that health tourists would prefer.

Results

Weighting of criteria with the AHP method

In this part of the study, hospital selection of health tourists will be determined by using AHP and TOPSIS methods from MCDM techniques. The criteria weights will be determined by the AHP method, and then the ideal hospital selection application will be carried out with the TOPSIS method. A hierarchical structure was created with 11 criteria and 3 hospital alternatives for the purpose of choosing a hospital for health tourists. The hierarchical structure is shown in Figure 2. As a result of the literature review, the criteria affecting the hospital selection of health tourists; qualified health personnel, affordable medical treatment, touristic features, advice, modern equipment, accreditation, promotion and advertisement, hospital image, language, medical care quality, regional and cultural proximity (Belber, 2015; Işık et al., 2016; Kurumehmet, 2018;

Taş et al., 2018; Tütüncü et al., 2011; Zengingönül et al., 2012). Three hospitals were selected hypothetically for the alternatives in the

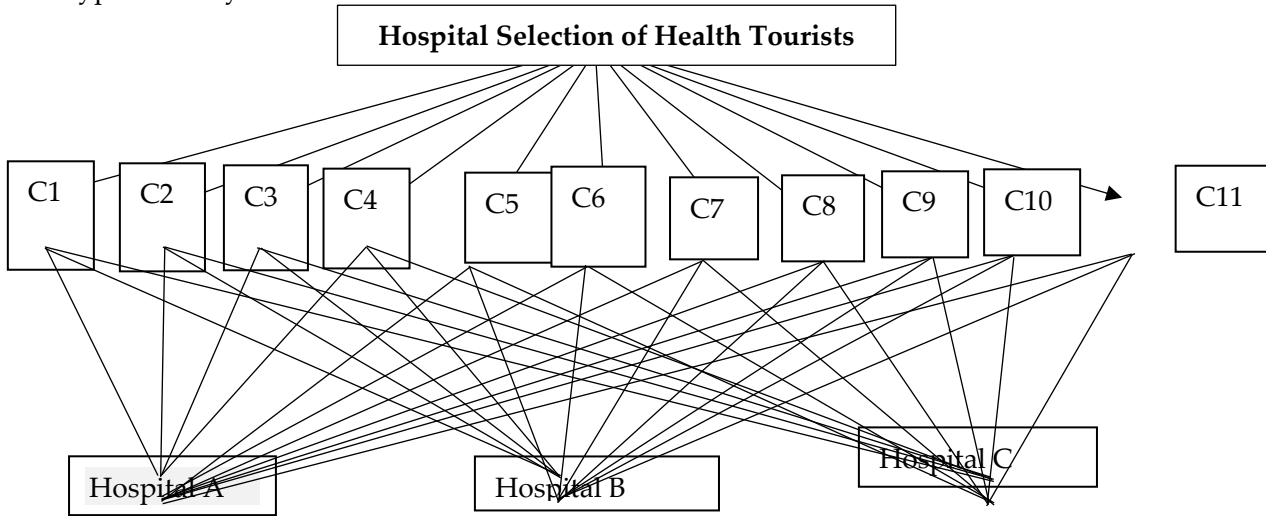hierarchical structure. Hospitals were named a Hospital A, Hospital B and Hospital C.

Figure 2. AHP hierarchy for health tourists hospital selection

In the study, seven expert opinions were taken in order to determine the importance levels of 11 criteria that affect the hospital choices of health tourists. At this stage, a questionnaire prepared using the 9-scale evaluation scale developed by Saaty was used. In order to combine the obtained pairwise comparison matrices into a single matrix, the geometric averages of the pairwise comparisons were taken. For each criterion, geometric averages were taken in line with the answers given by seven experts. The decision matrix obtained as a result of the geometric mean process is given below.

Table 3. Decision matrix obtained as a result of the geometric mean

Symbol	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
C1	1,00	3,97	6,27	1,87	1,99	2,09	3,78	1,74	2,89	2,09	4,64
C2	0,25	1,00	5,11	1,25	0,58	1,54	2,63	0,99	1,18	0,49	4,27
C3	0,16	0,19	1,00	0,34	0,21	0,51	0,55	0,21	0,53	0,18	0,76
C4	0,53	0,79	2,90	1,00	1,11	1,16	2,27	1,99	2,01	0,37	2,50
C5	0,50	1,72	4,81	0,90	1,00	3,00	2,45	1,87	1,94	0,63	3,69
C6	0,48	0,64	1,94	0,85	0,33	1,00	1,03	0,67	1,26	0,32	2,22
C7	0,26	0,38	1,81	0,44	0,41	0,96	1,00	0,68	1,03	0,22	2,27
C8	0,57	1,01	4,76	0,50	0,53	1,49	1,47	1,00	2,35	0,45	3,26
C9	0,34	0,84	1,87	0,84	0,51	0,79	0,96	0,42	1,00	0,48	0,86
C10	0,48	2,02	3,96	2,66	1,58	3,08	4,48	2,19	2,09	1,00	5,17
C11	0,21	0,23	1,32	0,40	0,27	0,45	0,44	0,30	1,16	0,19	1,00

For the normalization of the pairwise comparison matrix, the values in each column were first collected. After obtaining the column totals, each criterion is divided by the column total.

With this process, the normalized decision matrix is obtained. The values in the rows of the normalized matrix are summed and divided by the number of elements. With this process, the priority vector is obtained. The consistency ratio was calculated in order to determine whether the pairwise comparisons made within the scope of the study were consistent within themselves. The consistency rate was found to be 0,02. The consistency ratio was found to be less than 0.10. This result shows that the pairwise comparison matrices are consistent, that is, pairwise comparison matrices can be used for the purpose of health tourists' hospital selections. As a result, the criteria weights obtained by the AHP method and determined to be consistent were found as in table 4.

Table 4. Criteria weights obtained as a result of the AHP method

Symbol	Criteria	Criteria Weights
C1	Qualified Health Personnel	0,199487
C2	Affordable Medical Treatment	0,094625
C3	Touristic Features	0,026353
C4	Advice	0,097737
C5	Modern Equipment	0,123654
C6	Accreditation	0,061952
C7	Promotion and Advertising	0,050351
C8	Hospital Image	0,090537
C9	Language	0,055881
C10	Quality of Medical Care	0,165864
C11	Regional and Cultural Proximity	0,033557

As a result of expert opinions, the weight ranking of the criteria is as follows; qualified medical staff (0,199487), quality of medical care (0,165864), modern equipment (0,123654), advice (0,097737), affordable medical treatment (0,094625), hospital image (0,090537), accreditation (0,061952), language (0,055881), promotion and advertisement (0,050351), regional and cultural proximity (0,033557), touristic features (0,026353).

Ideal Hospital Selection with TOPSIS Method

At this stage of the study, an ideal hospital will be selected for health tourists by using the criterion weights obtained by the AHP method. During the implementation of the TOPSIS method, first of all, the decision matrix should be created. Hospital A, hospital B and hospital C, which are determined as alternatives in the decision matrix, are evaluated in terms of criteria. Within the scope of this study, hospitals were determined as hypothetical. The evaluation of hospitals on the basis of criteria was made by assigning numerical values between 1-9. In this evaluation, hospitals were evaluated on the basis of criteria, with 1 being the lowest and 9 the highest. The decision matrix containing the evaluation of the alternatives created within the scope of the TOPSIS method according to the criteria is given below.

Table 5. TOPSIS decision matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
Hospital A	9	3	7	8	9	9	8	9	7	9	7
Hospital B	3	9	6	2	4	9	3	3	3	6	5
Hospital C	7	5	5	6	7	9	5	6	5	7	6

To perform the normalization of the decision matrix in the TOPSIS method, each criterion is divided by the square root of the sum of the squares of the values in the column. During the weighting of the normalized decision matrix, each value in the normalized decision matrix was multiplied by the criterion weights obtained by the AHP method. The weighted normalized decision matrix obtained by multiplying each value in the normalized matrix with the criterion weights is as follows.

Table 6. Weighted normalized matrix

Hospitals	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
Hospital A	0,14	0,02	0,013	0,07	0,08	0,03	0,04	0,07	0,03	0,11	0,020
Hospital B	0,04	0,07	0,011	0,01	0,04	0,03	0,01	0,02	0,01	0,07	0,014
Hospital C	0,11	0,04	0,010	0,05	0,07	0,03	0,02	0,04	0,02	0,08	0,017

The maximum value in each column of the weighted normalized matrix shows the positive ideal solution values, and the minimum value shows the negative ideal solution values. At the stage of calculating the distance to the positive ideal points, each criterion in the weighted normalized matrix was subtracted from the positive ideal solution values and their squares were taken. Then the obtained values were summed and their square roots were taken. The same process is repeated to calculate the distance to the negative ideal points. At this stage, each criterion is subtracted from the negative ideal solution values. Positive ideal and negative ideal solution values are given in the table below.

Table 7. Ideal and negative ideal solution values

	S_i^+	S_i^-
Hospital A	0,05035526	0,1396
Hospital B	0,1395619	0,05039
Hospital C	0,066634108	0,0868

Relative proximity; It is calculated with the negative ideal solution value and the positive ideal solution value obtained in the previous step. First of all, the total distance value was obtained by summing the positive ideal solution value and the negative ideal solution value. Then, the negative ideal solution value is divided by the total distance value and the relative closeness value is obtained. The ranking of hospital alternatives obtained within the scope of TOPSIS method is given in the table below.

Table 8. Relative proximity values and ranking of alternatives

	C_i^+	Ranking
Hospital A	0,73547732	1
Hospital B	0,26452268	3
Hospital C	0,56630374	2

In this study aimed at determining the hospital preferences of health tourists, criterion weights were determined by the AHP method. By using the criteria weights obtained, an ideal hospital selection process for health tourists was carried

out. When the relative closeness values of the alternatives are examined; Hospital A, with the largest relative closeness value of 0.7354, was the most ideal hospital choice. Hospital C ranks second with a relative closeness value of 0.5663, and hospital B with a relative proximity value of 0.2645 is in the last place. Among these three hospital alternatives, the most ideal hospital was found to be hospital A, while the farthest alternative to the ideal solution was found to be hospital B.

Discussion and Conclusion

This study was carried out to determine the hospital preferences of health tourists using AHP and TOPSIS methods, which are among the MCDM techniques. Within the scope of this study, the criteria affecting the hospital preferences of health tourists were weighted with the AHP method, and an ideal hospital was selected with the TOPSIS method. Seven expert opinions were taken during the pairwise comparison of the criteria that are effective in the hospital selection of health tourists. As a result of expert opinions, the weight ranking of the criteria is as follows; qualified medical staff (0,199487), quality of medical care (0,165864), modern equipment (0,123654), advice (0,097737), affordable medical treatment (0,094625), hospital image (0,090537), accreditation (0,061952), language (0,055881), promotion and advertisement (0,050351), regional and cultural proximity (0,033557), touristic features (0,026353).

Criterion weights were obtained by the AHP method. Using the criteria weights obtained, an ideal hospital selection process was carried out among three hypothetical hospital alternatives with the TOPSIS method. With the TOPSIS method, the relative proximity value among the three alternative hospitals was found to be 0.7354, and the most ideal hospital in the hospital preferences of health tourists was found to be hospital A. In the second place, hospital C with 0.5663 and hospital B with 0.2645 were in the last place.

In the study conducted by Reddy (2013) to determine the reasons that are effective in the

preference of India within the scope of medical tourism, it was determined that the high quality of doctors and medical facilities were effective in the preference of India within the scope of medical tourism (Reddy, 2013). This result supports our study. In our study, qualified health personnel criteria with a weight of 0.1994 criteria and modern equipment criteria with a weight of 0.1236 criteria were determined as the effective criteria in the hospital preferences of health tourists.

In the study conducted by Izadi et al. (2014) to determine the factors that affect the preference of hospitals in Tehran within the scope of medical tourism, it was determined that the awareness and reliability of the health personnel and the factors of affordable health services affect the choice of hospital within the scope of medical tourism (Izadi, Torabian, & Farhangi, 2014). This result supports our study. In our study, qualified health personnel were the most effective criterion in the hospital selection of health tourists with a criterion weight of 0.1994, while affordable medical treatment was in the fifth place with a criterion weight of 0.0946.

In the study conducted by Mosadeghrad and Sadeghi (2021) to determine the reasons that affect Iran's preference in medical tourism, it was determined that the quality and cheapness of medical services were effective in the preference of Iran within the scope of medical tourism (Mosadeghrad & Sadeghi, 2021). This result is similar to our study. In our study, it was determined that the quality of medical care with a weight of 0.1658 criteria and affordable medical treatment criteria with a weight of 0.0946 criteria had a high effect on the hospital selection of health tourists.

In the study conducted by Bostan and Yalçın (2016) to determine the factors affecting the destination choice of health tourists, it was determined that service quality is the most important reason for preference in health tourism as a result of interviews with health personnel working in a private hospital (Bostan & Yalçın, 2016). In our study, the quality of medical care criterion ranks second with a criterion weight of 0.1658.

In a study conducted by Sevim and Sevim (2019) with 284 health tourists who applied to a private hospital in Istanbul, it was determined that quality health service delivery, modern institutions and touristic features were the most significant factors for health tourists' hospital preferences (Sevim & Sevim, 2019). In our study, while the quality of medical care criterion was in the second place with a weight of 0.1658 criteria, it was determined that the criterion of modern equipment was in the third place with a weight of 0.1236 criteria. The criterion of touristic features was found to be less important in our study with a criterion weight of 0.0263.

In a study conducted by Hasanova (2019) with 344 health tourists to determine the reasons that affect the selection of Hacettepe University Hospitals by health tourists, it was determined that the awareness of the doctors and the reliable image of the hospital were effective in the preferences of health tourists (Hasanova, 2019). In our study, the criterion of qualified health personnel was determined as the criterion with the highest importance with a weight of 0.1994. The image of the hospital was found to be less important in our study with a weight of 0.0905.

The situation of Malaysia in medical tourism was evaluated with Dematel and Fuzzy TOPSIS method. As a result, it has been determined that the most effective criteria are human and technological factors. In our study, qualified health personnel ranked first with 0.1994, while modern equipment was ranked third with 0.1236. These results are similar to our study (Nilashi, Samed, Manaf et al., 2019).

One of the effective criteria in the hospital selection of health tourists is qualified health personnel. For this reason, in order to be a hospital that can be preferred by health tourists; trainings can be organized to eliminate the deficiencies of all health personnel in hospitals in foreign language. Trainings on health tourism can be given to health personnel. It can be ensured that healthcare personnel participate in congresses and conferences held abroad.

One of the effective criteria for health tourists in choosing a hospital is the modern equipment of the hospital. For this reason, devices that will increase the preferability of the hospital can be used by following the technological developments.

Satisfaction surveys can be applied to health tourists who have received services within the scope of health tourism. In this way, the improvements that can be made can be determined from the point of view of the health tourist. Special packages can be prepared for health tourists who come to receive services within the scope of health tourism. Thanks to these packages, health tourists can both have a holiday and receive health services. Bilateral agreements, promotions and advertisements can be made in countries with regional and cultural proximity and in countries with health tourism potential.

This study was carried out in line with 11 criteria obtained as a result of the literature review in order to determine the hospital preferences of health tourists. Expert opinion can also be taken at the stage of determining the criteria for future studies. Thus, the common views of experts and people with industry experience in health tourism will be obtained. In this way, a sectoral perspective can be gained in addition to the literature. In future studies, the city or country preference of health tourists can be investigated. In this way, the improvements to be made in the health tourism sector can be evaluated.

References

Akman, K. (2019). *Çok ölçütlü karar verme yöntemlerinde AHP ve TOPSIS ile araba seçimi*. Necmettin Erbakan University, Institute of Science and Technology, Master's Thesis, Konya.

Ayçin, E. (2019). *Çok kriterli karar verme bilgisayar uygulamalı çözümler*. Ankara: Nobel Akademik Yayıncılık .

Belber, B. G. (2015). Yaş ve medeni duruma göre "özel hastanelerin yaptığı tanıtım" hastanenin prestijine, tanınırlığına ve tercih edilebilirliğine etkisi: Nevşehir uygulaması. *International Journal of Social Sciences and Education Research, 1*(2), 425-438.

Bostan, S., & Yalçın, B. (2016). Sağlık Turistlerinin medikal destinasyon seçimini etkileyen fakötrler. *Uluslararası Sosyal Araştırmalar Dergisi, 9*(43), 1729-1735.

Burtan Doğan, B., & Aslan, A. (2019). Türkiye'de sağlık turizminin mevcut durumu ve ülke ekonomisine katkıları. *Dicle Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 9*(18), 390-418.

Buzcu, Z., & Birdir, K. (2019). Türkiye'de medikal turizm incelemesi: Özel hastanelerde bir çalışma. *Gaziantep University Journal of Social Sciences, 18*(1), 311-327.

Connell, J. (2006). Medical tourism: Sea, sun, sand and y surgery. *Tourism Management, 27*, 1093-1100.

Çelikbilek, Y., & Özdemir, M. (2020). *Çok kriterli karar verme yöntemleri açıklamalı ve karşılaştırmalı sağlık bilimleri uygulamaları ile*. Ankara: Nobel Akademik Yayıncılık .

Değer, M. (2020). Rekreasyonda Yeni Trendler: Spa & Wellness. *Journal of Recreation and Tourism Research, 7*(2), 308-324.

Demir Uslu, Y., Kedikli, E., Yılmaz, E., Çiçek, A., Karataş, M., & Aydın, S. (2021). Developing Strategies for ıncreasing market share of Turkey on health tourism by using fuzzy AHP Method. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 10*(2), 159-171.

Erdoğan, E., & Aklanoğlu, F. (2008). Termal turizm ve Afyon-Gazlıgöl Örneği. *e-Journal of New World Sciences Academy, 3*(1), 83-92.

Ergen, F., & Aydemir, B. (2020). Medikal turizm girişimciliği: İstanbul örneği. *Türk Turizm Araştırmaları Dergisi, 4*(2), 1607-1623.

Görener, A. (2016). A SWOT-AHP approach for assessment of medical tourism sector in Turkey. *alphanumeric journal, 4*(2), 159-170.

Hasanova, Y. (2019). Uluslararası hastaların hacettepe üniversite hastanelerini tercih nedenleri, hizmet ile ilgili değerlendirmeleri ve yaşadıkları sorunlar. Hacettepe University, Institute of Social Sciences, Ankara.

İpek, U. (2019). Kuruluş yeri seçiminde çok kriterli karar verme teknikleri: Analitik hiyerarşi süreci ve TOPSIS örneği. *Toros University Institute of Social Sciences*.

Işık, O., Erişen, M. A., & Fidan, C. (2016). Tüketicilerin hastane seçiminde etki eden faktörlere ilişkin algılamaları. *İşletme Bilimi Dergisi, 4*(1), 99-110.

İzadi, M., Torabian, M., & Farhangi, Z. (2014). Surveying the factors affecting the selection of hospitals by medical tourists. *International Journal of Travel Medicine and Global Health, 2*(4), 155-158.

Kaya, S., Yıldırım, H., Karsavuran, S., & Özer, Ö. (2013). Türkiye Medikal Turizm Değerlendirme Raporu 2013. Ankara: Türkiye Cumhuriyeti Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü Sağlık Turizmi Daire Başkanlığı. Date of Retrieval: 02.17.2021. Retrieval From: *http://dosyasb.saglik.gov.tr/Eklenti/535,turkiye-medikal-turizm-degerlendirme-raporu-2013pdf.pdf.*

Krejčí, J., & Stoklasa, J. (2018). Aggregation in the analytic hierarchy process: Why weighted geometric mean should be used instead of weighted arithmetic mean. *Expert Systems with Applications, 114*, 97-106.

Kurumehmet, T. (2018). Sağlık hizmetlerinin uluslararası alanda pazarlamasında pazarlama karması elemanlarının yabancı uyruklu hastalar arasında değerlendirilmesi. Istanbul Medipol University, Institute of Health Sciences, Istanbul.

Lunt, N., Smith, R., Exworthy, M., Green, S., Horsfall, D., & Mannion, R. (2011). Medical tourism: treatments,markets and health system ımplications: A scoping review. Paris: OECD. Retrieval From:*https://www.oecd.org/els/health-systems/48723982.pdf.*

Mosadeghrad, A. M., & Sadeghi, M. (2021). Medical tourism: Reasons for choosing Iran. *Payesh, 20*(2), 145-166.

Nilashia, M., Samad, S., Manaf, A. A., Ahmadi, H., Rashid, T. A., Munshi, A., Ahmed, O. H. (2019). Factors influencing medical tourism adoption in Malaysia: A DEMATELFuzzy TOPSIS approach. *Computers & Industrial Engineering, 137*(11), 1-11.

Özbek, A. (2019). *Çok kriterli karar verme yöntemleri ve excel ile problem çözümü*. Ankara: Seçkin Akademik ve Mesleki Yayınlar.

Paksoy, S. (2017). *Çok kriterli karar vermede güncel yaklaşımlar*. Adana: Karahan Kitabevi.

Reddy, S. G. (2013). *Medical tourism in India: An exploratory study*. Kansas State Unıversıty, Kansas.

Saaty, T. L. (2000). Fundementals of Decision Making and Priority Theory with Analytic Hierarchy Process. Pittsburgh: RSWPublications.

Sevim, E., & Sevim, E. (2019). Medikal Turizm tercihini etkileyen faktörlerin incelenmesi: Türkiye örneği. *Hacettepe Sağlık İdaresi Dergisi, 22*(3), 633-652.

Şahin, G. G., & Tuzlukaya, Ş. (2013). *Turizm türleri ve turizm politikaları, dünyada ve Türkiye'de sağlık turizmi*. D. Tengilimoğlu içinde, Sağlık Turizmi (p.47-68). Ankara: Siyasal Kitabevi.

Taş, C., Bedir, N., Eren , T., Alağaş, H. M., & Çetin, S. (2018). AHP-TOPSIS Yöntemleri entegrasyonu ile poliklinik değerlendirilmesi: Ankara'da bir uygulama. *Sağlık Yönetimi Dergisi, 2*(1), 1-17.

Tengilimoğlu, D. (2021). Sağlık Turizmi ve devlet teşvikleri. *Journal of Life Economics, 8*(1), 1-10.

Tengilimoğlu, D., & Kahraman, O. (2013). *Dünyada ve Türkiye'de medikal turizm. d. tengilimoğlu in, sağlık turizmi* (p.99-121). Ankara: Siyasal Kitabevi.

Topdemir, S. (2019). Ahp-Tosis Yöntemleri ile tedarikçi seçimi: Doğalgaz sekötründe bir uygulama. Beykent University Institute of Science and Technology, Istanbul.

Tütüncü, Ö., Kiremitçi, İ., & Çalışkan, U. (2011). Sağlık turizmi, güvenlik ve kalite. *Anatolia: Turizm Araştırmaları Dergisi, 22*(1), 91-93.

Yalçın, B. (2018). Deniz Suyunun Spa-Wellness Turizmi Kapsamında Kullanımı. 4. *Ulusal Deniz Turizmi Sempozyumu*, (p.1-10). 23-24 Şubat, İzmir.

Yiğit, A., & Demirbaş, M. B. (2020). Türkiye'de medikal turizmin gelişimine etki eden faktörlerin SWOT-AHP Yöntemi ile tespit edilmesine yönelik bir araştırma. *Karadeniz Sosyal Bilimler Dergisi, 12*(22), 173-192.

Zengingönül, O., Emeç, H., İyilikçi, D. E., & Bingöl, P. (2012). Sağlık turizmi: İstanbu'la yönelik bir değerlendirme. İstanbul: Ekonomistler Platformu Derneği.

OPUS▸

Journal of Society Research

RESEARCH ARTICLE

The Role of Emotional Distress in the Relationship between COVID-19 Burnout and Academic Burnout in University Students

Aslı Burçak Taşören[1] I Sümeyye Eliz Burhan[2]

[1] Asisst. Prof., Istanbul Medipol University, Istanbul/Turkey
ORCID: 0000-0002-5864-6475
E-Mail:
abtasoren@medipol.edu.tr

[2] Research Assit., Istanbul Medipol University, Istanbul/Turkey
ORCID: 0000-0003-0140-1466
E-Mail:
sburhan@medipol.edu.tr

Corresponding Author:
Aslı Burçak Taşören

Abstract

The aim of the present study was to determine whether COVID-19 burnout and emotional distress predicted academic burnout, and to assess the mediating role of emotional distress, on the relationship between COVID-19 burnout and academic burnout in university students. The sample consisted of 311 (259 female and 52 male) students enrolled in undergraduate (87.1%), master/doctorate programs (12.9%). Students completed the COVID-19 Burnout Scale, Maslach Burnout Inventory – Student Scale (MBI-SS), and the Depression Anxiety Stress Scale-21 (DASS-21). Pearson's correlation coefficient showed a significant positive relationship between COVID-19 burnout, academic burnout, and emotional distress. COVID-19 burnout and emotional distress predicted academic burnout, also COVID-19 burnout and the depression scale of the DASS-21 predicted academic burnout. In a mediaton model, emotional distress partially mediated the relationship between COVID-19 burnout and academic burnout. When the model was tested with thedepression scale of the DASS-21, the relationship between COVID-19 burnout and academic burnout was partially mediated only by the depression scale.

Keywords: *Academic Burnout, Academic Engagement, COVID-19 Burnout, Emotional Distress, Depression.*

Öz

Bu araştırmada, üniversite öğrencilerinde korona tükenmişliği ve negatif duygu durumunun okul tükenmişliğini yordaması, ayrıca korona tükenmişliği ve okul tükenmişliği arasındaki ilişkide negatif duygu durumunun aracı rolü incelenmiştir. Çalışmaya 259 kadın, 52 erkek olmak üzere 311 öğrenci katılmıştır. Örneklemin %87.1'i lisans öğrencilerinden, %12.9 'u yüksek lisans/doktora öğrencilerinden oluşmaktadır. Katılımcılar, Koronavirüs Tükenmişlik Olçeği, Maslach Tükenmişlik Envanteri-Oğrenci Formu ve Depresyon, Kaygı ve Stres Ölçeğini-21 (DASS-21) yanıtlamışlardır. Korona tükenmişlik, okul tükenmişliği ve depresyon arasındaki ilişkiyi belirlemek amacıyla yürütülen Pearson korelasyon analizi sonuçları, tüm ölçekler arasında pozitif yönde anlamlı bir ilişki olduğunu ortaya koymuştur. Yürütülen regresyon analizinde, korona tükenmişliği ve negatif duygu durumunun okul tükenmişliğini yordadığı görülmüştür. DASS-21'in alt boyutlarıyla yürütülen analizde ise korona tükenmişliği ve depresyon alt boyutunun okul tükenmişliğini yordadığı görülmüştür. Ayrıca iki model test edilmiştir. İlk modelde korona tükenmişliği ve okul tükenmişliği arasındaki ilişkide DASS-21 ile ölçülen negatif duygu durumunun kısmi aracı rolünün olduğu görülmüştür. İkinci modelde ise korona tükenmişliği ve okul tükenmişliği arasındaki ilişkide DASS-21'in depresyon alt boyutuyla ölçülen depresyon semptomlarının kısmi aracı rolünün olduğu ortaya konmuştur

Anahtar Kelimeler: *Okul Tükenmişliği, Okul Bağlılığı, Korona Tükenmişliği, Negatif Duygu Durumu, Depresyon.*

Introduction

In Turkey, with the outbreak of the COVID-19, precautions have been swift and education transitioned to online learning in March 2020. Since the beginning preventive and cautionary measures, sharing of information, such as restrictions, use of masks, informing the public for daily cases and deaths have been similar to European countries. One of the main concerns related to the pandemic, other than physical health, have been its negative effect on mental health and wellbeing. The outbreak of COVID-19 has been associated with mental health problems including depression, stress, anxiety, and panic disorders (Li et al., 2021; Marler et al., 2021), which makes clear the importance of maintaining positive mental health as well as physical health. In a longitudinal study carried out with university students since 2018, students reported increased depressive symptoms and stress symptoms in April 2019 after the COVID-19 outbreak. Findings also showed that anxiety increased relatively and that students reported feeling lonelier during the onset of the pandemic (Elmer et al., 2020). This study is interesting since it provides comparison of emotional distress prior and after the pandemic. Similarly in another study university students reported increased stress and anxiety levels, sleep problems and negative changes in their eating habits (Son et al., 2020).

Many factors add to the disastrous effect of the pandemic on mental health, and prior mental health is an important determinant in this case. Individuals with high anxiety sensitivity reported increased levels of COVID-19 fear which in turn predicted increased anxiety and depression (Warren et al., 2021), and even individuals with high levels of life satisfaction and happiness before the pandemic, had problems in interpersonal relationships and general psychological functioning after the onset of the pandemic (Gawrych et al., 2021). In this aspect, psychological resilience stands out as an important protective factor. Increase in psychological resilience was related with lower levels of fear from the COVID-19 (Tutal and Efe, 2020). Emotional resilience which was also related with spirituality, worship, and meaning of life, was found to be associated with lower levels of anxiety, stress, and depressive symptoms, and higher tolerance for uncertainty (Kasapoğlu, 2020; Kimter, 2020; Kul et al., 2020).

Academic Burnout and COVID-19 Burnout

The negative effects of stressful life events on psychological functioning, including anxiety and depression is well documented in the literature (Gezer & Yenel, 2009; Hassanzadeh et al., 2017; Tibubos et al., 2021). Studies on burnout mainly focus on job and work place burnout, usually in individuals with people-oriented professions, such as educators, human services and health care professionals. Burnout is defined as a prolonged response to job related long-term interpersonal stressors. It includes three basic responses, which are, detachment from the job, overwhelming exhaustion, and cynicism, and includes reduced personal accomplishment due to being exposed to intense work related factors (Maslach & Jackson, 1981; Maslach & Leiter, 2016). Burnout is one of the negative outcomes related with stress and is closely related with anxiety and depression (Koutsimani et al., 2019). On the other hand, academic burnout is related to feeling exhausted due to study and study requirements (exhaustion), a cynical and detached attitude towards academic responsibilities (cynicism), and feeling inefficient as a student (inefficacy) (Zhang et al., 2006). It consists of burnout related to academic demands, and includes decreased school engagement, exhaustion at school, cynicism toward the meaning at school, feelings of inadequacy related to academic achievement, low grades, lack of positive interpersonal relationships, and high expectations from instructors and family. Some of the important factors contributing to academic burnout are academic pressure, negative attitude towards courses, and feeling inefficiant as a student (Woodrum, 2004; David, 2010). Social factors, school factors, interpersonal communication, feeling lonely are among the factors which influence student burnout (Eriş & Barut, 2020; Li et al., 2021). Expecting high effort and achievement without providing necessary support to cope with academic demands, is one of

the major characteristics of such a setting (Neumann et al., 1990). Personal factors and outcomes related with academic burnout are depression, anxiety and negative self-image (Salmela-Aro et al., 2009; Slivar, 2001), as well as negative emotions regulation strategies (Chen, 2021). On the other hand, social support, life satisfaction, and school engagement are some of the factors which are negatively associated with academic burnout (Akbaşlı et al., 2019; Ye et al., 2021).

Increased and prolonged experience of COVID-19 stress is thought as the main determinant of increased COVID-19 burnout (Yıldırım and Solmaz, 2020). On the other hand, resilience is found as an important factor in lessening the impact of COVID-19 stress on COVID-19 burnout. Studies on COVID burnout are mainly focused on healthcare professionals. Burnout was found to be related with anxiety, depression, and worry about getting infected in health care professionals. These outcomes were also related with safety attitudes and job role (Denning et al., 2021; Jang et al., 2021). Also emotional exhaustion increased according to perceived sufficiency, organizational support, work characteristics (Jang et al., 2021) such as being a frontline worker (Kılıç et al., 2021). Longer working hours were related with higher burnout, leading to emotional exhaustion and depersonalization (Zhang et al., 2020). Also females reported higher burnout compared with males (Kılıç et al., 2021). Studies recommend psychological and social support as well as safety measures in the work setting.

Mental health and Academic Burnout in University students during the COVID-19

The shift from face-to-face to online education due to the COVID-19 pandemic has been sudden and unforeseen, leaving no time for prior preparation in part for both faculty members and students. Although limited in number, studies indicate academic burnout may be a problem among university students during the pandemic. Arslan & Yıldırım (2021) concluded that COVID related stress was associated with depressive symptoms in university students, and relatedly Celik, (2021)

found that students' fear of Covid-19 was related with increased burnout and anxiety. In another study, Sveinsdóttir et al. (2021) also found that academic burnout was predicted by students' perceived stress and support. In summary it can be concluded that emotional distress and COVID-19 burnout are interrelated among university student populations.

The present study

Due to the pandemic which began in 2019, all universities in Turkiye moved to online learning in March 2020. After nearly 3 semesters of online education, transition to face-to-face education has had its difficulties. Although many university students were enthusiastic about returning to campus, the transition was not an easy one considering the consequences related with time spent in lockdowns and online education. How students emotionally handled this 1.5-year span is thought to make a huge difference in how they are handling the transition to face-to-face education. Most students were isolated from friends, but those who went through prolonged periods of isolation, who lack social support, who still have worries related to their health, and especially those who have lost loved ones and had mental health issues related with the circumstances created by the pandemic, are thought to be at higher risk. Given the time spent away from campus and friends, social restrictions, and uncertainties, confusion and frustrations related with the pandemic, these variables are thought to have added in differing amounts to burnout related with the COVID-19. Also, for some students the many months spent in online education may have negatively affected academic engagement and motivation and added to the possibility of academic burnout in the transition to face-to-face education.

We believe that the adversities created by the pandemic may have created exhaustion, which is a significant component of burnout. The prolonged and ambiguous nature of the process may have led to worries about what will happen next, whether education will continue face-to-face, and many other uncertainties may have led to an exhaustion

regarding the whole process. Although many studies have focused on mental health outcomes, fear and stress related to COVID, we focused on burnout because we believe that after 1.5 years, we are in a period in which all these factors may have led to burnout. We also believe that COVID-19 related burnout may be generalized into academic life, and emotional distress may be one of the several factors contributing to this process. Although there are studies examining mental health outcomes in university students, we couldn't come across any study examining COVID-19 related burnout and academic burnout in university students. Relatedly we assumed that COVID-19 burnout and emotional distress would predict academic burnout. Also, although COVID-19 burnout and academic burnout may be related, we assumed that emotional distress would make a difference on the relationship between the two constructs. In this case it was hypothesized that emotional distress would explain the relationship between COVID-19 burnout and academic burnout. For this purpose, a mediation model was tested to determine whether emotional distress had a mediating role in the relationship between COVID-19 burnout and academic burnout.

Method

Research Model

This is a descriptive correlational study. In descriptive studies, information about prevalent conditions and situations are gathered with the aim of description and interpretation (Hanson et al., 2005).

Participants

The sample consisted of 259 (83%) female and 52 male (16.4%) students (total 311) enrolled in undergraduate (87.1%), master/doctorate programs (12.9%). Demographics showed that 49.8% of the sample were enrolled in social sciences programs, 35% in health care programs, 11.6% in science programs, and 3.5% in engineering programs; 78.8% of the sample lived with their family, 10.6% stayed in a dormitory,

6.1% lived alone, and 4.5% lived with a roommate. The data was collected in November 2021, at the second month on transition to face-to-face education.

Data Collection Tools

Demographic information was collected through a demographic information form prepared by researchers. Data were gathered through the COVID-19 Burnout Scale, Maslach Burnout Inventory – Student Scale (MBI-SS), and the Depression Anxiety Stress Scale-21 (DASS-21).

COVID-19 Burnout Scale. The scale was adapted by changing the expressions of the short-form of the Burnout scale developed by Malach-Pines (2005) in line with COVID-19 (eg, "when you think about the coronavirus" instead of "about my job") (Yıldırım & Solmaz, 2020). This is a 5-Likert type scale (1=never to 5=always) and includes 10 items. A sample item is "When you think about COVID-19 overall, how often do you feel disappointed with people?". Higher scores indicate higher levels of burnout related with the COVID-19, items are related to having trouble in daily life due to burnout in relation with the pandemic and related situational factors. The original Cronbach alpha is 0.92. In the present study, Cronbach's alpha internal consistency is also 0.92.

Depression Anxiety Stress Scale-21 (DASS-21). The scale is a 4-point-rating-scale (0=never to 3=always) developed by Lovibond and Lovibond (1995) to measure the frequency of depression, anxiety and stress symptoms during the past week. A sample depression item is "I couldn't seem to experience any positive feeling at all", a sample anxiety item is "I was worried about situations in which I might panic and make a fool of myself", and a sample stress item is "I found it hard to wind down". Yıldırım et al. (2018) adapted the scale into Turkish and internal consistency measured with Chronbach's alpha was calculated as 0.89 for depression, 0.87 for anxiety, and 0.90 for stress. In the present study, internal consistency measured with Chronbach's alpha was calculated as 0.81 for depression, 0.73 for anxiety, and 0.81 for stress.

Maslach Burnout Inventory – Student Scale (MBI-SS). The seven-point Likert-type inventory was developed by Schaufeli et al. (2002) to measure academic burnout in university students. The scale consists of 3 factors (exhaustion, cynicism, and efficacy) and 16 items with. The Turkish version of the scale was adapted by Capri et al. (2011) and consists of 3 factors and 13 items. It was adapted as a 5-Likert type scale (1=never to 5=always). A sample item is "I feel exhausted at the end of university day". The internal consistency coefficients measured with Cronbach's Alpha for the Turkish form were calculated as 0.76, 0.82 and 0.61 for the 3 factors. In the present study, the Cronbach's Alpha coefficient for the total scale was 0.78, and 0.88, 0.84, 0.76 for the exhaustion, cynicism and efficacy factors respectively.

Data Analyses

In the study, COVID-19 burnout was determined as the independent variable, academic burnout as the dependent variable, and DASS-21 and depression scale of the DASS-21 as the mediator variables. SPSS 21 Package program and SPSS Process V3.5 were used to analyze the data (Hayes, 2018). In order to examine the mediating role of emotional distress measured by DASS-21 total score and depression symptoms measured by the depression scale of the DASS-21, PROCESS Macro conditional process analysis, developed by Hayes (2012), was used. The mediating effect in the research model was examined using the Multiple Mediation Model 4 and with a 95% confidence interval on 5000 bootstrap samples. In the current study, an analysis model was created with COVID burnout as the predictor variable, academic burnout as the predicted variable, and DASS-21 and depression scale of the DASS-21 as the mediator variables.

Results

Descriptive statistics including mean values, standard errors, and standard deviation are shown in Table 1.

Table 1. Mean and standard deviation of research variables

Variables	N	$\bar{X}$	S.E.	S.D.
1.COVID-19 Burnout	311	7.99	0.24	4.23
2. Depression	311	5.57	0.20	3.56
3. Anxiety	311	8.01	0.24	4.35
4. Stress	311	21.58	0.58	10.32
5. DASS-21 Total	311	13.47	0.29	5.17
6. Exhaustion	311	9.61	0.23	4.06
7. Cynicism	311	12.98	0.18	3.27
8. Efficacy	311	36.06	0.46	8.15
9. Academic Burnout Total	311	26.89	0.55	9.68

Pearson correlation analysis was carried out to determine the relationship between COVID-19 burnout, academic burnout and its subscales (exhaustion, cynicism and efficacy), and DASS-21 and its scales (depression, anxiety, and stress). There was a positive significant correlation between COVID-19 burnout and depression scale (r=0.25), anxiety scale (r=0.40), stress scale (r=0.32), and DASS-21 total score (r=0.38), exhaustion (r=0.24), cynicism (r=0.19) and academic burnout total score (r=0.27). No significant correlation was found between COVID-19 burnout and efficacy (r=0.43). There was also a significant positive correlation between academic burnout and depression scale (r=0.41), anxiety scale (r=0.34), stress scale (r=0.36), DASS-21 total score (r=0.43), exhaustion (r=0.89), and cynicism (r=0.86). On the other hand, no significant correlation was found between academic burnout total score and efficacy (r=0.1). In addition, the correlation coefficients between academic burnout subscales and DASS-21 subscales vary from (r=-0.12) to (r=0.50). Therefore, there was no risk for multicollinearity problems, and subscales measure different constructs (see table 2).

Table 2. Results of Pearson product moment correlation analysis

Variables	1	2	3	4	5	6	7	8	9
1.COVID-19 Burnout	1								
2. Depression	0.25**	1							
3. Anxiety	0.40**	0.47**	1						
4. Stress	0.32**	0.61**	0.66**	1					
5. DASS-21 Total	0.38**	0.83**	0.81**	0.90**	1				
6. Exhaustion	0.24**	0.50**	0.35**	0.41**	0.50**	1			
7. Cynicism	0.19**	0.44**	0.33**	0.34**	0.44**	0.79**	1		
8. Efficacy	0.43	0.32**	-0.12*	-0.19**	-0.25**	-0.33**	-0.35**	1	
9. Academic Burnout Total	0.27**	0.41**	0.34**	0.36**	0.43**	0.89**	0.86**	0.01	1

*** p<0.01*

Linear regression analysis was performed to see whether COVID-19 burnout, and the DASS-21 determined academic burnout. As can be seen in table 3, COVID-19 burnout (ß = 0.12, p < 0.05) and DASS-21 (ß = 0.39, p < 0.001) predicted academic burnout, and 20% of the variance in academic burnout was explained by the predictor variables. Therefore, DASS-21 was accepted as a mediator in the model.

Table 3. Linear regression analysis

Variables	B	β	t	p
1.Constant	26.695		20.35	0.000**
2.COVID-19 Burnout	0.101	0.120	2.19	0.029*
3.DASS-21	0.308	0.389	7.08	0.000**

Dependent variable: academic burnout. R= 0.45, R2= 0.20, Adj. R2=0.20, F= 38.85, ** p<0.01, *p<0.05

Linear regression analysis was performed to see whether COVID-19 burnout, and the depression, anxiety, and stress scales of the DASS-21 determined academic burnout. As can be seen in table 4, 21% of the variance in academic burnout was explained by the predictor variables. COVID-19 burnout (ß = 0.12, p < 0.05) and depression (ß = .28, p < .001) predicted academic burnout. Whereas anxiety (ß = 0.11, p > .05), and stress (ß = .06, p > .05) were not significant predictors of academic burnout. Therefore, depression was chosen as a mediator in the model.

Table 4. Linear regression analysis

Variables	B	B	t	p
1.Constant	26.34		19.76	0.000**
2.COVID-19 Burnout	0.10	0.12	2.32	0.021*
3.Depression	0.54	0.28	4.34	0.000**
4.Anxiety	0.26	0.11	1.64	0.100
5.Stress	0.12	0.06	0.87	0.384

Dependent variable: academic burnout. R= 0.46, R2= 0.21, Adj. R2=0.20, F= 20.58, ** p<0.01, *p<0.05

The mediating role of DASS-21, on the relationship between COVID-19 burnout and academic burnout was assessed through a mediation analysis. As can be seen in table 5, the effect of the independent variable on the mediator variable showed that COVID-19 burnout determined DASS-21 (B = 0.4015, 95% CI [0.2910; 0.1576], t:7.145, p<0.001). The effect of the mediator variable on the dependent variable showed that DASS-21 determined academic burnout (B = 0.3075, 95% CI [0.2221; 0.3929], t: 7.0850, p<0.001). When the mediator variable was included in the model, the effect of the independent variable on the dependent variable showed that COVID-19 burnout determined academic burnout (B = 0.1014, 95% CI [0.0104; 0.1925], t: 2.1914, p<0.05).
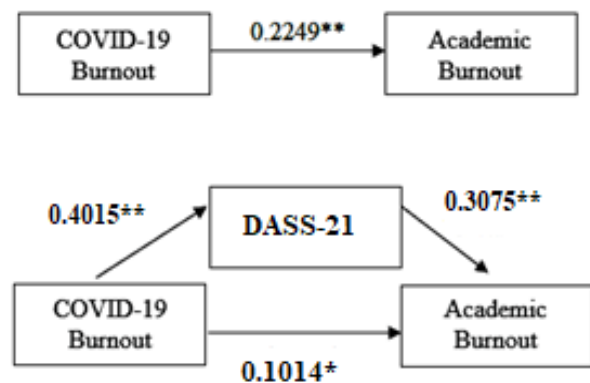

Figure 1. Results of mediation analysis with DASS-21 as mediator

Table 5. Effects between COVID-19 Burnout, Academic Burnout and DASS-21

Relations between Variables	B	S.E.	t	p	%95 CI LL	UL	R²
Total Effect (c)	0.22**	0.04	4.87	0.000	0.13	0.31	0.07
COVID-19 Burnout → DASS-21 (a)	0.40**	0.05	7.14	0.000	0.29	0.15	0.14
COVID-19 Burnout → Academic Burnout (c')	0.10*	0.04	2.19	0.029	0.01	0.19	
DASS-21 → Academic Burnout (b)	0.30**	0.04	7.08	0.000	0.22	0.39	0.20

*B: Unstandardized Regression Coefficient, S.E: Standard Error, **p<.001, *p<.05, n=311, k=5000 Bootstrap Sample, R2: Variance Value, t: Degree of Freedom, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit*

According to the bootstrap-based effect size values, with the inclusion of the mediator variable in the model, the initial effect of 0.23 between COVID-19 burnout and academic burnout decreased to 0.10 and remained significant (see table 6). The results indicate that DASS-21 partially mediate the relationship between COVID-19 burnout and academic burnout.

Table 6. Bootstrap-Based Single Mediation Effect

The Relationship of Mediating role of Depression	Total Effect	Direct Effect	Indirect Effect	Bootstrap 95% CI LL-UL	Type of Mediation Effect
COVID-19 Burnout and Academic Burnout	0.22	0.10	0.12	0.07 0.18	Partial

CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit

The mediating role of depression symptoms, in the relationship between COVID-19 burnout and academic burnout was assessed through a second mediation analysis. As can be seen in table 7, the effect of the independent variable on the mediator variable showed that COVID-19 burnout determined depression symptoms (B = 0.1103, 95% CI [0.0630; 0.1576], t:4.5871, p<0.001). The effect of the mediator variable on the dependent variable showed that depression symptoms determined academic burnout (B = 0.7012, 95% CI [0.5007; 0.9017], t: 6.8832, p<0.001). When the mediator

variable was included in the model, the effect of the independent variable on the dependent variable showed that COVID-19 burnout determined academic burnout (B = 0.1476, 95% CI [0.0601; 0.2351], t: 3.3176, p<0.001).
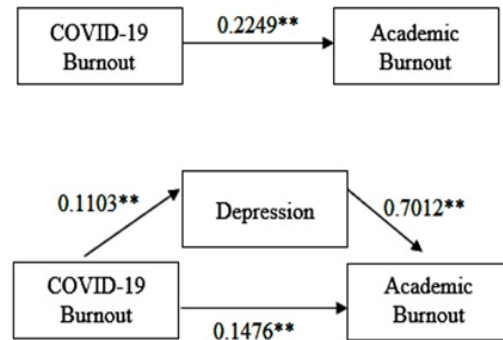

Figure 2. Results of mediation analysis with depression symptoms as mediator

Table 7. Effects between COVID-19 Burnout, Academic Burnout and Depression

Relations between Variables	B	S.E.	t	p	%95 CI LL	UL	R²
Total Effect (c)	0.22**	0.046	4.87	0.000	0.13	0.31	0.07
COVID-19 Burnout → Depression (a)	0.11**	0.02	4.58	0.000	0.06	0.15	0.06
COVID-19 Burnout → Academic Burnout (c')	0.14**	0.04	3.31	0.000	0.06	0.23	
Depression → Academic Burnout (b)	0.70**	0.10	6.88	0.000	0.50	0.90	0.19

*B: Unstandardized Regression Coefficient, S.E: Standard Error, **p<0.001, n=311, k=5000 Bootstrap Sample, R2: Variance Value, t: Degree of Freedom, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit*

According to the bootstrap-based effect size values, with the inclusion of the mediator variable in the model, the initial effect of 0.23 between COVID-19 burnout and academic burnout decreased to 0.15 and remained significant (see table 8). The results indicate that depression symptoms partially mediate the relationship between COVID-19 burnout and academic burnout.

Table 8. Bootstrap-Based Single Mediation Effect

The Relationship of Mediating role of Depression	Total Effect	Direct Effect	Indirect Effect	Bootstrap 95% CI	Type of Mediation Effect
COVID-19 Burnout and Academic Burnout	0.22	0.14	0.07	0.13 0.31	Partial

CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit

Discussion

During the pandemic, day-to-day routines, behavioral patterns have changed due to lockdowns, restrictions, and social distancing. Factors like fearing the virus would infect self and loved ones, decrease in physical activity, not eating well, changes in sleep patterns, economic problems, unpredictability of the future have adversely contributed to physical and psychological health, particularly depression and anxiety symptoms (Ceviz, et al., 2020; Fila-Witecka et al., 2021; Li, Hafeez & Zaheer, 2020; Marler et al., 2021). In the present study COVID-19 burnout was associated with emotional distress which further supports these findings in the current situation in which most restrictions are abandoned. In burnout, the personal experience of stress occurs in a social context and is related with the individuals' conception of self and others (Maslach & Leiter, 2016). Given the unique context created by the pandemic, COVID-19 burnout is related with the overwhelming outcomes and related stress with the pandemic. COVID-19 burnout strikes out as feelings of hopelessness and helplessness related with the ambiguity of the pandemic and is an important predictor of depression, anxiety, and stress (Moroń et al., 2021). As stated, uncertainty caused by the COVID-19 and increases in social restrictions have led to significant changes in daily routines, lifestyle, and the long-lasting nature of this process have led to increases in levels of stress, anxiety, burnout, fear, and frustration (Le et al., 2020). The data was collected at the beginning phase of the removal of restrictions, this seems an important turning point in the timeline of the pandemic. Since the beginning of the outbreak of the pandemic, for some students, the aforementioned factors may have accumulated to the point of burnout. Thus, a relationship between COVID burnout and emotional distress was highly anticipated at this point. As previously mentioned, studies conducted with university students report increased depression, anxiety, and stress symptoms during the pandemic (Elmer et al., 2020; Mishra & Kumar, 2021; Son et al., 2020), and our study supports these findings with the addition of COVID burnout.

Psychological resilience, coping skills, and social support notably stand out as intermediating factors in this process. Restrictions during the pandemic causing social isolation were found to be related with negative appraisal of personal resilience (Mishra & Kumar, 2021), which draws attention to the importance of coping skills, resilience and social support in handling the adverse effects of the restrictions. It is believed that having used positive coping strategies in the beginning of the pandemic, such as acceptance, planning, and seeking emotional support (Babicka-Wirkus, 2021) may also be helping in the present transition phase we currently are in. Importantly, not being able to return to normal life may create ongoing stress which can negatively affect psychological resilience which in turn would increase burnout.

Another result of the present study indicates that COVID-19 burnout and emotional distress predicts academic burnout. Also, COVID-19 burnout and the depression scale of the DASS-21 predicted academic burnout. Transition to online learning in the beginning of the pandemic was reported with an increase in stress levels of students. Besides the increased difficulties of online learning, decreased motivation, feelings of isolation, being separated from friends, increased difficulties in understanding course content during online learning, the nature of some course content making it hard to learn through online education, technological issues, and unfavorable home environment, have all played an important role in the ability of students to successfully undertake their studies (Post, Vitry & Baldock, 2021; Turan & Gürol, 2020; Sahu, 2020). In terms of academic engagement and academic burnout, Wang et al. (2021) found a negative correlation between academic engagement, psychological capital and academic burnout during the pandemic, suggesting that as psychological capital

increased, academic burnout would decrease and foster academic engagement. In another study with similar findings, Capone et al. (20210) found that academic burnout was negatively related with student engagement and well-being during the pandemic. The authors did not find any relationship with fear of COVID, but still these results should be evaluated in light of the adverse effects of the pandemic both on emotional distress and academic burnout. Although none of these authors have studied COVID related burnout and academic burnout in combination with emotional distress, the studies are in line with our findings, suggesting that COVID burnout and emotional distress are important determinants of academic burnout.

In the present study, we also found that emotional distress partially mediated the relationship between COVID-19 burnout and academic burnout. But when the model was tested with the scales of the DASS-21, the relationship between COVID-19 burnout and academic burnout was partially mediated only by the depression scale. It is known that many personal and situational factors contribute to emotional distress, which may in turn contribute to the relationship between COVID-19 burnout and academic burnout. Apparently the COVID-19 pandemic is having a sustained negative impact on student mental wellbeing and is related with increased perceived stress (Savage et al., 2021). Although we found a relationship between stress and COVID burnout, as well as academic burnout, interestingly stress and anxiety did not mediate the relationship between these variables. The reason why stress in this study was associated with academic burnout, but did not operate as a mediator, may be related to the fact that students' stress levels may have decreased due to school re-opening after much time spent away from peers. As this is a transition period, the long-awaited re-access to face-to-face education, socializing, and social support from peers may have motivated students both overall and also towards academic life. Consequently, transitioning back to social life may led some students to believe that there is nothing more to worry about the pandemic, and thus anxiety and fear linked to the pandemic may

have decreased substantially. On the other hand, the fact that depression symptoms did in fact mediate the relationship between COVID-19 burnout and academic burnout, may be due to the more stable nature of depression symptoms. That is to say, some students may have a relatively stable and pervasive depressive thinking style. This disposition may have been triggered during the pandemic and transformed into long-term and more stable symptoms, adversely affecting cognitions, thinking styles, including interpretations and inferences. The changes in learning practices may have also contributed to loss of academic motivation, and relatedly academic burnout.

Conclusion, limitations, and suggestions for future research

The disruption of routines, sense of safety and stability due to social restrictions and fear created by the pandemic, have created extensive psychological outcomes. As stated, maintaining positive mental health was as crucial as maintaining physical health during the pandemic, and in these terms, individuals had differing experiences during the pandemic. In light of previous studies and with the present findings, it can be concluded that the pandemic may lead to decline in psychological well-being, and the emotional distress it creates reflects on the studies of university students, which in turn may create academic burnout. It is clear that the sudden outbreak of an unexpected pandemic has affected the lives of every single person, though the nature and intensity will differ from individual to individual. University students are a group which have gone through this phase in their own way, given the unique circumstances they have faced, mainly the rapid switch to online education, having to leave their student housing or dormitories, and going back to live with parents. Though many common characteristics exist, personal experiences vary. Having to take care of sick family members, losing loved ones, separating from friends, economic problems, strike as some of the common problems faced by many students. Studies pinpoint the adverse effects of uncertainty

created by the process, in this case uncertainty seems an important contributor to emotional distress including depression, anxiety and stress symptoms. Being anxious about getting ill and infecting others with the virus, restrictions, decrease in social support due to isolation, and transition to online education are among the most common adversities. In addition to these factors, having trouble completing academic tasks, trying to adjust to online education, have been hard for many students. And although limited in number, studies show that decrease in psychological well-being is related with academic problems during the pandemic. In this respect, social support was determined as a helpful mechanism in maintaining well-being despite academic stress (Green et al., 2021) and aided in student engagement during the pandemic (Koob et al., 2021). Social support was also stated as an important factor which helped in coping with stress and was positively related with academic performance (Malik & Javed, 2021). Emotional flexibility is another similar factor which plays a regulating role in the stress and burnout experienced by the pandemic (Yıldırım and Solmaz, 2020).

In summary it is believed that social support, psychological resilience, psychological flexibility and relatedly positive emotion regulation skills are some of the factors which continue to help during the present phase in which students are trying to adapt to blended, hybrid education, and returning to campus. It should not be forgotten that although there are common difficulties many students have faced, each young person experienced these in his/her own unique way, depending on situational factors as well as personal characteristics. And in addition to personal factors, institutional factors such as university regulations and rules, and instructors' support during the transition, whether the student attended class or preferred to participate online in hybrid/blended courses, and peer support are among many other factors which may contribute to academic burnout. It is further suggested that university counseling centers should be easily accessible when needed, and that supporting students with higher levels of COVID-19 anxiety and emotional distress is essential in decreasing the long-term negative impacts of the pandemic on academic burnout in university students.

The study was cross-sectional, which doesn't allow for causal inferences. The gender imbalance is one of the major limitations of the study. Possible personal and situational factors which may affect outcome such as present physical illness, social support, whether the students lost a loved one because of the virus, are not known. Also we didn't include psychological resilience which stands out as an important mediator variable. Additionally, externalizing behavioral problems and attention problems were also documented in university students during the pandemic (Copeland et al., 2021). These findings indicate that emotional and behavioral functioning other than depression, anxiety, and stress symptoms should be considered. In future studies carried out in the present transition phase, university students' levels of intolerance to uncertainty, coping with stress and adaptation skills can be examined in relation to academic burnout and academic engagement.

References

Akbaşlı, S., Arastaman, G., Gün, F., & Turabik, T. (2019). School engagement as a predictor of burnout in university students. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 45*, 293-309. doi: 10.9779/PUJE.2018.234

Arslan, G., & Yıldırım, M. (2021). Coronavirus stress, meaningful living, optimism, and depressive symptoms: A study of moderated mediation model. *Australian Journal of Psychology, 73*(2), 113-124.

Babicka-Wirkus, A., Wirkus, L., Stasiak, K., & Kozłowski, P. (2021). University students' strategies of coping with stress during the coronavirus pandemic: Data from Poland. *PLOS ONE 16*(7), e0255041. https://doi.org/10.1371/journal.pone.0255041

Best, J.W. & Kahn, J.V. (2007). *Research in education*, New Delhi: Prentice Hall of India Private.

Capone, V., Marino, L., & Park, M. S. (2021). Perceived employability, academic commitment, and competency of university students during the COVID-19 Pandemic: An exploratory study of student well-being.

Frontiers in Psychology, 17(12), 788387. https://doi.org/10.3389/fpsyg.2021.788387

Ceviz, N., Tektaş, N., Basmacı, G., & Tektaş, M. (2020). Covid 19 pandemi sürecinde üniversite öğrencilerinin kaygı düzeylerini etkileyen değişkenlerin analizi. *International Journal of Scholars in Education, 3*(2), 312-329.

Chen, S. (2021). Academic burnout and its association with cognitive emotion regulation strategies among adolescent girls and boys. *Aggression and Violent Behavior,* 101698. https://doi.org/10.1016/j.avb.2021.101698

Copeland, W. E., McGinnis, E., Bai, Y., Adams, Z., Nardone, H., Devadanam, V., Rettew, J., & Hudziak, J. J. (2021). Impact of COVID-19 pandemic on college student mental health and wellness. *Journal of the American Academy of Child & Adolescent Psychiatry, 60*(1), 134-141. https://doi.org/10.1016/j.jaac.2020.08.466.

Çapri, B., Gündüz, B., & Gökçakan, Z. (2011). Maslach tükenmişlik envanteri-öğrenci formu'nun (MTÖ-ÖF) Türkçe'ye uyarlanması: Geçerlik ve güvenirlik çalışması. *Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 40*(1), 134-147.

Çelik, M. Y. (2021). Üniversite sınavına hazırlanan gençlerin Covid-19 korkusunun öğrencilerin tükenmişlik ve anksiyetelerine etkisi. *Van Sağlık Bilimleri Dergisi, 14*(1), 19-28.

David, A. (2010). Examining the relationship of personality and burnout in college students: The role of academic motivation. *Educational measurement and evaluation review, 1,* 90-104.

Denning, M., Goh, E. T., Tan, B., Kanneganti, A., Almonte, M., Scott, A., ... & Kinross, J. (2021). Determinants of burnout and other aspects of psychological well-being in healthcare workers during the COVID-19 pandemic: A multinational cross-sectional study. *Plos one, 16*(4), e0238666. https://doi.org/10.1371/journal.pone.0238666

Elmer, T., Mepham, K., Stadtfeld, C., & Capraro, V. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PLoS One, 15*(7), e0236337. http://doi.org//10.1371/journal.pone.0236337

Eriş, H. ve Barut, S. (2020). The effect of feeling of loneliness on burnout levels in university students. *Kuramsal Eğitim Bilim Dergisi, 13*(2), 369-383.

Fila-Witecka, K., Senczyszyn, A., Kołodziejczyk, A., Ciułkowicz, M., Maciaszek, J., Misiak, B., ... & Rymaszewska, J. (2021). Lifestyle Changes among Polish University Students during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health, 18*(18), 9571. https://doi.org/10.3390/ijerph18189571

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education.* New York: McGraw-Hill.

Gawrych, M., Cichoń, E., & Kiejna, A. (2021). COVID-19 pandemic fear, life satisfaction and mental health at the initial stage of the pandemic in the largest cities in Poland. *Psychology, Health & Medicine, 26*(1), 107-113. http://doi.org//10.1080/13548506.2020.1861314

Gezer, E. & Yenel, F. (2009). Stres veren yaşam olaylarının öğretim elemanlarının depresyon ve tükenmişlik düzeylerine etkisi. *Gazi Beden Eğitimi ve Spor Bilimleri Dergisi, 9*(4), 1-13.

Ghorpade, J., Lackritz, J., & Singh, G. (2007). Burnout and personality: Evidence from academia. *Journal of Career Assessment, 15*(2), 240–256. https://doi.org/10.1177/1069072706298156

Green, Z. A., Faizi, F., Jalal, R., & Zadran, Z. (2021). Emotional support received moderates academic stress and mental well-being in a sample of Afghan university students amid COVID-19. *International Journal of Social Psychiatry, 00*(0), 1-8. http://doi.org/10.1177/00207640211057729

Hanson, W. E., Creswell, J. W., Clark, V. L. P., Petska, K. S., & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of counseling psychology, 52*(2), 224. https://psycnet.apa.org/doi/10.1037/0022-0167.52.2.224

Hayes, A. F. (2012). Process: A versatile computational tool for observed variable. Mediation, moderation, and conditional process modeling. Retrieved October 20, 2021 from *http://www.afhayes.com/public/process2012.pdf*

Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation.

Communication monographs, 85(1), 4-40. https://doi.org/10.1080/03637751.2017.1352100

Hassanzadeh, A., Heidari, Z., Feizi, A., Hassanzadeh Keshteli, A., Roohafza, H., Afshar, H., & Adibi, P. (2017). Association of stressful life events with psychological problems: A large-scale community-based study using grouped outcomes latent factor regression with latent predictors. *Computational and mathematical methods in medicine, 2017*, 3457103. https://doi.org/10.1155/2017/3457103

Jang, Y., You, M., Lee, H., Lee, M., Lee, Y., Han, J-O., & Oh, J. H. (2021). Burnout and peritraumatic distress of healthcare workers in the COVID-19 pandemic. *BMC Public Health, 21*, 2075. https://doi.org/10.1186/s12889-021-11978-0

Kasapoǧlu, F. (2020). COVID-19 salgını sürecinde kaygı ile maneviyat, psikolojik saǧlamlık ve belirsizliǧe tahammülsüzlük arasındaki ilişkilerin incelenmesi. *Turkish Studies, 15*(4), 44284. https://dx.doi.org/10.7827/

Kılıç, O. H., Anıl, M., Varol, U., Sofuoǧlu, Z., Çoban, İ., Gülmez, H., Güvendi, G., & Mete, B. D. (2021). Factors affecting burnout in physicians during COVID-19 pandemic. *Ege Journal of Medicine, 60*(2), 136-144.

Kimter, N. (2020). Covid-19 günlerinde bireylerin psikolojik saǧlamlık düzeylerinin bazı deǧişkenler açısından incelenmesi. *IBAD Sosyal Bilimler Dergisi, Özel Sayı*, 574-605. http://doi.org/10.21733/ibad.805481

Koob, C., Schröpfer, K., Coenen, M., Kus, S., & Schmidt, N. (2021) Factors influencing study engagement during the COVID-19 pandemic: A cross-sectional study among health and social professions students. *PLOS ONE 16*(7), 0255191. https://doi.org/10.1371/journal.pone.0255191

Koutsimani, P., Montgomery, A., & Georgant, K. (2019). The relationship between burnout, depression, and anxiety: A systematic review and meta-analysis. *Frontiers in Psychology, 13(*10), 284. http://doi.org/10.3389/fpsyg.2019.00284.

Kul, A. Demir, R., & Katmer, A. N. (2020). Covid-19 salgını döneminde psikolojik saǧlamlıǧın yordayıcısı olarak yaşam anlamı ve kaygı. *Turkish Studies, 15*(6), 695-719.

https://dx.doi.org/10.7827/TurkishStudies.44419

Li, H., Hafeez, H., & Zaheer, M. A. (2020). COVID-19 and pretentious psychological well-being of students: A threat to educational sustainability. *Frontiers in Psychology, 11*, 4034. https://doi.org/10.3389/fpsyg.2020.628003

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour research and therapy, 33*(3), 335-343.

Malach-Pines, A. (2005). The burnout measure, short version. *International Journal of Stress Management, 12*(1), 78.

Malik, M., Javed, S. (2021). Perceived stress among university students in Oman during COVID-19-induced e-learning. *Middle East Current Psychiatry 28*(49) https://doi.org/10.1186/s43045-021-00131-7

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior, 2*, 99-113.

Marčinko, D., Jakovljević, M., Jakšić, N., Bjedov, S., & Mindoljević Drakulić, A. (2020). The importance of psychodynamic approach during COVID-19 pandemic. *Psychiatria Danubina, 32*(1), 15-21. http://doi.org/10.24869/psyd.2020.15

Marler, E. K., Bruce, M. J., Abaoud, A., Henrichsen, C., Suksatan, W., Homvisetvongsa, S., & Matsuo, H. (2021). The impact of COVID-19 on university students' academic motivation, social connection, and psychological well-being. *Scholarship of Teaching and Learning, Advance online publication*, -11. http://dx.doi.org/10.1037/stl0000294

Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry: Official Journal of the World Psychiatric Association (WPA), 15*(2), 103–111. https://doi.org/10.1002/wps.20311

Mishra, L., & Kumar, N. P. (2021). Higher education students' behaviour and mental health during Covid-19 lockdown: a pilot study. *Journal of Public Health, 17*(1), 1-7. https://doi.org/10.1371/journal.pone.0262562

Moroń, M., Yildirim, M., Jach, Ł., Nowakowska, J., & Atlas, K. (2021). Exhausted due to the pandemic: Validation of coronavirus stress measure and COVID-19 burnout scale in a Polish sample. *Current Psychology*, 2021, 1-10. https://doi.org/10.1007/s12144-021-02543-4

Neumann, Y., Finaly-Neumann, E., & Reichel, A. (1990). Determinants and consequences of students' burnout in universities. *The Journal of Higher Education*, *61*(1), 20–31. https://doi.org/10.2307/1982032

Post, D., Vitry, A., & Baldock, K. L. (2021). Evaluating changes in student health, wellbeing and social circumstances before and during COVID-19 pandemic restrictions in Australia. *PeerJ, 9*, e12078.

Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. *Cureus, 12*(4). http://doi.org/10.7759/cureus.7541

Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J. E. (2009). School Burnout Inventory (SBI): Reliability and validity. *European Journal of Psychological Assessment, 25*(1), 48–57. https://doi.org/10.1027/1015-5759.25.1.48

Savage, M. J., Hennis, P. J., Magistro, D., Donaldson, J., Healy, L. C., & James, R. M. (2021). Nine months into the CoViD-19 pandemic: A longitudinal study showing mental health and movement behaviours are impaired in UK students. *International journal of environmental research and public health, 18*(6), 2930.

Schaufeli, W. B., Martinez, M. I., Pinto, A. M., Salanova, M., & Bakker, A.B. (2002). Burnout and engagement in university students - a cross national study, MBI-SS. *Journal of Cross-Cultural Psychology, 33*(5), 464-481.

Slivar, B. (2001). The syndrome of burnout, self-image, and anxiety with grammar school students. *Horizons of Psychology, 10,* 21–32.

Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on college students' mental health in the United States: Interview survey study. *Journal of Medical Internet Research, 22*(9), e21279. http://doi.org/10.2196/21279

Sveinsdóttir, H., Flygenring, B. G., Svavarsdóttir, M. H., Thorsteinsson, H. S., Kristófersson, G. K.,

Bernharðsdóttir, J., & Svavarsdóttir, E. K. (2021). Predictors of university nursing students' burnout at the time of the COVID-19 pandemic: A cross-sectional study. *Nurse Education Today, 106,* 105070. https://doi.org/10.25115/eea.v39i12.6315

Tibubos, A.N., Burghardt, J., Klein, E.M.,…, & Beutel, M. E. (2021). Frequency of stressful life events and associations with mental health and general subjective health in the general population. *Journal of Public Health, 29,* 1071–1080. https://doi.org/10.1007/s10389-020-01204-3

Turan, Z. & Gürol, A. (2020). Eğitimde acil bir dönüşüm: COVID-19 pandemisi döneminde çevrim içi ders alan üniversite öğrencilerinin stres algıları ve görüşleri. *HAYEF Journal of Education, 17*(2), 222-242.

Tutal, V. & Efe, M. (2020). Bireylerin psikolojik sağlamlık ve COVID-19 korkularının, çeşitli değişkenlere göre incelenmesi. *Uluslararası Sosyal Araştırmalar Dergisi, 13*(74), 318-325.

Wang, J., Bu, L., Li, Y., Song, J., & Li, N. (2021). The mediating effect of academic engagement between psychological capital and academic burnout among nursing students during the COVID-19 pandemic: A cross-sectional study. *Nurse Education Today, 102,* 104938. https://doi.org/10.1016/j.nedt.2021.104938

Warren, A. M., Zolfaghari, K., Fresnedo, M., Bennett, M., Pogue, J., Waddimba, A., Zvolensky, M., Carlbring, P., & Powers, M. B. (2021). Anxiety sensitivity, COVID-19 fear, and mental health: results from a United States population sample. *Cognitive Behaviour Therapy, 50*(3), 204-216. https://doi.org/10.1080/16506073.2021.1874505

Woodrum, A. (2004). State-mandated testing and cultural resistance in Appalachian. *Journal of Research in Rural Education, 19*(1), 1-9.

Ye, Y., Huang, X., & Liu, Y. (2021). Social support and academic burnout among university students: a moderated mediation model. *Psychology Research and Behavior Management 14*, 335-344. https://doi.org/10.2147/PRBM.S300797

Yıldırım, A., Boysan, M., & Kefeli, M. C. (2018). Psychometric properties of the Turkish version of the Depression Anxiety Stress

Scale-21 (DASS-21). *British Journal of Guidance & Counselling, 46*(5), 582-595.

Yıldırım, M., & Solmaz, F. (2020). COVID-19 burnout, COVID-19 stress and resilience: Initial psychometric properties of COVID-19 Burnout Scale. *Death Studies,* 1-9. https://doi.org/10.1080/07481187.2020.1818885

Zhang, Y., Wang, C., Pan, W., Zheng, J., Gao, J., Huang, X., Cai, S., Zhai, Y., Latour, J. M., & Zhu, C. (2020). Stress, burnout, and coping strategies of frontline nurses during the COVID-19 epidemic in Wuhan and Shanghai, China. *Frontiers in Psychiatry, 11,* 1-9. https://doi.org/10.3389/fpsyt.2020.565520

Zhang, Y., Gan, Y., & Cham, H. (2007). Perfectionism, academic burnout and engagement among Chinese college students: A structural equation modeling analysis. *Personality and Individual Differences, 43,* 1529-1540.

OPUS▶

RESEARCH ARTICLE

A Research on the Relation between Cultural Intelligence Levels of Expatriates and Expatriate Effectiveness [1]

Ece Kuzulu [1] I Cavide Uyargil [2]

[1] Asisst. Prof. Dr, Izmir Democracy University, İzmir/Turkey
ORCID: 0000-0003-2172-1619
E-Mail:
ece.kuzulu@idu.edu.tr

[2] Prof. Dr., Istanbul University, İstanbul/Turkey
ORCID: 0000-0003-3643-2107
E-Mail:
cuyargil@gmail.com

Corresponding Author:
Ece Kuzulu

Abstract

Expatriate effectiveness and its components appear as a subject that has been studied by many researchers in the international human resources literature. Cultural intelligence is also seen as another important issue that enables researchers to understand the differentiation between individuals in terms of intercultural harmony and holding on in an unfamiliar environment. In this study, it was aimed to determine whether there is a relationship between cultural intelligence and foreign manager effectiveness. It is thought that examining these two important issues together will contribute to the literature. This research was designed and conducted to examine the relation between cultural intelligence and expatiate effectiveness. In order to analyze the hypotheses that are gathered from the literature, a scale with 37 items was used. The data was collected from 168 participants via convenience sampling method from several countries via questionnaires. In the model of this research, cultural intelligence is an independent variable, expatriate effectiveness is a dependent variable. The analysis of the results showed that cultural intelligence has positive effects on expatriate effectiveness. The expatriate with a high level of cultural intelligence is interested in the culture of the host country to which he/she is sent for duty, he can see the differences between his own culture and this different culture, he is willing to learn this different culture and adapts to the culture of the host country. The expatriate with a high level of cultural intelligence learns the behavioral patterns that are deemed appropriate by the culture of the host country and acts according to these patterns. Thus, interaction takes place between the expatriate and the employees who are citizens of the host country.

Keywords: *International Human Resource Management, Expatriate, Cultural İntelligence, Multinational Enterprises.*

Öz

Yabancı yönetici etkinliği ve bileşenleri uluslararası insan kaynakları literatüründe pek çok araştırmacı tarafından incelenmiş bir konu olarak karşımıza çıkmaktadır. Kültürel zekâ da ayrıca araştırmacıların, kültürler arası uyum ve yabancı bir ortamda tutunabilme hususlarında bireyler arasındaki farklılaşmayı anlamalarını sağlayan diğer bir önemli konu olarak görülmektedir. Bu çalışmada kültürel zekâ ile yabancı yönetici etkinliği arasında bir ilişki olup olmadığının tespiti amaçlanmıştır. Bu iki önemli konuyu bir arada incelemenin literatüre katkı sağlayacağı düşünülmektedir. Bu araştırma kültürel zekâ ile yabancı yönetici etkinliği arasındaki ilişkiyi incelemek üzere tasarlanmış ve yürütülmüştür. Literatür incelemesi sonucu ortaya konulan hipotezleri test etmek üzere 37 ifadeli bir ölçek kullanılmıştır. Veri toplama aracı olarak anketten yararlanılmış ve çeşitli ülkelerden 168 yabancı yöneticiye ulaşılarak veriler toplanmıştır. Araştırmanın modelinde kültürel zekâ bağımsız değişken, yabancı yönetici etkinliği bağımlı değişken görevi görmektedir. Analiz sonuçları kültürel zekânın yabancı yönetici etkinliği üzerinde pozitif bir etkisi olduğunu göstermektedir. Kültürel zekâ seviyesi yüksek olan yabancı yönetici görev için gönderildiği ev sahibi ülke kültürüne ilgi duymakta, kendi kültürü ile bu farklı kültür arasındaki farkları görebilmekte, bu farklı kültürü öğrenmek konusunda niyetli olmakta ve ev sahibi ülke kültürüne uyum sağlamaktadır. Kültürel zekâ seviyesi yüksek olan yabancı yönetici ev sahibi ülke kültürünce uygun görülen davranış kalıplarını öğrenmekte ve bu kalıplara göre davranmaktadır. Böylece yabancı yönetici ile ev sahibi ülke vatandaşı çalışanlar arasında etkileşim gerçekleşmektedir.

Anahtar Kelimeler: *Uluslararası İnsan Kaynakları Yönetimi, Yabancı Yönetici, Kültürel Zekâ, Çok Uluslu İşletmeler.*

---

[1] ***This work is derived from part of the first author's PhD thesis.***

Introduction

Companies are changing the way they do business with the undeniable and inevitable effect of globalization. The transition from being a local to an international business and from there to a multinational is becoming one of the main goals of many local companies. Therefore, the quantity and influence of multinational enterprises are gradually increasing. Organizations affiliated to the headquarters of multinational enterprises are in many different countries and at different distances, and it is increasingly difficult to manage, track and control the subsidiaries from the headquarters. Considering the cultural differences between the headquarters and the host country where the subsidiary is located, it takes a lot of effort to maintain the relationship without any problems.

With globalization, the number of expatriates and international assignments is increasing. Zakaria (2000) states that the number of expatriates working all over the world, as well as the need for these foreign executives to be successful, has been increasing. According to the claims of Lloyd and Hartel (2003) and Arthur and Bennet (1995), the most important issue is the success of expatriates in their overseas assignments and the success rate of expatriates is not very high.

In the study of Zeira and Banai (1985) on international assignments, it is stated that the real cost of unsuccessful expatriates is beyond the financial expenses. An unsuccessful expatriate negatively affects the future relations between the multinational company and the host country. In his study in 2012, Can reveals that one of the most important difficulties that expatriates will face in host countries is cultural differences. This study aims to examine the effect of the ability to adapt to different cultures, called cultural intelligence, on expatriate effectiveness consisting of adaptation, withdrawal intention and performance. The following sections will be consist of expatriate definitions, cultural intelligence and expatriate effectiveness.

Expatriate

The term of expatriate is defined in different ways in the literature. Gullick (1990), defines the expatriate as a person who lives abroad and intends to return to his own country.

According to Guzzo et al. (1994), an expatriate means a person who leaves his/her country to live and work in another country for a few years and is expected to return to his/her country after completing his/her job. Expatriates are defined by Aycan and Kanungo (1997) as employees who are sent to a business unit in another country by the company or state they work for, to temporarily complete a job or to enable the organization to achieve a goal.

Employees that multinational organizations may assign in their subsidiaries, facilities, branches, and factories in host countries can be specified as host country nationals, home country nationals and third country nationals. The country where the headquarters of the multinational organization is located can be defined as "home country", the country where the subsidiary is located "host country", and the countries that can provide resources for labour, finance and other inputs can be defined as "third country" (Kuzulu, 2020, 184). In this context, expatriates who can be assigned to international assignments (in the host country) in multinational organizations can be selected from among the nationals of the home country and third country.

Cultural Intelligence

The focus of studies on cultural intelligence is intercultural interactions and behaviours rather than logic or emotions (Baykara and Kuzulu, 2021). It can be argued that appointing people with high cultural intelligence as expatriates will be effective in achieving the goals of both the organization and the expatriate in overseas assignments. Conceptually, cultural intelligence can be considered as "intercultural competence" as Johnson, Lenartowicz, and Apud (2006) stated. Interacting effectively with the cultures of different nations is not a skill that all individuals possess. Another definition of cultural intelligence, as put

forward by Alon and Higgins (2005), is the ability of individuals to interact effectively with different cultures and is based on the theory of multiple intelligences.

According to Ang and Van Dyne (2008), cultural intelligence reflects a skill set consisting of four components. These skills are revealed as metacognitive cultural intelligence, cognitive cultural intelligence, motivational cultural intelligence, and behavioural cultural intelligence. Metacognitive cultural intelligence corresponds to the awareness capacity required by intercultural interactions. Individuals with strong metacognitive cultural intelligence question their own cultural assumptions, reflect their skills during interaction, and adapt to their cultural knowledge when interacting with people from different cultures. Cognitive cultural intelligence reflects the knowledge gained from education and personal experiences in different cultures, about norms and practices in different cultures. According to Deci and Ryan (1985), individuals with high motivational cultural intelligence have a natural interest in paying attention to intercultural events and spending energy, and Bandura (2002) adds that people with this characteristic are self-confident. Behavioural cultural intelligence is the ability to use appropriate verbal and nonverbal methods when interacting with people from different cultural backgrounds.

Expatriate Effectiveness

Shaffer and colleagues (2006) divide foreign manager effectiveness into three components: compliance, intention to withdraw, and performance. Foreign manager fit is divided into three dimensions by Hechanova et al. (2003) as job fit, interaction or relational fit, and general fit. Job fit refers to the degree to which an individual is comfortable with a job or task. Interaction fit or relational fit symbolizes the comfort of the foreign manager in communicating with people in the workplace and social life in the country where he/she is assigned. The general fit component is defined as the expatriate's ability to cope comfortably with different aspects of the foreign environment such as living conditions, food, transportation, and health services.

Shaffer, Harrison, Gregersen, Black, and Ferzandi, in their study published in 2006, stated that in addition to expatriate fit, another factor determining expatriate effectiveness is the intention to withdraw. According to Black and Gregersen (1990), the early return of the expatriate is defined as the early departure from the international assignment, and the expatriate returns to the home country but generally continues to work in the same organization. Carmeli (2005) reveals that the expatriate's intention to withdraw occurs before the return behaviour, similarly, the turnover intention precedes the actual labour turnover.

Many researchers have studied the components that determine expatriate performance, which is one of the dimensions of expatriate effectiveness. Cushner and Birslin (1996) state that there are four components of expatriate performance: personal fit, developing good relations with host country citizens, job effectiveness, and not experiencing culture shock. Caligiuri (1997) defines these components as early leaving the job, intercultural fit and performance. According to Tung (1984), the infrastructure of performance consists of technical components, organizational context, relational context and developing global skills. Aycan and Kanungo (1997) explain that the success of an expatriate will emerge by staying in office until the end of the agreed term and achieving the targeted results, adapting to the conditions in the new culture and performing well at work.

Method

The hypotheses and model put forward in the light of the literature review related to our research question, which generally consists of "What is the effectiveness of expatriates and how is it determined?", were tested using quantitative analysis methods. The independent variable is cultural intelligence and the dependent variable of expatriate effectiveness.

In our research, data were collected by questionnaires. Expatriates participating in the survey study from various countries of the world

were reached via e-mail and social media (linkedin, expatfinder, internations). In the study, participants were asked about their gender, age and previous experiences, as well as questions about their assignments abroad, their perceptions and attitudes about themselves and their jobs.

The scales of cultural intelligence, expatriate fit, expatriate withdrawal intention and expatriate performance scales were used in the research. The Cultural Intelligence Scale was created by Ang and colleagues in 2004. Ang et al. (2004) first designed the scale to measure each component with 13-14 statements and to consist of 53 items in total. Later, the number of statements was reduced to 40 and the final version of the scale was reached with 20 statements. Cross-validation analyses strongly support the validity and reliability of the Cultural Intelligence Scale across samples, time, and countries (Singapore and USA). In addition, the results indicate that there is a systematic pattern of relationships between cultural intelligence dimensions and cross-cultural specific outcomes.

In our study, expatriate fit was measured using the Expatriate Fit Scale developed by Black and Stephen in 1989. Black and Stephen's Expatriate Fit Scale is a 7'Likert type scale and participants choose the most appropriate score between 1 strongly disagree and 7 completely agree statements. The Expatriate Fit Scale includes 11 statements about work, the general environment, and interaction with host citizens. The statements about measuring the job fit of the expatriate consist of 2 questions about the job-related responsibilities of the expatriate and their ability to work with local colleagues. Interaction fit is measured by three statements: interaction with host country citizens in general, ability to work with host country citizens outside the organization and managing domestic subordinates. The expressions measuring the general fit of the expatriate consist of 6 items including the transportation system and general living conditions in the host country. The expatriate performance scale used in the research was developed by Kraimer and colleagues in 2001. Expatriate task performance is measured by three items asking them to self-evaluate their overall performance, their performance at work, including

their technical skills, and their achievement of business goals. Contextual performance, on the other hand, is measured by asking the expatriate to self-evaluate on dimensions such as interacting with colleagues at work, understanding the goals of the organization, and developing relationships with key contacts in the host country.

"Withdrawal Intentions Scale" was created by Mobley and colleagues in 1978, was used by Miller and colleagues in 1979 and by Cohen in 1993. Blau created a three-dimensional model in his research in 2000. Expatriates participating in our research give points according to their level of agreement with the statements as 1 strongly disagree and 7 completely agree on a 7-point Likert Scale. In the scale of withdrawal intention, there are statements about actively looking for a job outside the organization they are currently working for, leaving their current organization if they find a better job, and seriously considering quitting their job.

Questionnaires answered by expatriates were coded and analysed in the SPSS program; Descriptive statistics on demographic data, reliability analysis, reliability, correlation, and regression analysis were performed to test the relationship between variables.

As Ang, Van Dyne, et al. (2007) revealed, empirical research on cultural intelligence is limited. According to many academics, individuals with high cultural intelligence perform better and adapt better in multicultural group work, training abroad, and foreign managerial assignments (Black et al, 1991; Caligiuri et al., 2002). In our study, it is aimed to determine whether there is a relationship between cultural intelligence and foreign manager effectiveness. This represents the original value of the study. Hypothesis based on literature review. There are three sub-hypotheses of the H1 hypothesis in our research. The hypotheses formed to be tested within the scope of the research are listed below:

H1: The level of cultural intelligence of the expatriate affects the effectiveness of the expatriate.

H1a: The cultural intelligence level of the expatriate affects the compliance of the expatriate.

H1b: Expatriate's level of cultural acumen influences expatriate's withdrawal intentions.

H1c: The cultural intelligence level of the expatriate affects the performance of the expatriate.

Sample

Empirical research was conducted with the aim of testing the hypotheses put forward in this study. 168 expatriates working in multinational companies were easily reached by sampling and data were collected. One of the most important limitations of the research is that 168 foreign managers were reached. Since it is not easy to reach foreign managers, who are very busy due to the nature of their profession and reside in different countries, when 168 people are reached, the survey application was terminated with the approval of the thesis jury members and the analysis of the data was started. All the expatriates were working in the host countries when study was conducted.

Findings

Demographic Findings

168 expatriates were participated in the research. 70 of the participants were female and 98 were male. In other words, 41.7% of the participants are female and 58.3% are male. 35.1% of the respondents are between the ages of 31-40, 30.4% are between the ages of 21-30, 18.5% are between the ages of 41-50, 8.9% are between the ages of 51-60 and 7.1% of them are 61 years or older. Therefore, most of the participants are between the ages of 31 and 41.

When the positions of the participants in their companies are examined, 36.9% (62 people) are senior, 31.5% (53 people) are middle-level, 19.6% (33 people) are high-level and 11.9% (20 people) appears to be junior.

Table 1. Demographic distribution of participants

Variables	N	Frequency	%	Average	Min	Max
Gender	168					
Female		70	41,7	-	-	-
Male		98	58,3	-	-	-
Age	168	-	-	38,44	21	73
between 21-30		51	30,4	-	-	-
between 31-40		59	35,1	-	-	-
between 41-50		31	18,5	-	-	-
Between 51-60		15	8,9	-	-	-
above 61		12	7,1	-	-	-
Position	168					
Junior		20	11,9	-	-	-
Middle level		53	19,6	-	-	-
Senior		62	31,5	-	-	-
Upper level		33	36,9	-	-	-

Descriptive Analysis

In Table 2, it is seen that the cultural intelligence average of the expatriates participating in the research is 5.3, the average of metacognitive cultural intelligence is at the highest level with 5.7, and the average of cognitive cultural intelligence is at the lowest level with 4.8.

Table 2. Cultural Intelligence Levels of Participants

	N	Average	Sd deviation
Cultural Intelligence	168	5,3089	,80551
Metacognitive Cultural Intelligence	168	5,7173	,93524
Cognitive Cultural Intelligence	168	4,8105	1,10794
Motivational Cultural Intelligence	168	5,6875	,91509
Behavioral Cultural Intelligence	168	5,0804	1,22331

Looking at Table 3, it is seen that the average of the efficiency levels of the expatriates participating in the survey is 5.3. In addition, the performance of expatriates is the highest with an average of 5.8; intention to withdraw is at the lowest level with an average of 3.1.

Table 3. Participants' Levels of Expatriate Efficiency

	N	Average	Sd deviation
Expatriate Efficiency	168	5,3115	,74813
Intention to Withdraw	168	3,1845	1,99292
Expatriate Fit	168	5,5341	,91842
Expatriate Performance	168	5,8733	,80440

Factor Analysis

In this part of the study, the results of the factor analysis used to test the validity and reliability of

the scales used are included. Descriptive factor analysis were applied to determine the factor structures of the "cultural intelligence" and "expatriate productivity" scales used in the research.

Table 4. Cultural Intelligence Scale Factor Analysis Results

Statements	CCI	BCI	MCI	McCI
I know the marriage systems of other cultures	,807			
I know the fine arts and crafts of other cultures	,770			
I know the cultural values and religious beliefs of other cultures	,767			
I know the rules of other languages (such as vocabulary, grammar)	,760			
I know the rules for expressing non-verbal behaviour in other cultures	,719			
I know the economic and legal systems of different cultures	,692			
I use pause and silence in my communication in accordance with that culture		,814		
I change my nonverbal behaviour when the intercultural situation requires it		,813		
I change/vary my speaking rate when intercultural situation requires		,803		
I change my facial expression when the intercultural situation demands it		,765		
I change elements of verbal communication when intercultural interaction requires (eg accent, tone)		,754		
I am confident that I can cope with the stress I will experience while adapting to a culture that is new to me			,818	
I feel confident that I can mingle with locals in a culture that is unfamiliar to me			,801	
I enjoy living in cultures that are foreign to me			,748	
I enjoy interacting with people from different cultures.			,692	
I feel confident that I can get used to shopping conditions in a different culture			,586	
I am conscious of the cultural knowledge I use when interacting with people from different cultural backgrounds				,812
I make appropriate use of my cultural knowledge when interacting with people from a culture foreign to me				,774
I am conscious of the cultural knowledge I use in intercultural interactions				,622
Cronbach α	,869	,884	,838	,845

20 expressions of the Cultural Intelligence scale were subjected to descriptive factor analysis. Analysis results are given in Table 4. The KMO (Kaiser-Meyer-Olkin) statistics of the Cultural Intelligence scale is 0.873 (>0.60) and shows that the sample size is sufficient for factor analysis.

Barlett test Chi coefficient is significant (p=0.000<0.05).

According to the descriptive factor analysis results, there are four factors with eigenvalues greater than 1. Accordingly, it has been confirmed that the scale consists of four dimensions as in the original. The Cronbach α values of the dimensions show that the scale has internal consistency.

Table 5. Expatriate Effectiveness Scale Factor Analysis Results

Statements	EP	EF	WI
Understanding organizational goals	,833		
Adapting to business customs and norms in the host country	,808		
Establishing relationships with key business communities in the host country	,802		
Interacting with co-workers	,789		
Achieve my mission goals	,778		
Overall job performance	,770		
Technical competence	,623		
Living in the host country in general		,804	
Meals in the host country		,756	
Interacting with locals in general		,751	
Shopping in the host country		,726	
Weather in host country		,694	
Entertainment available in the host country		,692	
Working with locals outside your company		,601	
Transport system in the host country		,579	
I will leave my current firm as soon as possible			,936
I am actively looking for a job			,907
I am seriously considering quitting my job			,905
Cronbach α	,900	,872	,910
Barlett Testi Chi Kare=1806,197	Degree of freedom= 153		
p=0,000< 0,05	Explained Total Variance =% 63,973		
EP: Expatriate Performance	EF: Expatriate Fit		
WI: Withdrawal intentions			

20 statements of the expatriate effectiveness scale were subjected to explanatory factor analysis. Analysis results are given in Table 5. The KMO statistic of the expatriate effectiveness scale is 0.852 (>0.60), indicating that the sample size is sufficient for factor analysis. Barlett test Chi coefficient is significant (p=0.000<0.05).

According to the descriptive factor analysis results, there are three factors with eigenvalues greater than 1. Accordingly, it has been confirmed that the scale consists of three dimensions as in the

original. The Cronbach α values of the dimensions show that the scale has internal consistency.

Reliability Analysis

Table 6. Reliability Analysis Summary Table

SCALE	Cronbach's Alpha	Number of Items
Cultural Intelligence Structural Dimension	0,909	20
- Cognitive Cultural Intelligence	0,869	6
- Behavioural Cultural Intelligence	0,868	4
- Motivational Cultural Intelligence	0,817	6
Foreign Manager Activity Structural Dimension	0,877	21
- Fit	0,868	4
- Withdrawal Intention	0,910	3
- Performance	0,900	7

As a result of the reliability analysis in Table 6, the Cronbach's Alpha value of the 20-item Cultural Intelligence scale was calculated as 0.909 and the Cronbach's Alpha value of the 21-item Expatriate Effectiveness scale was calculated as 0.877. A Cronbach's Alpha value above 70% indicates that the level of reliability is quite high.

Correlation Analysis

In this study, in which the effect of the cultural intelligence of expatriates on their effectiveness was examined, correlation analysis was applied to determine the strength and direction of the relationship between the independent variable of cultural intelligence and the dependent variable of expatriates' effectiveness (Table 7). According to the results of the analysis, it is seen that there is a linear and positive relationship between the two variables, and as the cultural intelligence increases, the effectiveness of expatriates also increases (r = 0.558). In addition, it was concluded that the relationship between the two variables was statistically significant at the 0.01 significance level (p<0.01).

According to the results of the correlation analysis applied to determine the strength and direction of the relationship between cultural intelligence and expatriate adaptability; there is a linear and positive relationship between the two variables (r = 0, 628). In addition, it was concluded that the relationship between the two variables

was statistically significant at the 0.01 level (p<0.01).

Correlation analysis was applied to determine the strength and direction of the relationship between cultural intelligence and the intention to withdraw, which is one of the sub-dimensions of expatriate effectiveness. According to the analysis, it was concluded that the relationship between the two variables was not statistically significant at the 0.01 significance level (p>0.000).

Table 7. Table of Correlations Between Variables and Sub-Dimensions

Variables	1	2	3	4	5
1 CI	-				
2 EE	,558*	-			
3 EF	,628*	.397*	-		
4 EP	,376*	,487*	,395*	-	
5 WI	-,051*	-,416*	-,264*	-,373*	-

CI: Cultural Intelligence   EF: Expatriate Fit   EP: Expatriate Performance
EE: Expatriate Effectiveness   WI: Withdrawal Intentions

Hypothesis Tests

Table 8 shows the results of the regression analysis regarding the effect of cultural intelligence on expatriate effectiveness. The regression model was found to be statistically significant (p=0.000<0.05). The cultural intelligence independent variable explains a 31% change on the expatriate effectiveness dependent variable (R^2=0.312). According to the results of the analysis, 1 unit increase in cultural intelligence will provide an increase of 0.558 units in expatriate effectiveness (B=0.558; p=0.000<0.05).

The hypothesis that (H1) "the level of cultural intelligence of expatriate affects expatriate effectiveness" was accepted because cultural intelligence has a significant effect on expatriate effectiveness.

Table 8. Regression Analysis Results on the Effect of Cultural Intelligence on Expatriate Effectiveness

Independent variable	Constant	Beta	t	p
	Dependent Variable *Expatriate Effectiveness*			
	2,559		7,968	,000
Cultural Intelligence	,518	,558	8,670	,000
R^2	,312			
Corrected R^2	,308			
F	75,161			
p	,000			
Durbin-Watson	1,659			

Simple linear regression analysis was performed to examine the effect of cultural intelligence on expatriate fit. As can be seen in Table 9, according to the results of the regression analysis, in the model that explains 39% of the variability (R^2=0.395) of the variability in expatriate fit, it was determined that cultural intelligence had a positive and significant effect on expatriate fit (β= 0.628; p=0.000< 0.05). According to this result, one unit increase in cultural intelligence causes an increase of 0.628 units in expatriate fit. The fact that cultural intelligence explains 39% of the variability in expatriate fit indicates the existence of other factors that explain expatriate fit. Factors other than cultural intelligence that affect the adaptation of expatriates include factors such as the adaptation of the spouse of the expatriate to the host country, the degree of adaptation of the children to the school and social environment, and the attitudes of the employees of the host country towards the expatriate.

The hypothesis that (H1a) "the level of cultural intelligence of expatriates affects the compliance of expatriate " was accepted because cultural intelligence had a significant effect on expatriate fit.

Table 9. Regression Analysis Results on the Effect of Cultural Intelligence on Expatriate Fit

	Dependent Variable			
	Expatriate Fit			
Independent Variable	Constant	Beta	t	p
	1,731		4,683	,000
Cultural Intelligence		,628	10,404	,000
R^2	,395			
Corrected R^2	,391			
F	108,243			
p	,000			
Durbin-Watson	2,013			

The results of the simple linear regression analysis performed to explain the effect of cultural intelligence on the expatriate withdrawal intention are given in Table 10 and according to these results, the model explains 0.003 of the expatriate withdrawal intention variability (R^2=0.003). According to the results of the analysis, it was determined that cultural intelligence did not have a statistically significant effect on the expatriate withdrawal intention (β= 0.051, p=0.510>0.05).

The hypothesis that (H1b) "the level of cultural intelligence of expatriates affects the withdrawal intention of expatriates" was rejected because the level of cultural intelligence of expatriates did not have a significant effect on the withdrawal intention of expatriates.

Table 10. Regression Analysis Results on the Effect of Cultural Intelligence on Withdrawal Intention

	Dependent Variable			
	Withdrawal Intention			
Independent variable	Constant	Beta	t	p
	2,513		2,440	
Cultural Intelligence		,051	,660	,510
R^2	,003			
Corrected R^2	-,003			
F	,435			
p	,510			
Durbin-Watson	2,171			

Simple linear regression analysis was performed to explain the effect of cultural intelligence on expatriate performance, the results of the analysis are shown in Table 11. According to the results of the regression analysis, the model explains 0.142 of the expatriate performance variability (R^2= 0.142). It was determined that cultural intelligence has a positive and significant effect on expatriate performance (β= 0.376; p=0.000<0.05). According to this result, 1 unit increase in cultural intelligence causes an increase of 0.376 units in expatriate performance. The fact that cultural intelligence explains 14% of the variability in expatriate performance points to the existence of other factors that explain expatriate performance.

The hypothesis of (H1c) "Expatriate cultural intelligence level affects expatriate performance" was accepted because cultural intelligence has a significant effect on expatriate performance.

Table 11. Regression Analysis Results on the Effect of Cultural Intelligence on Expatriate Performance

	Dependent Variable			
	Expatriate Performance			
Independent Variable	Constant	Beta	t	p
	3,879		10,060	
Cultural Intelligence		,376	5,231	,000
R^2	,142			
Corrected R^2	,136			
F	27,361			
p	,000			
Durbin-Watson	1,997			

Discussion and Conclusion

The success of the expatriates, who are defined as the managers who are sent from the headquarters to the subsidiary abroad for a certain period and for a task, mean great gains for the multinational organization and their failure can bring great losses. Various claims have been made about the success rates of expatriates, whose numbers and importance are increasing in the international business world. There are many studies suggesting that the assignments in which expatriates are not successful are quite high.

Expatriate's failure has consequences such as damaging the image of the multinational organization, causing serious financial losses, losing potential business opportunities and international partnerships, which are costly and difficult to repair. Therefore, the success of expatriates in international assignments and the determination of a expatriate who can be successful in overseas assignments is an extremely important issue for multinational companies. Another reason why the cost of expatriate failure is extremely high is the investments made before the assignment, such as education, career planning, and the costs incurred by the multinational company during the assignment, such as moving, housing, and school fees. All these reasons increase the importance of the expatriate effectiveness issue.

In addition to many studies on expatriate failure, studies on expatriate success focus on determining the conditions for success and effectiveness. The most emphasized criteria for expatriate effectiveness are compliance, completion of the task until the end, in other words, no intention to withdraw, and performance during international assignment. In this study, these sub-dimensions in expatriate effectiveness were discussed and their importance was emphasized. That is the contribution of this paper to the literature.

Researchers state that some individuals can cope with cultural differences better than others. Although different definitions of cultural intelligence are made by various academicians, a definition can be made as an individual's interest in a different culture, curiosity, desire to adapt, and being successful in adapting. It is a widely accepted and confirmed claim that cultural intelligence is directly related to expatriate effectiveness.

In the research model, cultural intelligence was accepted as the independent variable and expatriate activity was accepted as the dependent variable. The findings of the study revealed that there is a positive relationship between the cultural intelligence levels of expatriates and the effectiveness of expatriates. The expatriate with a high level of cultural intelligence is interested in the culture of the host country to which he/she is sent for duty, he/she can see the differences between his/her own culture and this different culture, he/she is willing to learn this different culture and adapts to the culture of the host country. The expatriate with a high level of cultural intelligence learns the behavioural patterns that are deemed appropriate by the culture of the host country and acts according to these patterns. Thus, interaction takes place between the expatriate and the employees who are citizens of the host country.

As a result of the research, it has been determined that there is a positive relationship between the cultural intelligence levels of expatriates and the adaptation of expatriates. As it is revealed in the studies on cultural intelligence, the higher the cultural intelligence level of the expatriate, the more easily and effectively he adapts to the culture of the host country.

An expatriate with a high level of cultural intelligence finds harmony more easily in the business field and relations; In general, they adapt better to the country and the new culture. The high level of cultural intelligence causes the expatriate to see cultural differences more easily, to identify the behaviours accepted as appropriate in the foreign culture more easily, and thus to communicate more easily with the citizens of the host country at work and outside of work. It is not possible to adapt to people from different cultures without communicating and interacting. The high level of cultural intelligence facilitates all three dimensions of adaptation for the expatriate.

Another result of the research reveals that the cultural intelligence levels of the expatriate positively affect their performance. This assertion, which was put forward because of the literature review, was confirmed as expected (Black and Stephen, 1989; Ang et. al., 2004; Triandis, 1994). For the expatriate to show high performance in the foreign culture he/she encounters, he/she must communicate with his/her subordinates and superiors, understand them, and manage the processes as well as the people. Having a high level of cultural intelligence enables the expatriate to establish and maintain the necessary relationships for high performance, to understand the business culture and to act in accordance with it, to understand the reason behind the differences in people's behaviour and to act accordingly.

One of the most important limitations of the research is that it was conducted with 168 expatriates. Since it is not easy to reach expatriates, who are very busy due to the nature of their profession and reside in different countries, the survey application was terminated when 168 people were reached and the analysis of the data was started. Another limitation of the research is the measurement of intercultural harmony by the expatriate's self-evaluation. Since the time and opportunity constraints, the compliance of the expatriate could not be asked to the co-workers of the host country, as in many studies in the literature, only the expatriate was asked these questions. Another limit is that expatriate performance is based solely on self-report. In total, a questionnaire was sent to 250 expatriates, but the data of 168 questionnaires were used with a response rate of 67.2%.

Future research may consider whether international assignments are suitable for which expatriates. After identifying the expatriates who are believed to be the most successful in international assignments, encouraging the development of positive relations between the expatriates of the organization and the employees of the host country is among the suggested topics to be investigated. For further research, it may be suggested to focus on how multinational companies can benefit from the measurement of

personality traits when selecting potential expatriates and effective expatriate selection methods.

Examining the sub-dimensions of each factor of cultural intelligence can be recommended for further research. The use of cultural intelligence as one of the decisive measurement tools in the selection of successful global leaders can be put forward as a useful and interesting research topic. Evaluating the cultural intelligence of not only expatriates, but also the local employees of multinational companies in the host country, those working with multicultural groups, suppliers and customers from different countries and associating them with their performance are among the topics that can be recommended to be investigated.

References

Alon, I. and Higgins, J. M. (2005). Global leadership success through emotional and cultural intelligences. *Business Horizons, 48*(6,: 501-512.

Ang, S., Van Dyne, L., Koh, C. and Ng, K. Y., (2004). *The measure of cultural intelligence. Academy of Management*. New Orleans.

Ang, S., Van Dyne, L. and Koh, C. (2008). Development and Validation of the CQS. Ang and Van Dyne. (Der.), Handbook of Cultural Intelligence: Theory, *Measurements, and Applications içinde London: M.E. Sharpe.*

Arthur, W. and Bennett, W., (1995). The international assignee: The relative importance of factors perceived to contribute to success. *Personnel Psychology, 48*, 99-114.

Aycan, Z. and Kanungo, R.N. (1997). Current issues and future challenges in yabancı yönetici management. In Z. Aycan, (Der.), Yabancı yönetici management: Theory and Research içinde *Greenwich, Connecticut: JAI Press*. p.245- 260.

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology: An International Review, 51*, 269-290.

Baykara, S. and Kuzulu, E. (2021). Erasmus öğrenim hareketliliği öğrencilerinin kültürel zekâ seviyeleri ve program deneyimleri üzerine bir araştırma. *Avrasya Uluslararası Araştırmalar Dergisi, 9,* 110-126. 10.33692/avrasyad.895457.

Black, J. S. and Gregersen, H. B., (1990). Expectations, satisfaction, and intention to leave of American yabancı yönetici managers in Japan. *International Journal of Intercultural Relations, 14*, 485-506.

Black, J. S. and Stephens, G. K. (1989). The influence of the spouse on American yabancı yönetici adjustment and intent to stay in Pacific Rim overseas assignments. *Journal of Management, 15*, 529–544.

Blau, G., (2000). Job, organizational, professional context antecedents as predictors of intent for interrole work transitions. *Journal of Vocational Behavior, 56*(3), 330–445.

Caligiuri, P. M., (1997). Assessing Yabancı yönetici Success: Beyond Just Being There. Aycan, Z., (Der.), *Yabancı yönetici Management: Theory and Practice* içinde Greenwich, CT: JAI Press, p.17-140.

Can, E., (2012). *Uluslararası işletmecilik*. Beta Yayın Dağıtım.

Carmeli, A., (2005). The relationship between organizational culture and withdrawal intentions and behavior. *International Journal of Manpower, 26*(2), 177–195.

Cohen, A., (1993). Work commitment in relations to withdrawal intentions and union effectiveness. *Journal of Business Research, 26*(1), 75-90.

Cushner, K. and Brislin, R.W., (1996). *Intercultural Interactions: A Practical Guide*. SAGE Publications.

Deci, E.L. and Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Gullick, C. J. M. R. (1990). Yabancı yönetici British executives and culture shock. *Studies in Third World Societies, 42*, 173-206.

Guzzo, R. A., Noonan, K. A., and Elron, E., (1994). Yabancı yönetici managers and the psychological contract. *Journal of Applied Psychology, 79*, 617-626.

Hechanova, R., Beehr, T.A., and Christiansen, N.D., (2003). Antecedents and consequences of employees' adjustment to overseas assignment: A meta-analytic review. *Applied Psychology: An International Review, 52*, 213–236.

Johnson, J. P., Lenartowıcz, T. and Apud, S. (2006). Cross-cultural competence in ınternational

business: toward a definition and a model. *Journal of International Business Studies, 374*,525-543.

Kraimer, M.L., Wayne, S.J., and Jaworski, R.A., (2001) Sources of Support and Expatriate Performance: The mediating role of expatriate adjustment. *Personnel Psychology, 54*(1), 71–99.

Kuzulu, E. (2021). *Uluslararası İnsan Kaynakları Yönetimi*. E. Kuzulu (Der.), in, İKY 4.0-İnsan kaynakları yönetimine modern bir bakış. Nobel Akademik Yayıncılık.

Lloyd, S. L. and Hartel, C., (2003). Working abroad: Competencies yabancı yöneticis need to successfully cope with the intercultural experience. *Journal of Doing Business Across Borders, 2*(2), 54-66.

Miller, H. E., Katerberg, R. and Hulin, C. L., (1979). Evaluation of the Mobley, Horner, and Hollingsworth model of employee turnover. *Journal of Applied Psychology, 64*(5), 509-17.

Mobley, W. H., Hoerner, S. O. and Hollingsworth, A. T., (1978). An evaluation of precursors of hospital employee turnover. *Journal of Applied Psychology, 63*(4), 408-14.

Shaffer, M. A., Harrison, D. A., Gregersen, H., Black, J. S., and Ferzandi, L. A., (2006). You can take it with you: Individual differences and yabancı yönetici effectiveness. *Journal of Applied Psychology, 91*, 109-125.

Tung, R., (1984). Strategic management of human resources in the multinational enterprise. *Human Resource Management*, 23(2), 129-43.

Zakaria, N., (2000). The effects of cross-cultural training on the acculturation process of the global workforce. *International Journal of Manpower, 21*, 492-498.

Zeira, Y. and Banai, M., (1985). Selection of yabancı yönetici managers in multinational corporations: The host environment point of view. *International Studies of Management and Organization, 15*, 33-51.

RESEARCH ARTICLE

A New Exhaustion Emerged with COVID-19 and Digitalization: A Qualitative Study on Zoom Fatigue

Işıl Usta Kara[1] I Esma Görkem Ersoy[2]

[1] Assist. Prof., Trakya University, Edirne/Turkey
ORCID: 0000-0003-2527-2961
E-Mail:
isilusta@trakya.edu.tr

[2] Assist. Prof., Istanbul Esenyurt University, Istanbul/Turkey
ORCID: 0000-0002-8106-2216
E-Mail:
esmagorkemersoy@esenyurt.edu.tr

Corresponding Author:
Işıl Usta Kara

Abstract

The study aimed to reveal the physical, mental, and emotional effects of Zoom fatigue and the behaviors of the participants during the use of the video conference programs. Zoom fatigue refers to the feeling of exhaustion associated with the use of videoconferencing. Bailenson (2021) states that the concept of 'Zoom Fatigue', is used for general evaluations of video conferencing. With the COVID-19, education activities started to be carried out through video conference programs. Therefore, it is important to examine Zoom fatigue in the education sector. The sample of the study consists of 51 participants. 30% of the participants are teachers and 70% of the participants are academic staff. The data were obtained through the semi-structured interview form. Qualitative research methods were preferred to evaluate and interpret subjective experiences, perceptions, and feelings of the participants. The data were analyzed by descriptive analysis technique. According to the results of the study, Zoom fatigue affects the physical and mental well-being of the users negatively. Zoom fatigue causes exhaustion, stress and increases the mental and cognitive load. Especially among women, mirror anxiety is experienced. The study will guide employees and organizations about struggling with Zoom fatigue. Also, the study will contribute to organizational behavior literature.

Keywords: *Zoom fatigue, Exhaustion, COVID-19, Academic staff and teacher, Qualitative study.*

Öz

Bu çalışma Zoom yorgunluğunun fiziksel, zihinsel ve duygusal etkileri ile katılımcıların video konferans programlarını kullanımı sırasındaki davranışlarını ortaya çıkarmayı amaçlamıştır. Zoom yorgunluğu video konferans programlarının kullanımıyla ilgili tükenmişlik hissi olarak ifade edilmiştir. Bailenson (2021) video konferanslara ilişkin genel değerlendirmeler için 'Zoom Yorgunluğu' kavramını kullanmıştır. COVID-19 ile birlikte eğitim faaliyetleri video konferans programları aracılığıyla gerçekleştirilmeye başlanmıştır. Bu nedenle eğitim sektöründe Zoom yorgunluğunu incelemek önemlidir. Çalışmanın örneklemi 51 katılımcıdan oluşmaktadır. Katılımcıların %30'u öğretmen ve %70'i akademik personeldir. Veriler yarı yapılandırılmış görüşme formu aracılığıyla toplanmıştır. Katılımcıların öznel değerlendirmeleri, algıları ve duygularını değerlendirmek ve yorumlamak için nitel araştırma yöntemi tercih edilmiştir. Veriler betimsel analiz tekniği ile analiz edilmiştir. Çalışmanın sonuçlarına göre, Zoom yorgunluğunu kullanıcıların fiziksel ve mental iyi oluşlarını olumsuz etkilemektedir. Zoom yorgunluğu tükenmişlik ve strese neden olmakta, mental ve bilişsel yükü arttırmaktadır. Özellikle kadınlarda ayna kaygısı yaşanmaktadır. Bu çalışma Zoom yorgunluğu ile mücadele konusunda çalışanlara ve organizasyonlara yol gösterecektir. Ayrıca çalışma, örgütsel davranış literatürüne katkı sağlayacaktır.

Anahtar Kelimeler: *Zoom Yorgunluğu, Tükenmişlik, COVID-19, Akademik Personel ve Öğretmen, Nitel Araştırma.*

Introduction

Since the first known case of a patient infected with the COVID-19 virus in Wuhan, China in December 2019, the COVID-19 virus has affected the whole world and turned into a public health crisis (Shangguan, Wang & Sun, 2020, p.1) and the concept of pandemic made a rapid entry into people's lives. People whose physical distances have increased have started to meet in virtual environments instead of face-to-face, educational activities, business meetings, congresses have started to take place in virtual environments through internet-based programs. Video conferencing programs such as Zoom, Microsoft Teams, Skype, Google Meet have become a part of their professional life during the pandemic period.

It is stated that the download rates of Zoom and Skype, which are video conferencing programs, increased by one hundred percent in March 2020, and it is seen that the number of daily active users of Skype was 5.1 million and Zoom was 4.3 million in March. It is stated that while people use Skype in many areas, including daily communication, they prefer Zoom for special meetings (World Economic Forum, 2020). Video conferencing application Zoom is described as one of the video conferencing programs that have a significant usage rate in this process. Zoom had two million new users in the first two months of 2020 (Reisinger, 2020). In 2020, more than 90 thousand schools used this program at the peak of the pandemic, and meeting users increased by 2900 percent (Iqbal, 2022).

It is stated that Microsoft Teams, which had 20 million users in November 2019, had 44 million users in March 2020. Microsoft Teams is used in 44 languages in 181 countries and more than 183 thousand educational institutions (Curry, 2022). In this context, it can be said that many countries use video conferencing programs in their simultaneous academic education and training programs.

Zoom fatigue is a concept that emerged with the COVID-19 pandemic. For this reason, it has been determined that the earliest studies date back to 2020 and show an increasing graphic in 2021. The concept, which was previously included in columns and blogs, took its place first time in literature in the study by Bailenson (2021). Zoom fatigue is an exhaustion caused by video conferencing programs. In the literature, there are various studies investigating the effect of videoconferencing in the COVID-19 period (Bennett et al. 2021; Rößler, Sun & Gloor, 2021; Sharma et al., 2021; Hannah et al. 2021; Okabe-Miyamoto et al., 2021; Kagan, Alpert & File, 2020; Sharma et al., 2020). Although there are many empirical studies examining behaviors during videoconferencing in psychology, human-computer interaction, and communication, it is stated that there are no studies examining the psychological consequences of spending hours a day in this special environment (Bailenson, 2021:1). Zoom fatigue is a fairly new concept in the literature. Therefore, Zoom fatigue has been investigated in a few studies (Tucker et al., 2022; Tobing et al., 2022; Peper et al., 2021; Shoshan & Wehrt, 2021). In this study, Zoom fatigue was examined to contribute to the organizational behavior literature.

Video conference programs as an emergency action plan during the pandemic period allow the continuation of educational activities. Today, the effective maintenance of education and training activities of educational organizations is largely based on technology-driven communication and coordination (Dilekçi & Limon, 2020: 235). From this point of view, research was designed on academic staff and teachers who use video conferencing programs.

The first section of this study presents the existing literature on zoom fatigue. The second section includes the methodology and the analysis of data which is obtained from interview forms.

Conceptual Framework

Zoom Fatigue

With the pandemic caused by the COVID-19 virus, the way of communication and the way of doing business began to change. With the applications put forward to reduce the risk of transmission,

people started to look for ways to interact together. Virtual dinners, family nights were held through video conferencing programs such as Skype, Zoom, Google Meet, Microsoft Teams, and applications such as Face Time and Whatsapp. Simultaneously, video calls became an important part of business life. Meetings, training, conferences, brainstorming sessions, and even corridor chats, which are like non-work coffee breaks, have also started to be held via video calls. Video conferencing programs have reached a very common usage rate today because they allow us to see and hear other people and they are closest to face-to-face interaction (Boathra, 2020). Some of the programs are free and easy to use and thus they are used effectively during the pandemic period. It is predicted that video conferencing programs will continue to be used in the post-pandemic period due to reasons such as that they reduce physical transportation and fossil fuel consumption, and people use less energy in video conferences than face-to-face meetings (Bailenson, 2021, p.1).

Zoom fatigue has started to take place in the literature as a common, intense, and new concept that points to fatigue, anxiety, and exhaustion associated with excessive use of video conferencing programs (Lee, 2020, p.1). Bailenson (2021) states that the concept of 'Zoom Fatigue', which is used for general evaluations of video conferencing, emerged because many people started to use the word Zoom instead of video conferencing, and the Zoom brand name was characterized as a label for video conferencing programs. The concept does not only include the Zoom application but also gathers all video conferencing programs under a single umbrella. Nadler (2020) stated that computer-mediated communication can cause exhaustion and expressed this exhaustion as Zoom Fatigue. Although it is in many areas, he stated that this is a new phenomenon concept and there is still little information regarding the underlying causes of it. The physical and mental exhaustion of people caused by video conferencing programs is defined as Zoom fatigue (Ebner & Greenberg, 2020, p.537). Zoom fatigue is expressed as the feeling of exhaustion caused by participating in video conference calls (Fauville, Luo, Queiroz, Bailenson,

& Hancock, 2021a, p.2). Reidl (2021), on the other hand, defines Zoom fatigue as physical and cognitive exhaustion caused by intense and/or inappropriate use of video conferencing tools, often accompanied by physical symptoms such as fatigue, anxiety and exhaustion, stress symptoms as well as headaches. Zoom fatigue, which emerged with the pandemic, can be considered as an undesirable situation, needs to be prevented, and negatively affects the physical and mental well-being of people.

Causes, consequences, and solution suggestions of Zoom fatigue

Bailenson (2021), in his study examining the concept theoretically, endeavored to define the causes of Zoom fatigue with four possible titles: looking from an excessively close distance, cognitive load, increased self-evaluation due to watching one's own video, and restrictions on physical mobility. Mirror anxiety, which is stated to cause self-evaluation, is seen as one of the underlying factors of Zoom fatigue. Video conferencing users look at a mirror when they look at their screens, and this leads to an increase in self-awareness (Riedl, 2021, p.9). People constantly see and pay attention to themselves. It is stated that exposure to digital and psychological mirrors can increase people's attention to themselves and cause negative emotions such as anxiety and depression (Luo, Queiroz, Bailenson, & Hancock, 2021b, p.2). In addition to increasing self-awareness, this situation can be described as a distraction. It can be said that the effort to re-concentrate can also cause anxiety and stress.

It is suggested that video conferencing programs may negatively affect cognitive performance and reduce mobility and that exposure of all participants to each other's gaze may cause anxiety. (Fauvilla, et al., 2021b, p.3). It is considered to be more psychologically challenging than face-to-face communication as its users feel the need to concentrate more. Because it is stated that the ability of individuals to interpret body language and clues decreases, they have difficulty in perceiving humor and irony, and in relaxing in a natural conversation environment. It is stated

that scheduling the meetings one after the other without having a break affects the well-being of the people and the dissatisfaction with the appearance of some people because their faces are close-up affects their self-esteem negatively. (Williams, 2021, p.164).

Another frequently observed phenomenon with video conferencing is to engage in other tasks and activities while participating in the video conferencing. It is claimed that this situation, which is called multitasking, reduces the productivity of people. However, among people who have a heavy workload, it is thought that they can reduce their work stress by completing different tasks during video conferences (Reidl, 2021, p.11-15). Amponsah & Wyk (2022, p.4) state that it will not be that easy to reduce the concern for multitasking for academicians and students who are busy with multiple tasks. Peper, Wilson, Martin, Rosegard & Harvey (2021), in their study on students, concluded that it is difficult for students to maintain their attention while executing multiple tasks at the same time. Doing more than one task at the same time, such as writing articles, sending e-mails, reading articles, newspapers, magazines, etc., by opening different windows during the meeting, can cause fatigue. Therefore, it can be said that focusing on a single task can reduce fatigue and exhaustion.

It is stated that technical problems such as screen freezing, weak internet connection, and bandwidth will contribute to Zoom fatigue. When users encounter these situations, they are exposed to stress, especially in synchronous sessions. In addition, the fact that users feel mistrust about the control of data and records is also seen as another cause of fatigue and exhaustion (Amponsah & Wyk, 2022, p.4).

Apart from making people's lives easier, it is possible to say that video conferencing programs have disadvantages such as causing more concentration, exhaustion, incompatibility, anxiety, and stress, leading people to multitask, turning individuals into introverts, requiring being in the same position all the time, causing body language to be unnatural, creating anxiety about appearance, causing physical negativities and

discomforts (Boathra, 2020). However, it is foreseen that negative situations that may arise can be prevented in the wake of the correct and effective use of video conferencing programs. Wiederhold (2020) states that video conferencing programs can be used effectively and pleasantly. It is stated that the screen can be placed on a book or two in order to create a straight line on the speaker's face and to see the micro-expressions on the screen, the face can be illuminated from the front, and the head and shoulders should dominate the upper part of the window. In addition, it is recommended to look at the camera instead of the participants, and the background to be simple, clean, and professional. It is also stated that if not spoken during the interview, the microphone should be muted, and when speaking, one should speak a little louder than normal as if in a large conference room. Not being concerned with side tasks and activities during the interviews, taking breaks in which the screen is not visible from time to time, and having the cameras turned off when the participants are not talking are among the factors that prevent Zoom fatigue.

Fosslien & Duffy (2020) made several suggestions to fight against Zoom fatigue. These recommendations can be listed as follows:

- During interviews, multitasking should be avoided by closing all distracting windows and tabs.
- It is possible to take a break throughout long conversations, resting the eyes by resting for 30 minutes without looking at the screen. In addition, meeting durations should be planned as 25 or 50 minutes, if a one-hour meeting is held, the cameras should be turned off in some parts.
- Along with the faces of the participants, their backgrounds also draw attention. It is possible to see various items in more than one room at the same time. For this reason, plain backgrounds that do not tire users should be preferred to fight against mental fatigue.
- Assuming that a video conference is being held with a crowded group, starting with one person and determining who will speak

in turn, the group does not start talking at once, and the participants can understand what is expected of them.

- Video conferencing programs should not be used for calls that can be made by e-mail or phone.

Measurement of Zoom fatigue

In 2021, the "Zoom Exhaustion and Fatigue" scale, called the "ZEF Scale", was created with the study conducted by the Virtual Human Interaction Laboratory of Stanford University. The scale, which consists of 15 statements, has five dimensions: general fatigue, visual fatigue, social fatigue, motivational fatigue, and emotional fatigue (Fauvilla, et al., 2021a, p.7). Except for the studies by Akduman (2021) and Baygın et.al. (2022) on the Turkish validity and reliability of the ZEF scale, no study has been found in the national literature on the concept that has just begun to be studied in international literature. When the studies on the concept are examined, generally, it is seen that the causes and consequences of Zoom fatigue are tried to be revealed with the research questions created by the authors.

Purpose and Importance of the Study

The main purpose of the study is to question the effects of Zoom fatigue on teachers and academicians who use video conferencing programs. Considering that the education and training processes continue being face-to-face and synchronously, it is considered necessary to identify the causes of Zoom fatigue, principal for organizations to take precautions, and for individuals to determine their own methods of fighting against them. With this study, suggestions, oriented at reducing Zoom fatigue and raising awareness at the individual and organizational level, are shared. In addition, it is aimed to contribute to the organizational behavior literature. Zoom fatigue will take place in organizational literature as a new type of employee burnout.

Methodology

Research method

In this study, a qualitative research method was used. Qualitative research gained more areas in social sciences. It provides detailed information about people's behaviors, beliefs, feelings, emotions, and feelings. The purpose of qualitative methods is to describe and interpret issues or phenomena systematically from the point of wives of the individual or populations being studied and to new concepts and theories (Mohajan, 2018, p.2). Qualitative research has an exploratory feature. Exploratory research is very useful and beneficial in explaining less-studied topics (Karataş, 2015, p.64). Accordingly, the causes and consequences of Zoom fatigue, which is a new concept, were tried to be described through behaviors, attitudes, and feelings of video conferencing users. Qualitative data collection techniques such as observation, interview, document and discourse analysis are generally used in qualitative research (Yıldırım ve Şimşek, 2016). In this study, an interview technique was used.

The qualitative research processes were designed as follows: Identifying the research problem, conceptual framework, preparation of research questions, sampling, determination of data collection tool, data collection, analysis, and interpretations of data.

The main research questions of the study are as follows:

- What are the causes and ways of using video conferencing programs of academicians and teachers?
- What are the physical, mental, and emotional effects of Zoom fatigue on academicians and teachers?
- What are the strategies of academicians and teachers to deal with Zoom fatigue?
- What are the acclaimed/disfavored aspects of video conferencing programs?

Sample of the study

In the interview technique, it is examined whether they are directly related to the research topic in the

selection of participations (Karataş, 2015, p.71). Academic staff and teachers, who actively use video conferencing programs in educational processes, in activities such as meetings, seminars, and conferences, constitute the sample of the study. The sample of the study consists of 51 participants working at foundation and state universities, private and public schools in Istanbul and Edirne provinces, and volunteering to participate in the study. Qualitative research is conducted with small samples and small groups. A small number of samples provides the opportunity for in-depth analysis (Baltacı, 2019, p.371). In this direction, it can be said that the sample of the study is adequate.

To carry out the research, permission was obtained with the decision of Trakya University Social and Human Sciences Research Ethics Committee dated 24.02.2021 and numbered 2021.02.08.

According to socio-demographic characteristics of the 51 participants, it is seen that 27 of the participants were female, 24 were male, 60% were married, 52.9% were in the 35-44 age range. Approximately 70% of the participants are academicians and 56.9% of the academicians work in the field of social sciences. Approximately 30% of the participants are teachers and the majority of teachers teach at the primary and secondary levels. It has been determined that 66.7% of the participants have more than 11 years of working years, and 51% are currently working in their current institutions for 1-5 years.

Data collection

The interview technique was used in this study. There are different interview techniques such as structured, semi-structured, unstructured, and focus group interviews. Generally, semi or unstructured, open-ended, informal interviewing is preferred to allow for more flexibility and responsiveness (Jackson II et al, 2007, p.25). The data was obtained from semi-structured interview forms by prepared researchers. The interview form consists of two parts. In the first part of the interview form, personal information about the

participants is included, and there are questions to determine the socio-demographic characteristics, institutions, fields of study, and working years of the participants. In the other parts of the form, there are questions formed in line with the basic research questions of the orientation

Interviews are carried out face-to-face, using phone or online. Online interviews are divided into synchronous (Zoom, Skype, etc.) and unsynchronous (e-mail). Especially in social sciences online and internet interviews are frequently used. These interview techniques provide to eliminate time and place problems (Barret & Twycross, 2018, p.63; Salman Yıkmış, 2020, p.185). Before expressing their views, the participants declared that they had read the voluntary consent form and agreed to participate in the study. The research was planned in the form of an online interview to be held face-to-face, in which questions were directed to the participants by using video conference programs in the digital environment. However, negative feedback was received on the video call request. Academic staff and teachers stated that they are tired and exhausted from already actively using these programs. For this reason, the interview form was shared with the participants online on Google Forms, which is also one of the digital tools, and they were asked to respond in the time given to them. The interview form consisting of categorized and open-ended questions was obtained from the participants in written form. In this way, it can be thought that the participants had the opportunity to express their views more comfortably without hesitation. The research was carried out between February 2021 and March 2021.

While preparing the research questions, the opinions of experts in management and organizations, and statistics. Research questions are shown below.

Research questions

1. Please indicate which programs you used and for what purposes before the COVID-19 pandemic and during the COVID-19 pandemic period.

2. Did you join any training or get education about the programs that you use?
3. How many days a week and how many hours a day do you devote to online lectures/meetings?
4. Indicate the ideal number of participants, the ideal duration of the lectures/meetings, the ideal break time, and the length of the lecture/meeting in your opinion.
5. What do you think of paused presentations (watching videos, searching for articles, etc.)?
6. Please, give information about the background usage, your camera usage, and your view preference (single speaker, gallery).
7. Please indicate the negative situations you encounter while using the programs.
8. Please indicate your thoughts about how you look on camera.
9. 9-Please indicate whether you have had any problems with your physical health due to the long-term use of these programs.
10. 10-Please indicate whether you have had any problems with your eye health due to the usage of these programs.
11. Provide information about the effects of a connection and technical problems (system freezing problems, late or absent sound, etc.) on you.
12. Indicate the effects of your rest periods between lecture/meeting hours on you.
13. Since we do not see ourselves in face-to-face communication, we use our body language more comfortably, researches indicate that being natural is hard because we see ourselves in video conferences. State your opinions about this decision.
14. Do you think online programs require more focus than face-to-face conversation? Please specify.
15. Are there any distractions around you while you are using these programs? Please indicate what they are.
16. Indicate how it makes you feel see your students and friends in a virtual environment instead of seeing them face to face.
17. Evaluate your adaptation to digital transformation.
18. Indicate what you have done to relieve the mental, physical or emotional fatigue caused by online programs.
19. Indicate your favorite and least favorite aspect(s) of online programs.
20. Do you wish we had used these programs before? For what situations did you say?
21. Describe your level of satisfaction with the usage of these programs. Evaluate your continued use of these programs when the COVID-19 pandemic is over.

Data analysis

Qualitative research has two data analysis processes: descriptive and content analysis (Karataş, 2015, p.73). Descriptive analysis was used in this study. Descriptive analysis aims to organize and interpret the data obtained from interviews and observations. The data can be presented by considering questions or dimensions used in the interview or observation processes (Yıldırım & Şimşek, 2016, p.39). The forms reflecting the views of the participants were evaluated and interpreted by the authors within the framework of the basic research questions.

First of all, participations were coded as P1,….P51. The data were analyzed in four stages. In the first stage, a framework was created for data analysis according to the research questions. Dimensions were determined by each researcher. In the second stage, the data were read by each researcher. Then, the researchers came together and the data were organized. The data were made easy to understand and read in the third stage. In the final stage, the findings were explained, interpreted, and correlated. In addition, findings were supported by direct quotations.

Validity and reliability

In qualitative research, validity is to the degree to which the researcher solves the problems as impartially as possible (Baltacı, 2019, p.380). In the study, expert examination and participation confirmation were made The collected data were

reported in detail. The researchers explained how they arrived at the conclusions. Direct quotations were included in the findings. Thus, internal, and external validity was ensured in this study.

For reliability, researchers were determined their positions, and participations were introduced. The conceptual framework, data collection, and data analysis were explained. To increase the reliability of data, misunderstandings and irrelevant data were removed before the analysis. The fact that the research was conducted by two researchers and experts' opinions were consulted strengthens the reliability.

Findings

Examination of the interviews

Program usage before the COVID-19 pandemic: It is seen that the purpose of using the programs before the pandemic was mostly friends and family meetings, secondly, meeting/seminar/congress participation, and thirdly, education. It can be stated that before the pandemic, participants preferred Facetime and Whatsapp for their friends and family meetings, Skype for meeting/seminar/congress participation, Zoom, Microsoft Teams, and Google Meet for education.

Program usage, purpose of usage and usage patterns with the COVID-19 pandemic: 42 participants were noted that they are using Zoom after the pandemic and by this answer, we may say that Zoom was the most used online program, especially after the pandemic. Participants stated that they use Zoom, Microsoft Teams, Google Meet for business-related meetings, and Zoom, Google Meet, Microsoft Teams for their congress/seminar participation, to a high degree, respectively. In education activities, it was determined that Zoom, their schools/universities' own distance education system, Microsoft Teams, and Google Meet were used respectively. It is seen that mostly Whatsapp and secondly Facetime applications are used for friend/family conversations. The majority of the participants (36 participants) stated that they do

not use any online programs for their sports activities.

Views on the duration of use, and number of participants of online programs: 34 participants stated that they did not receive any training on the programs they used, 17 participants stated that they received training. Participants stated that they spend at least 3 days a week and at least 5 hours a day in online lessons/meetings. According to the statements of the participants, it is seen that this duration may be longer. Participants emphasized that the ideal lecture/meeting duration should be 1 hour at most and that at least 10-minute breaks should be given during extended lectures/meetings. The participants stated that there should be at least 20-30 people in an ideal lesson and the fact that this number is less negatively affects motivation and performance both from the point of view of students and the lecturers. They also expressed their unhappiness with the fact that it creates the feeling of talking to oneself, where there is a small number of participants. 8 participants said that they are not affected by the numbers.

'*When the number of participants is less, my motivation decreases and I regret the effort I spent*' (P47) '*If there are many participants, this indicates the interest in the lesson, and it motivates me.*' (P25)

The majority of the participants stated that they do not prefer paused presentations such as watching videos, having articles searched, and getting research done on the internet. A small number of participants stated that they watched videos and had article research done according to the content of the course. Regardless of this, the majority of the participants stated that they were eager to learn about the different features and opportunities of these programs.

45 participants prefer the gallery view, others prefer the single speaker view. In addition, when the background usage situations of the participants are questioned, the existence of different views draws attention. Those who think that the use of background distracts the participants generally prefer a natural image. While some of the participants stated that they use

a fixed background image, some of them mentioned that they are motivated by changing the background image.

'I use background and change it periodically'. (P47).

Views of participants about the use of camera: Participants stated that their cameras are generally turned on when using the programs and that they always have their cameras on especially during classes. 41 participants stated that they always use their camera on, 10 participants said that this depends on the situation. They stated that when they attend meetings if they were only taking part as listeners, in these cases, they sometimes turn off their cameras; they also stated that they could keep their cameras turned off due to internet connection problems that can be experienced over time to time.

'I use my camera on when I'm the speaker or the lecturer, but I use my camera off when I'm just only the participant of a webinar'. (P26)

Even though there is no obligation for the students to turn on their cameras, the majority of the participants stated that they prefer to have the cameras on. The participants said that they wanted the students to open their cameras, as they believed that it contributed to communication, particularly when asking questions, during mutual communication, when they took the floor, and when they make presentations.

'I prefer to be in contact with the students as long as their situation is appropriate.' (P17)

Only 7 of the participants stated that they do not need the students to turn on their cameras and they prefer to have their cameras turned off.

'I don't need students to turn on their cameras'. (P28)

Participants stated that sometimes they have experienced internet problems, technical problems caused by the camera and microphone. Three of the participants consider forgetting to record the course as a negative experience. In general, the participants stated that they experienced stress when they were faced with internet connection and technical problems.

'Disconnection of the internet is stressing me out, I'm distracted, time runs out'. (P47)

Views of participants about their images: The majority of the participants said that they only pay attention to their clothes that are visible on the camera and that they prefer comfortable clothes in the part that is not seen on the camera. Male participants stated that they mostly did not wear a tie in online classes or meetings. Female participants, on the other hand, stated that they pay attention to doing make-up. *'Psychologically, I sometimes spray perfume and join the online class, just like in daily life'.* (P50)

30 participants stated that they had social appearance anxiety and this anxiety increases even more especially in cases where their cameras are on, other participants stated that they had no such anxiety.

It is seen that female participants look at themselves on the screen during the lesson/meeting and state that they fix their clothes and mostly their hair, while male participants do not feel such a need.

'My hand is usually in my hair.' (P29, woman)

'When I see myself on the screen, my hand goes to my hair or my face, but when I realize this I immediately tidy up myself.' (P50, woman)

Physical fatigue of participations: The vast majority of the participants (43 participants) stated that they had problems with their physical health due to these programs, especially head, neck, and low back pain. 8 participants stated that they did not experience any physical health problems. 11 participants stated that they did not experience any problems with eye health due to these programs, on the other hand, the rest of the participants stated that they had complaints such as eye burning, watering, and pain that adversely affected their eye health.

'I experienced hand pain and arm numbness from using a mouse.' (P1)

'I put on weight.' (P25 & P27)

In general, it was stated that the duration between the course hours is 10-15 minutes, and these durations are considered sufficient by the participants. However, some participants said that there is a shorter resting time, which is insufficient and causes fatigue. For example, P6 said, *'10-15 minutes between online classes, (between the sessions)*

but when you study more than 8 hours in a day, this break time isn't enough, at least 1-hour break is required.'

The mental fatigue of participations: Another aspect that is expressed is the frequency of encounters with the tone of voice, emphasizing, situations where the voice is transmitted late or not at all, the frozen images were higher when distance learning first began. It has been observed that such situations create a cognitive load on the participants and can cause mental fatigue and cause stress. However, it has been stated that over time, it has become manageable.

'Constantly asking questions to see if my voice can be heard or not, this makes me very tired and reduces my interest in the lesson.' (P49)

Programs are sometimes seen as a mentally wracking situation. Half of the participants did not evaluate these programs in a mind-wracking structure, while the other half stated that sometimes it can be wracking and that this is not because of the programs, but because of people who do not know or do not want to learn about the programs. In addition, it was stated that the meetings planned regardless of the time due, can cause more fatigue.

Participants stated that they also use body language, facial expressions, etc. in video conferences, and that distance education and meetings are not different from face-to-face communication. Based on the responses received, it seems that this process has become accustomed in the course of time.

At the point where you can't see the person before you in online meetings and classes, the idea that it requires a little more concentration than conventional face-to-face communication has emerged. It is seen that the need to concentrate more has arisen due to reasons such as not being able to see the reaction of the other party, not being able to make eye contact, not being able to provide a suitable environment (such as external stimuli), the need to find solutions to many problems immediately, and the distracting movements of the people before us.

As for distracting elements in online interviews, external environmental factors are most often given as examples. While reasons such as having children at home, pets, the doorbell being ringed, sharing the same room with other individuals at home can distract the speaker, in addition to similar situations for students, it can also be distracting for other family members such as parents and siblings entering the room during the course. Participants state that especially for students at the primary school level, distraction can be experienced more frequently due to their age.

'My kids and pet are a distraction.' (P30)

'The voice of the students' parents and brothers/sisters are distracting.' (P10) *Emotional fatigue of participations*

When participants were asked how they feel emotionally, in a virtual environment, it is seen that seeing their students and friends virtually is different from seeing them face to face, this situation causes distress from time to time, but again, with time, they are adapted to this situation and they do not feel distressed as much as they did at the beginning. The limited individual interaction and the inability to transfer the power of face-to-face communication to the virtual environment emerge as the main issues that individuals feel distressed about this process.

'I still feel sad to be in the virtual environment only in applied courses.' (P50)

'I'm glad to see people virtually not being able to see them at all. I think the main problem is the lack of individual interaction.' (P37)

Participations' methods of combating Zoom fatigue: Most of the participants stated that they listen to music, read books and spend time with their families, do sports and spend time in the kitchen to relieve the mental and physical fatigue caused by online programs. In general, all the participants said that they stay away from digital tools to relieve their mental and physical fatigue.

'I listen to music, I read books, I spend time with my family.' (P32)

'I stay away from tablets, computers, and phones.' (P12 & P24)

When the participants were asked to evaluate their adaptation to digital transformation in general, it was seen that three of the participants did not adapt at all, and all the other participants said that they did, even if they had some mental difficulties.

'I adapted new changes but it made me tired. I want my old life.' (P26)

Acclaimed aspects of online programs: The most useful and favorite aspect of video conferencing programs for the participants is that these programs eliminate the time and space limitations. They stated that they found the use of such programs which are obstacles to experiencing health problems during the pandemic period useful and that they felt safe, they experienced the freedom of doing their work from home, these programs made distances close, increased information sharing, and especially eliminated the fatigue experienced in traffic.

Participants stated that they wished they had used these programs before the pandemic, especially for meetings and short training, events in different cities, private courses, and theoretical courses. The majority of the participants stated that they would continue to use these programs even if everything returned to normal. It is among the predictions of the participants that hybrid education models will become widespread in the coming years, video conference programs will continue to be used in events in different cities, and online courses will increase. It is thought that the programs will continue to be used in training, meetings, and seminars, and exchanging digital files, homework, and projects with students can be done on these platforms. However, a small number of participants (7 participants) stated that they did not want to use the programs again due to digital fatigue when everything returned to normal.

Disfavored aspects of online programs: As the most disfavored aspects of video conferencing programs, difficulties in adapting individuals to such programs, immobility due to the need for constant sitting, not being as effective as face-to-face communication, more frequent and unplanned meetings, connection problems, and technical glitches have been shown.

Discussion

Considering that the concept emerged as a result of the use of video conferencing programs with the pandemic, it can be said that the research is at an early stage. Studies on Zoom Fatigue are increasing in international literature.

Amponsah & Wyk (2022) conducted a study on academicians in higher education institutions in Africa and Ghana. According to the findings of the study, academicians stated that video conferences require concentration and attention, increasing cognitive load and concentration level. In addition, they stated that warnings about the use of hardware tools during the interviews affected their concentration negatively. It can be said that the results obtained are in line with the findings of this study. Peper & Yang (2021) stated that it makes communication difficult when students do not respond and seem uninterested when attending simultaneous Zoom courses, and instructors are stressed because they do not receive social feedback from the students. In this study, it was observed internet problems and technical problems caused stress. Oducado, et al. (2021), in their study conducted on nursing students using the ZEF scale, found that negative attitudes towards videoconferencing programs, inconsistent internet connections, and long-term and frequent meetings cause Zoom fatigue. According to Rump & Brandt (2020), lack of non-verbal cues, weak internet connections, and low image quality was evaluated as stress factors. The results of the studies show similarities with each other.

In a study conducted by Rump & Brandt (2020) on 422 employees working in positions such as managers, personnel managers, and human resources specialists, it was found that Zoom fatigue caused headache, back, leg, and abdominal pain, and visual disorders. Academicians and teachers had similar health problems. Fauvilla, et al. (2021b) was found that women experience more mirror anxiety and concentrate more on themselves than men. Likewise, it was concluded that women academicians and teachers

experienced mirror anxiety. The result of the studies consistent with each other.

In a study conducted by Özen et al., (2021) on 25 people who are members of 20 non-governmental organizations operating on rights-based activities in Turkey, it is stated that the Zoom program allows meetings to be held without the time and place restrictions, but the participants hold meetings for shorter periods due to Zoom fatigue. However, it is also stated that the participants do not know how to connect to the Zoom meeting link creates problems with making use of the time well. In this study, participants believe that videoconferencing eliminates the time and place constraint.

Conclusions and Recommendations

In the education sector, which is one of the most important sectors of a country, programs such as Zoom, Microsoft Teams, and Google Meet have been included in the education processes so that primary, secondary, high school, and higher education levels are not interrupted due to the pandemic. It is even thought that it will become a part of business life with increasing digitalization. However, it is thought that their intensive use brings along various problems.

As a result of the research, it was determined that the majority of the participants used Zoom, Microsoft Teams, and Google Meet programs with the pandemic. The most important ground that the participants unite on is that these programs will also be used in the post-pandemic period. It has been stated that it is an effective way to attend meetings, seminars, and courses. The most disliked aspect of the programs is the frequent and unplanned meetings with the disappearance of the concept of time. In addition, staying still while using the programs was also stated as another disliked aspect.

It has been observed that the frequent and long-term use of video conferencing programs has negative effects on the physical, mental, and emotional well-being of individuals. It has been found that mirror anxiety and self-evaluation increase, especially in women. It was also found

that half of the participants had social appearance anxiety. It has been determined that technical malfunctions and constant connection control cause stress, external environmental factors, untimely meetings, and video conferencing programs that require more concentration cause mental fatigue in the participants. It has been concluded that lecturing in virtual classrooms and being away from students lead the participants to have negative emotions. In this respect, it can be said that apart from being user-friendly, the programs cause health problems, physical fatigue, cognitive load, exhaustion, and stress for users. However, with the evolution of the working order to a hybrid structure, the negativities can be reduced to a minimum with various methods.

In line with the data obtained from the research, suggestions were made to organizations and employees in order to prevent Zoom fatigue.

Suggestions for organizations:

- The right hybrid structures can be identified and implemented.
- Internet infrastructure can be improved.
- Digital tool usage skills can be developed by giving digital literacy training.
- Online support lines can be provided by creating guides for problems to be encountered during use.
- Psychological and social support can be given to help people cope with fatigue and exhaustion.
- Course hours and breaks between courses can be planned according to needs.
- Meetings can be held for short periods inappropriate time periods by setting the agenda.
- Suggestions for academicians and teachers:
- The devices on which the programs are used should be used at eye level, and if necessary, the screens should be raised with supports such as books.
- If one is constantly looking at the screen, eye checks can be made and filtered glasses can be used.
- While speaking, the person on the screen should look at the camera, not at herself/himself.

- It is recommended not to be concerned with other tasks while listening to the meetings.
- In order to reduce their fatigue, presentations with pauses can be made, videos can be watched, and article research can be done.
- It may be appropriate to take a break, move away from time to time.
- One can take a walk in the open air by turning off their phone and computer, and if they cannot go outside after long meetings, fresh air can be gotten from the window.
- Doing physical activities (running, walking, etc.) can help relieve physical fatigue, activities such as yoga, pilates, meditation, and breathing exercises can help increase mental well-being.

Considering that synchronous courses are integrated into education life, and online meetings and training are integrated into business life, it can be mentioned that it is necessary to determine and understand the causes of Zoom fatigue. It is recommended that necessary arrangements be made by considering the effects of Zoom fatigue on physical and mental health while preparing strategic training programs, planning teaching processes, and performing quality applications.

Zoom fatigue is a newly studied concept, there are gaps in the related literature. From this point of view, data can be collected, and inter-sectoral comparisons can be made by applying the ZEF scale to people who use the programs intensively. It is important to examine the effects of Zoom fatigue on individuals, as well as the effects at the organizational level. By empirically examining the relationship between Zoom fatigue and variables such as well-being, mental well-being, work-related well-being, work stress, cyberloafing behaviors, self-esteem, social anxiety, and social attractiveness, the theory can be supported, and a contribution can be made to the field.

References

Akduman, G. (2021). Adaptation of the zoom exhaustion & fatigue questionnaire into Turkish: A validity and reliability study. *Journal of Behavior At Work*, 6(1), 16-28. DOI: https://doi.org/10.25203/idd

Amponsah, S. & Wyk, M. M. (2022). Academic experiences of "Zoom-Fatigue" as a virtual streaming phenomenon during the COVID-19 pandemic. *International Journal of Web-Based Learning and Teaching Technologies*, 17(6), 1-16. DOI: 10.4018/IJWLTT.287555

Bailenson, J. N. (2021). Nonverbal overload: A theoretical argument for the causes of Zoom Fatigue. *Technology, Mind and Behavior*, 2(1). https://doi.org/10.1037/tmb0000030

Baltacı, A. (2019). Nitel araştırma süreci: Nitel bir araştırma nasıl yapılır? *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 5(2), 368-388.

Barret, D. & Twycross, A. (2018). Data collection in qualitative research. Evidence-Based Nursing, 21(3), 63-64. http://dx.doi.org/10.1136/eb-2018-102939

Baygın, E., Yalap, O. & Polatçı, S. (2022). Yenilikten yorgunluğa: Zoom yorgunluğu ölçeğinin geçerlilik ve güvenilirlik çalışması. 8. *Örgütsel Davranış Kongresi Bildiriler Kitabı*, 390-400.

Bennett, A. A., Campion, E. D., Keeler, K. R. & Keener, S. K. (2021). Videoconference fatigue? Exploring changes in fatigue after videoconference meetings during COVID-19. Journal of Applied Psychology, 106(3), 330-344. http://dx.doi.org/10.1037/apl0000906

Boathra, S. (2020). (20.12.2021). *https://thriveglobal.com/stories/how-to-avoid-zoom-fatigue-while-working-from-home/?utm_source=Newsletter_General&utm_medium=Thrive.*

Curry, D. (2022). (22.02.2022). *https://www.businessofapps.com/data/microsoft-teams-statistics/*

Dilekçi, Ü. & Limon, İ. (2020). COVID-19 salgını bağlamında öğretmenlerin algıladıkları aşırı işletişim yükü düzeylerinin incelenmesi. *Milli Eğitim*, 49(1), 231-252. DOI: 10.37669/milliegitim.776450

Ebner, N. & Greenberg, E. E. (2020). Designing binge-worthy courses: pandemic pleasures and COVID-19 consequences. *Negotiation Journal*, 36(4), 535-560. https://doi.org/10.1111/nejo.12339

Fauvilla, G., Luo, M., Queiroz, A. C. M., Bailenson, J. N. & Hancock, J. (2021a). Zoom exhaustion &

fatigue scale. *Computers in Human Behaviors Report, 4*, 1-10. DOI: 10.2139/ssrn.3786329

Fauvilla, G., Luo, M., Queiroz, A. C. M., Bailenson, J. N. & Hancock, J. (2021b). Nonverbal mechanisms predict Zoom fatigue and explain why women experience higher levels than men. *SSRN Electronic Journal, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3820035*. DOI: 10.2139/ssrn.3820035

Fosslien, L. & Duffy, M. W. (2020). (01.05.2021). How to combat Zoom fatigue. *Harvard Business Review, https://hbr.org/2020/04/how-to-combat-zoom-fatigue*

Hannah, J., Burrows, E. L., Rethnam, V., Kramer, S. & Bernhardt, J. (2021). "Can you hear me?" Video conference coping strategies and experience during COVID-19 and beyond. *Work, 70*(3), 723-732. DOI:10.3233/WOR-210279

Iqbal, M. (2022). (22.02.22). Zoom revenue and usage statistics 2022, *https://www.businessofapps.com/data/zoom-statistics/*

Jackson II, R. L., Drummond, D. K. & Camara, S. (2007) What is qualitative research? *Qualitative Research Reports in Communication, 8*(1), 21-28. DOI: 10.1080/17459430701617879

Kagan, D., Alpert, G. F. & Fire, M. (2020). (10.03.2022). Zooming into video conferencing privacy and security threats. *https://arxiv.org/abs/2007.01059*.

Karataş, Z. (2015). Sosyal bilimlerde nitel araştırma yöntemleri. *Manevi Temelli Sosyal Hizmet Araştırmaları Dergisi, 1*(1), 62-80.

Lee, J. (2020). (01.03.2021). A neuropsychological exploration of Zoom fatigue. Psychiatric Times, *https://www.psychiatrictimes.com/view/psychological-exploration-zoom-fatigue*

Mohajan, H. (2018). Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment, and People, 7*(1), 23-48.

Nadler, R. (2020). Understanding "Zoom fatigue": Theorizing spatial dynamics as third skins in computer-mediated communication. *Computers and Composition, 58*, 102613.

Okabe-Miyamoto, K., Durnell, E., Howell, R. T. & Zizi, M. (2021). Did zoom bomb? Negative video conferencing meetings during COVID-19 undermined worker subjective productivity. *Human Behavior and Emerging Technology, 3*, 1067-1083. DOI: 10.1002/hbe2.

Oducado, R. M. F., Fajardo, M. T., Parreno-Lachica, G. M., Maniago, J. D., Villanueva, P. M. B., Dequilla, A.C., Montana, H. C., & Robite, E. E. (2021). Predictors of videoconference fatigue: Results from undergraduate nursing students in the Philippines. *Asian Journal for Public Opinion Research, 9*(4), 310-330 http://dx.doi.org/10.15206/ajpor.2021.9.4.310

Özen, Z., Körükmez, L. & Akbaş Demirel, C. (2021). Dijital çağda sivil toplum: İmkanlar ve kısıtlılıklar. *https://insanhaklariokulu.org/wp-content/uploads/2021/05/Dijital-Cagda-Sivil-Toplum.pdf*

Peper, E., & Yang, A. (2021). Beyond Zoom fatigue: Re-energize yourself and improve learning. *Academia Letters, 257*, 1-7. https://doi.org/10.20935/AL257.

Peper, E., Wilson, M., Rosegard, E., & Harvey, R. (2021). Avoid Zoom fatigue, be present and learn. *Neuro Regulation, 8*(1), https://doi.org/10.15540/nr.8.1.47

Reidl, R. (2021). (02.02.2022). On the stress potential of videoconferencing: definition and root causes of Zoom fatigue. *Electronic Markets*, https://link.springer.com/article/10.1007/s12525-021-00501-3. https://doi.org/10.1007/s12525-021-00501-3

Reisinger, T. (2020). (01.01. 2022). Zoom security: I've researched problems with video conferencing for years – here's what you need to know. *https://theconversation.com/zoom-security-ive-researched-problems-with-video-conferencing-for-years-heres-what-you-need-to-know-136330*.

Rößler J, Sun J, & Gloor P. (2021). Reducing videoconferencing fatigue through facial emotion recognition. *Future Internet. 13*(5), 126. https://doi.org/10.3390/fi13050126

Rump, J. & Brandt, M. (2020). (01.02.2021). Zoom fatigue. *Report of Institute for Employment and Employability*. IBE. *https://www.ibe-ludwigshafen.de/wp-content/uploads/2020/09/EN_IBE-Studie-Zoom-Fatigue.pdf*

Salman Yıkmış, M (2020). Nitel araştırmalarda e-görüşme tekniği. *Trakya Üniversitesi Sosyal*

Bilimler Dergisi, 22(1), 183-197. DOI: 10.26468/trakyasobed.556296

Shangguan, Z., Wang, M.Y. & Sun, W. (2020). What caused the outbreak of COVID-19 in China: From the perspective of crisis management. *International Journal of Environmental Research and Public Health*. 17(9), 3279. https://doi.org/10.3390/ijerph17093279

Sharma, M.K, Sunil, S., Anand, N., Amudhan, S. & Ganjekar, S. (2021). Webinar fatigue: Fall out of COVID-19. *Journal of Egyptian Public Health Association*, 96(9), 1-2. https://doi.org/10.1186/s42506-021-00069-y

Sharma, M.K., Anand, N., Ahuja S., Thakur P.C., Mondal, I. & Singh, P. (2020). Digital burnout: COVID-19 lockdown mediates excessive technology use stress. *World Social Psychiatry*, 2(2), 171-172. DOI: 10.4103/WSP.WSP_21_20

Tobing, A. V. M., Irawan, V., Salim, Y. & Sulistyavati, S. W. (2022). Participants' Levels of understanding before and after attending the zoom fatigue during COVID-19 Pandemic Webinar. *World Journal of Advanced Research and Reviews*, 13(01), 338–342. https://doi.org/10.30574/wjarr.2022.13.1.0017

Shoshen, H. N. & Whert, W. (2021). Understanding Zoom fatigue: A mixed-method approach. *Applied Psychology*, *Special Issues*, 1-26. DOI10.1111/apps.12360

Tucker, S., Layson-Wolf, C., Coop, A., Lebovitz, L. & Anagnostou, G. (2021). Combating 'Zoom-fatigue': A comprehensive approach to academic program adaptation and supporting digital wellness during COVID-19. In T. Bastiaens (Ed.), *Proceedings of EdMedia + Innovate Learning* (p.727-731). United States: Association for the Advancement of Computing in Education (AACE).

Wiederhold, B. K. (2020). Connecting through technology during the Coronavirus Disease 2019 pandemic: Avoiding "Zoom Fatigue". *Cyberpsychology, Behavior, and Social Networking*, 23(7), DOI: 10.1089/cyber.2020.29188.bkw

William, N. (2021). Working through COVID-19: 'Zoom' gloom and 'Zoom' fatigue. *Occupational Medicine*, 71(3), 164. https://doi.org/10.1093/occmed/kqab041

World Economic Forum (2020). (31.01.2022). *https://www.weforum.org/agenda/2020/03/infographic-apps-pandemic-technology-data-coronavirus-covid19-tech/*

Yıldırım, A. & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri.* Ankara: Seçkin Yayıncılık.

OPUS▶

RESEARCH ARTICLE

A Perspective on Sustainable Ecology in the Light of the Qur'an

Handan Yalvaç Arıcı [1] 1 Hacer Ak [2]

[1] Dr., Istanbul Sabahattin Zaim University, Istanbul/Turkey
ORCID: 0000-0003-4179-3919
E-Mail:
handanyalvac1453@gmail.com

[2] Dr., The Istanbul Metropolitan Municipality, Istanbul/Turkey
ORCID: 0000-0003-0678-9228
E-Mail: hacerak@gmail.com

Corresponding Author:
Handan Yalvaç Arıcı

Abstract

Today, the ecological system is being destroyed due to the environmental pollution. Unlimited consumption habits and the use of non-recyclable materials disrupt the ecological balance; thus endangering the life of all living things in danger. This situation puts the life of all living things in danger. This paper explores how religion might shape perspectives on sustainability measures. The references from the Holy Quran on ecological issues have been highlighted to bring into light the teachings and instructions of Islam and the collaboration of Islamic teachings into environmental campaigns in order to raise social awareness on sustainability issues has been proposed. This paper explains how environmental issues are mentioned in the Qur'an and suggests studies involving Religious Culture and Moral Knowledge (RCMV) teachers and the religious commissaries to protect the environment. At the same time this study shows that it is necessary to act in accordance with the nature of the earth for a more balanced, peaceful and sustainable existential climate.

Key Words: *Religious Education, Quran, Ecology, Sustainability, Protection, Environment.*

Öz

Günümüzde çevre kirliliği nedeniyle ekolojik sistem tahrip edilmektedir. Sınırsız tüketim ve geri dönüşümü olmayan ürünlerin kullanımı ekolojik dengeyi bozmaktadır. Bu durum tüm canlıların hayatını tehlikeye atmaktadır. Bu makale dinin sürdürülebilirlik konusunda perspektifleri nasıl şekillendirebileceğini araştırmaktadır. Ekoloji ile ilgili konularda Kur'an'dan yapılan referanslar alınarak İslam'ın öğretileri ortaya konulmakta ve sürdürülebilirlik konularında toplumsal farkındalığı artırmak için İslâmî öğretilerin çevre çalışmalarında kullanılabileceği gösterilmektedir. Bu makale Kur'an'da çevre konusundan nasıl bahsedildiğini açıklamakta ve çevreyi korumaya yönelik Din Kültürü ve Ahlak Bilgisi (DKAB) öğretmenleri ve din görevlilerinin dahil olduğu çalışmalar önermektedir. Aynı zamanda varoluşsal iklimin dengeli, barışçıl ve sürdürülebilir olması için yeryüzünün doğasına uygun hareket edilmesi gerektiğini göstermektedir.

Anahtar Kelimeler: *Din Eğitimi, Kur'an, Ekoloji, Sürdürülebilirlik, Koruma, Çevre.*

Introduction

Sustainability concept has to be considered in order not to compromise the benefits of the future generations with the present consumption habits before damaging the planet in an irreparable and irreversible way (Ak & Sezer, 2020, p.41). Ecological sustainability includes everything that is connected with the Earth's ecosystems. Amongst other things, ecological sustainability includes the stability of climate systems, the quality of air, land and water, land use and soil erosion, biodiversity (diversity of both species and habitats), and ecosystem services (e.g. pollination and photosynthesis). Environmental sustainability can only start with educated and committed people. Carbon footprint, is one of the indicators of environmental sustainability. A carbon footprint is the amount of greenhouse gases -primarily carbon dioxide- released into the atmosphere by a particular human activity.

A carbon footprint can be a broad measure or be applied to the actions of an individual, a family, an event, an organization, or even an entire nation. It is usually measured as tons of CO_2 emitted per year, a number that can be supplemented by tons of CO_2-equivalent gases, including methane, nitrous oxide, and other greenhouse gases. These concepts have emerged lately due to the adverse effects of increasing greenhouse gas emissions, overexploitation of natural resources and environmental degradation and pollution. However, the concept of sustainability has been mentioned in the Quran centuries ago. This paper suggests the inclusion of Quranic knowledge in the education of sustainability and raising public awareness on environmental protection especially in the Muslim countries. This paper suggests the inclusion of Quranic knowledge in the education of sustainability and raising public awareness on environmental protection. It is suggested that engaging Religious Culture and Moral Knowledge (RCMV) teachers and the religious commissaries to raise public awareness on environmental protection might have an immense effect especially in the Muslim countries.

Methodology

In this study which was conducted in a qualitative research pattern, the "document review technique" that is referred to analyze the content of written documents meticulously and systematically is used. Qualitative research is defined as a method in which many qualitative data collection methods such as observation, interview and document analysis are used, and the process is carefully followed in order to analyze the events in a realistic way in their natural environment. This method is based on researching, understanding and interpreting social phenomena in the environment they are related to, with a perspective based on theorizing (Yıldırım, 1999, p.3). The document review technique includes the analysis of written materials containing information about the phenomenon or facts to be investigated (Madge, 1965, p.75). As in all other methods, in the document review technique, in the document analysis technique used, all data should be examined and interpreted in order to make sense, interpret, create a perspective on the subject and develop empirical knowledge. In the document analysis, all materials that can be a source for the subject of the study, both hardcopy and digital, have been used systematically. In this technique, the analytical process is carried out in three steps: finding the relevant data in the documents, selection and evaluation of the data, and synthesizing it (Bowen, 2009, p.27-28).

Document review technique is accepted as an indispensable data collection technique for almost every research. Researchers are required to first review, understand and evaluate previous research on the research topic. Hereby, documents produced in the historical process or in a certain period are analyzed by scanning more than one source related to a specific research problem (Yıldırım & Şimşek, 2008, p.12). The most important aspect of this technique is that it requires a communication between the researcher and the document. Besides, the researcher has to establish a linear relationship between what the document wants to express and what he interprets (Karasar, 2007, p.184). This technique, which includes review (superficial investigation), reading (comprehensive investigation) and interpretation,

combines elements of content analysis and thematic analysis. Thus, the data obtained can be organized in categories related to the basic questions of the research (Bowen, 2009, p.3). In this study, the subject of ecology is divided into categories and subcategories using the document review technique, ecology and sustainable ecology are defined in line with the literature review and the opinions of the experts, the development of the industry and the change and transformation in ecology as a result of the conformist approaches are explained, and the problems caused by these changes and transformations are evaluated. As a result of the research, the destruction in the ecosystem is explained and it is understood that unless precautions are taken, the destruction in the ecology will affect all existence. Depending on the results obtained, suggestions are made for a sustainable ecology.

Ecology in the Qur'an

The environment, one of the most important factors in the existence and continuity of human being, surrounds every individual coming to the world with a warmth of a nest and functions as a living space where the individual satisfies his/her material and spiritual needs as long as he/she lives. In today's terminology, the term ecology, which defines the environment, is the study of `life at home` with emphasis on the totality or pattern of relations between and their environment. In other words, ecology is the name of the living space that serves as a home for beings and all existence. The house made of stone and concrete, where people live and meet all their needs, is a tiny example of a house on earth. The home is a shelter, a protection and a habitat of safety for the individual. Likewise, ecology is a cosmic space designed for all human needs with the sky as a huge roof on top of it. In this huge space, there are not only physiological needs of man, but also material-spiritual beauties that his psychology and spirit may need. This place, which is a house, a mattress and a residential area for man, is completely ready for a person before he is born. So much so that all kinds of beings on earth, such as soil, water, trees, leaves and flowers, are a series of possibilities for human

beings. In this ecological house, when the opportunities are used correctly, there is constant renewal, while when the opportunities are used incorrectly, instead of renewal, deterioration and extinction begin. Today's world squanders the resources of the earth so much that the system cannot renew itself. It is a reality that lifestyles built on a consumption-centered and comformist understanding consume the possibilities offered by ecology.

The fact that the perception of modern life is consumption-centered causes utilization to become more widespread. Especially in the 20th century, it is known that life of shelf products is shortened and planned obsolescence is conducted for more consumption. So much so that as the aging time of a product decreases, more production thus more workers are required for more products. More products mean more profit and new methods are being developed to make more profit. For that matter in the 21st century, it is seen that the concept of "planned obsolescence" has been abolished and the concept of "product life" has been put forward as a new idea. Thus, the date of manifacture and the date of extinction of a product are perceived as an organic process (Neiman, 2017, p.161-162, 166-167). In other words, with the concept of product life, it is understood that objects are given a life and short-lived products are prioritized. Thus, the function of the used objects ends in a short time and those objects become a waste in nature. In addition, the rapid consumption of electronic equipment and short-lived objects without considering 3R (reduce-reuse-recycle) creates large landfills full of waste that indeed consists of tons of reusable/recyclable goods. With the development of technology, lifestyles turn into a more and more comfortable form. This comfortable lifestyle offered by science and technology spreads the idea of conformism and offers individuals the comfort of doing what they want the way they want. So much so that the frenzy consumption turns into an obsession as a result of the understanding 'anything goes'. This madness is now consuming the resources of ecology. "Be yourself, make yourself happy!" perspective encourages people to consume without thinking (Niedzviecki, 2011, p.17).

Therefore, with the technological developments, the growth of the industrial world and the presentation of information technologies, the consumption area is expanding and using products that are not needed becomes a necessity. The culture built by this system is defined as consumption culture, and the society it builds is defined as "consumption society". Every member of this society is seen as a means of consumption (Baudrillard, 2021, p.93) Since consumption is a priority for the consumer society, wasting and consuming ecological resources is not considered crucial.

It is necessary to prevent the ecology, which provides the existential continuity of human beings, from being wasted by the consumer society. Otherwise, it is understood that ecology will not be a shelter or a haven for human beings. The ecological nest that responds to all kinds of human needs has difficulty even maintaining its own sustainability. In studies on ecology, bringing up the issues of what the divine books mention and how they evaluate ecology should be seen as a contribution. The Qur'an draws attention to the issue of ecology and reveals that ecology also has a nature. The Qur'an states that the earth is a cradle (Ta-ha, 20/53), a mattress (Baqarah, 2/22; Naba', 78/6) and at the same time a residential area for human beings. In the verse "It is God who makes the earth a settlement area for you, that makes the sky a building, shapes you and makes you beautiful and provides you with clean food." (Mu'min, 40/64) the Earth is described as a fixed headquarters for human beings, that is, a place where human beings live and die (al-Razi, 2002, v. 19, p.326). The word "building" in the verse means "big tent" in Arabic, it is emphasized that the roof of the earth, which resembles a house or headquarters, is the sky, and the sky gives the appearance of a dome or a large roof for the earth (al-Zamakhshari, 2015, p.172). The Qur'an states that before the creation of man, his cradle and mattress were prepared and this mattress was created under special conditions (Bayraklı, 2004, v. 17, p.34). Therefore, the fact that the earth is a living and settlement area is crucial for the continuity of people's existence, for organizing and sustaining their lives (Abu Mansur al- Mâtürîdî, 2017, v. 13, p.89). However, the depletion of

natural resources, pollution of air, water and soil, deforestation and global warming are daunting threats towards an environmental catastrophe.

It is necessary to act in accordance with the nature of the earth for the balance, peace and continuity of the existential climate. The Qur'an considers ecology as a whole of activities on earth and in the sky. All of these activities meet both material and spiritual human needs biologically and psychologically. In the verse "(To guide) those who use their reason (to this Truth) there are many signs in the structure of the heavens and the earth, in the constant alternation of night and day, in the vessels which speed across the sea carrying goods that are of profit to people, in the water which Allah sends down from the sky and thereby quickens the earth after it was dead, and disperse over it all manner of animals, and in the changing courses of the winds and the clouds pressed into service between heaven and earth." (al-Baqarah, 2/164). It is explained that the earth is composed of many elements such as seas, lands, mountains, plains, rivers, streams, deserts, forests, plants, mines; and that the earth is directly connected to the skies. It is evident that there is a great ecological order in the system of the earth, the shortening of night and day, the wind carrying seeds from one place to another, the creation of plants and animals, all kinds of living beings from microorganisms to the ones that have intellect (Yazır, 1935, v.1, p.564-566).

The verse draws attention to the revival of the land with rain coming down to the earth as well as the revitalization of the revived soil, the continuity of the seeds from the different directions of the blowing winds (al-Razi, 2002, v. 4, p.169-170,174; al-Zamakhshari, 2015, v. 1, p.208) and the function of the wind to activate the clouds (Bayraklı, 2004, v. 2, p.346). At the end of the verse, the subject of ecological order is emphasized and the importance of thinking about ecological life is expressed; it is reported that no existence on earth is created in vain (Al-i I'mran, 3/191) and it is pointed out that all kinds of living things are created to benefit from them in many ways (Abu Mansur al- Mâtürîdî, 2017, v. 1, p.329).

The kinds and colors of the creatures created for human benefit and that they can be used in many different ways such as food, beverage, clothing,

ornaments or rides have been mentioned. "And [He has subjected] whatever He multiplied for you on the earth of varying colors. Indeed in that is a sign for a people who remember. And it is He who subjected the sea for you, and you eat fresh meat from it, and extract from it ornaments which you wear. And you see the ships plowing through it, and [He subjected it] that you may seek of His bounty; and perhaps you will be grateful." (Nahl 16/13-14). In the verse related to ecological regulation, the laws of ecology are mentioned, firstly the colorful, various plants and animals found on land, then the nutrition and ornaments that are present in the sea are explained. (Bayraklı, 2004, v.10, p.458).

It is understood that anything and everything from the smallest stone to the mountains, from the ponds to the seas, from a tiny leaf to trees, from trees to forests has a special position. This shows that there is a special ecological balance in the ecological system. Ecological balance refers to the natural balance that occurs when people, animals and plants complement each other and want to benefit from each other so that they can continue with their lives on earth and live together. A dynamic equilibrium situation manifests itself within a community of organisms in which genetic, species and ecosystem diversity generally remains constant, subject to gradual changes in this natural balance (Çakır & Coşkun, 2012, p.2). So much so that in nature, which consists of many species and diversity such as humans, animals, plants, forests, and mines, each entity creates a balance both in its own field and within a gigantic system. In this system, existence and extinction continue in an order, and at the same time, all changes continue in a gradual manner and the ecological balance continues to exist dynamically.

Earth's resources are depleted and ecological balance is destroyed due to the perspective of continuous consumption that occurs as a result of increasing industrial activities and the imposition of capitalism. This destruction also destroys the values within the nature. The ecological system is the place where every living thing naturally lives and reproduces, and is also the habitat of that species. Nowadays, with the destruction of the ecosystem, it is seen that the living species in the

ecosystem are also extinct. Studies have reported that a quarter of all species in the world are in danger of extinction in the near future (Barnosky et al., 2011, p.51-51). One of the most important and main reasons for this situation stems from the irresponsible and unlimited use of resources. For example, it is anticipated that the Amazon Forests host more than half of the species in the world, but faulty and unplanned activities in such a tropical forest will cause the complete extinction of 5-15 percent of the species found here in a short time (Başlar & Şahin, 1993, p.15).

Ecosystem services, which are defined as the conditions and processes in which natural ecosystems and the species that make up these ecosystems, maintain their lives, lose their functionality. There are many different and diverse ecosystem services on earth, from global scale to the microscopic scale. Ecosystems have functions such as purifying air and water, producing oxygen and balancing the climate. At the same time, organisms in the ecosystem decompose and dissolve organic wastes, remove their toxic effects, and thus prevent the earth from being buried under waste. Microorganisms in the soil carry out the formation of soils and the recycling of nutrients necessary for agriculture. These microorganisms in the soil protect the soil, play an important role in the recycling of nutrients, and also help reduce erosion and flooding. One of the services of the ecosystem is that thousands of animal species pollinate plants, spread their pollens, fertilize the plants, protect them from harms and pests, and spread seeds around the world (Sekercioglu, 2010, p.1). The natural balance of soil, air and water polluted by industrial and agricultural activities also deteriorates, resulting in the decrease or disappearance of species in the ecosystem. In addition, it is known that many species living on land, in the air and in the sea, from elephants to whales, are in danger for many purposes such as clothing, ornaments, etc. In addition, many products such as paper towels and wipes covered with non-recyclable oil and food residues thrown on land and sea, packaging papers, syringes or medical waste, as well as baby diapers, plastic bags, packaging foam, styrofoam foam, disposable paper cups, various glass products, fluorescent

lamps, toys, detriment living things on land and in the sea.

However, the beings in the ecosystem cannot be isolated from ecological life. But the products that disrupt the ecological balance destroy the resources in the ecosystem. Considering that every species and every variety in the ecosystem has important duties, extinctions of all species and varieties disrupt the ecological balance, and the living space on the earth gradually disappears. The functionality of ecological balance and ecosystem services are also the subject of theology along with ecological balance and ecosystem services. Because the Creator states that each being was also created as a special system for the continuation of the coexistence of all beings. This system needs to work as a whole. Otherwise, this particular system will be doomed to collapse. Information on this subject is provided in the holy books. Especially in the Qur'an, it can be seen that ecological balance and ecosystem services are mentioned in many verses. It is stated that the plants and fruits of different species and ores consisting of soil and water are different in terms of visual appearance and tastewise, they are offered to the benefit of people and a lot of animal species exist on land and sea (Abu Mansur al- Mâtürîdî, 2017,v. 8, p.101-103). As a result, the Qur'an declares that the beings are in an ecological order, making it clear that each of these beings possess an area of interaction and that human existence can only sustain its existence in the ecological order.

Ecological Balance in the Qur'an

The universe and everything within are created on certain dimensions. In fact, there is no random, irregular, unplanned functioning in the universe, and the continuity of a planned operation within a corresponding measure is observed (Güven, 2014, p.154). It is obvious that human life and natural life are built on various balances. Relationships in this balance system are generally connected to each other and continue for a long time, with long relationship rings that are not noticed by people. Living things and other living things, living things and inanimate environmental elements are in such a relationship with each other that it is unthinkable for one to exist without the other. As a result of

external interventions to this sensitive system, breaks occur in the links of the chain that creates the natural balance, and these breaks affect the entire chain. It also causes the loss of biodiversity. For example, a forest destroyed due to deforestation or fires is damaged in terms of its own integrity and the integrity of the ecosystem. Forests are considered the lungs of the planet and forests are a part of the protective umbrella of the universe (Abbdulkareem et al., 2020, p.1-2). So much so that the species living in that forest, as well as the habitats of these species, are destroyed, and as a result, the chain rings in the system are broken. In addition, since soil richness is lost, it becomes difficult for the soil to renew itself (Thom & Seidi, 2016, p.1).

When this measure in the universe starts to deteriorate, the ecological order also starts to deteriorate. The Qur'an states that the universe is created on a scale (Hijir 15/21; Furqan 25/2; Qamar 54/ 49) that there can be no imbalance, disorder, and incompatibility in the creation (al-Mulk 67/3) In another verse (Furqan 25/2) it is stated that both the living things and lifeless things were created in accordance with a plan and in a programmatic structure, the assets were in recognition with an intended purpose, on a macro and micro basic (al-Zamakhshari, 2015, v. 3, p.256). It is explained that everything created is arranged according to a measure and certain limits are set for each being (Abu Mansur al- Mâtürîdî, 2017, v. 10, p.248). The verse *"Surely, We created all things with a destiny, a measure."* shows that there is a measure and a limit to which everything is created (Abu Mansur al-Mâtürîdî, 2017, v. 14, p.273). In other words, each being is created with a specific measure of creation within certain limits, but also for every being whose dimension is broken, the element of balance is beginning to disappear. The verse *"Everything is with a measure in His sight."* (Ra'd 13/8) clearly states that every being created exists within a measure in terms of its nature and attributes.

Allah has not created anything that He has created without measure, and has determined the appropriate measures for each created being. For example, a short and small being is created short and small due to the ability in a substance, while a long or large created being is long or large due to a capability within it. In other words, the measure of

the essence or adjective of a large or small being is proportional to the ability of creation in that being (al-Razi, 2002, v. 21, p.44-45). Therefore, every being has been created in the most perfect and detailed way in terms of virtue. At the same time, the existence, adjectives and abilities of any being do not increase or decrease by themselves and do not change regardless of the scale of creation (Bilmen, 1965, p.1630).

There is a measure of creation for everything in the ecosystem. Even the deteriorations and disappearances in the system are a system within the system. Although natural disturbances such as earthquakes, volcanic movements, hurricanes, and storms can protect and even increase habitat heterogeneity and species diversity in the shaping and structuring of ecosystems, unlimited and unmeasured use of resources by humans disrupts the habitat (Villnäs, 2013, p.4-5). Many factors such as urbanization, population growth, economic growth, unconscious use of natural resources, intensification of industrial agriculture, increase in energy use, increase in transportation disrupt the balance of the ecosystem and cause environmental deterioration. In other words, the disruption of the balance in the ecosystem is manmade. Environmental degradation is also caused by the deterioration of the balance in the ecosystem, the excessive consumption of natural resources and the pollution of the environment. Environmental pollution means that toxic substances make the environment unhealthy. Many toxic substances such as plastics, car emissions, chemical wastes degrade the environment and destroy the ecosystem's services. As the environment becomes polluted, the air and water necessary for the survival of living things become polluted (Choudhary et al., 2015, p.1-2).

Pollutants such as dust, gas, smoke, odor and impure water vapor in the atmosphere cause air pollution, and air pollution adversely affects living organisms. Likewise, water is negatively affected by environmental toxins. Water pollution occurs when undesirable harmful substances mix into the water at an amount and density that will allow them to deteriorate the quality of the water measurably. Many factors such as industrial establishments, chemical pesticides, agro-

industrial waste water, and thermal power plants cause water pollution, which directly or indirectly affect the lives of all living and non-living creatures. In addition, chemicals and organic compounds in wastewater reduce the amount of oxygen dissolved in the water, which consumes the water resources that people require for drinking and use, and at the same time increases the death rates of plants and animals living in the water. Unfortunately, nowadays, it is seen that as a result of excessive pollution in some lakes or streams, there is no living substance left and islets are formed by toxic wastes. In addition to air and water pollution, soil pollution also causes many problems (Al-Taai, 2021, p.1-3).

Soil pollution is defined as all kinds of technical and ecological pressures and events that will deteriorate the soil properties at the highest level as a result of the decrease in the fertility of the soil. Pollution of the soil is caused by substances that pollute the air and water. For example, rain droplets passing through an atmosphere with a high sulfur dioxide content enter the soil in case of an acid rain, and that these acidic waters damage the roots of trees, plants and creatures that live in the soil. This affects the reaction of the soil in such a negative way, thus disrupting the nutrient balance and making the spring waters undrinkable. Likewise, many substances such as leachate leaking from garbage heaps, radioactive materials, dirty irrigation water, fertilizer solutions pollute the soil. The deterioration of air, water and soil destabilizes the entire ecosystem and endanger the lives of living things (Khan & Ghouri, 2011, p.276-280).

As a result, the deterioration of the balance in the ecosystem hinders the services of the ecosystem, causing a decrease in some living organisms and an increase in some living organisms. The ecosystem has a very special balance of its own, and each entity in this system together with the others forms a large system. As the chain links in the system deteriorate, the entire system is affected. Every living or non-living being such as soil, air, plants and animals, which are the basic elements of the ecosystem, is exposed to structural change. Pollution of water also reduces the rate of air in the water, and the required

amount of water and air for living things cannot be met. At the same time, pollution in the soil causes the extinction of living things over time. In addition, due to change of the climate, the distribution of living life changes. For example, the decrease in the number of plants causes a decrease in the number and species of living things in the food chain, which harms the balance of the system. As a result of all these, biodiversity decreases and the balance of the ecosystem is disturbed. So, there is an ecological balance of the earth, which is the home of man. As long as this balance is maintained, the earth will remain the habitat for all beings. Otherwise, the deteriorating balance, the lost measures will deprive the ecological capital.

Sustainable Ecology in the Qur'an

All the living organisms of the Earth and the environments surrounding these organisms work together as a single entity in unity. This ecological structure is called "ecosystem", and it states that the naturally occurring life and the life around it function within a system (Balasubramanian, 2008, p.1). This ecological structure has an important role on the continuity of the ecosystem. The Qur'an states that the heavens and the earth are created on a measure, that this measure should not be broken. "And the heaven He raised and imposed the balance, that you not transgress within the balance. And establish weight in justice and do not make the balance deficient." (al-Rahman 55/7-9). The word "balance" in the verse means in the sense of truth, meaning that people keep everything at the right scale. It is stated that each being is created according to a measure of creation and that man should not exceed the divine boundaries.

The word "balance" firstly points to the mind that weighs the good and the bad, the right and the wrong, the truth and the superstitious as well as the balance of rights and law among people. Intellectual and legal scales are important measures for ecological balance. The verse explicitly orders the individual to behave moderately against himself and those around him (Abu Mansur al- Mâtürîdî, 2017, v. 14, p.283-284), and he is asked to comply with the measures of justice. Likewise, the word "Qist (constraint)", which means justice in the verse, means what

should not exist in oneself (al-Razi, 2002, v. 21, p.76). In other words, it is possible to talk about justice in the absence of measure and imbalance. In the designated orbital system in the celestial order starts to deteriorate as when an object leaves the orbit, the ecological order deteriorates when one leaves the path (Bayraklı, 2004, v. 10, p.458). Therefore, it is not possible to talk about the sustainability of the ecological order when all organisms within the ecosystem are not considered as part of the whole and are used in an excessive manner.

In terms of sustainability of the ecological system, the Qur'an primarily regulates the relationship between the individual and the ecological system and encourages to be away from squander and subversion actions that would disrupt the balance of the ecosystem. It is understood that there is a bankruptcy to be experienced as a result of squander and subversion actions. In order to avoid a state of failure in the ecosystem, not to dissolve and destroy the ecosystem, it is necessary to know what squander behavior is and its consequences. Especially in the modern world, new requirements are constantly being produced and individuals cannot control their wishes and desires. Thus, the sense of squander is fueled (Bayhan, 2011, p.234) and destruction occurs in the ecosystem due to excessive use of resources. The concept of extravagancy in Qur'an is used to express all kinds of inconsistent and excessive actions (Soysaldı, 2005, p.95). It is reported that all actions carried out in excessive and inconsistent manner will disrupt the life order of the individual and the society, and followers are ordered to abstain from extravagancy. In the Qur'an, it is explained that to be doomed to wrong instincts (al-Zumar, 39/53) and to use all kinds of resources unlimitedly (al-Nisa' 4/6; al-Furqan 25/67) is extravagance and it is explicitly and strictly forbidden (al-A 'raf, 7/31).

Squandering has become a culture in the modern societies. Many products such as food, clothing, technological tools, household products are advertised in the market, media and social media. So much so that when a product is searched in the search engine, many images that may be related to that product are immediately presented to the consumer. People who try to meet their

needs by shopping are not considered as consumers for the capitalist system. Nowadays, not only the products on the shelf, but even the consumers are consumables. In order to present different tastes on social media, videos with many recipes such as food, cake, pastry, dessert are presented in an attractive way. In many of these videos, it is seen that the ingredients are used without paying attention to squandering during the preparation of meals or desserts. At the same time, consumption is supported more by giving recipes of products that are more beautiful and taste more hedonistically (Davies, 2018, p.12-13).

As the materials that can be consumed are advertised to the consumer society, squandering becomes a culture imposed. In the same way, colorful products are offered in the clothing sector, and the need for purchasing arises because these advertising images affect the person rather than being a necessity. In addition, comfortable and one-touch shopping on the internet seems very attractive. While back in the day, people tried to buy products according to their needs, now there is a need to purchase products just for luxury consumption purposes. Therefore, mass media such as television, internet, media and social media are used most effectively because modern consumption depends on displaying the consumption in shopping malls and online channels in a way that will stimulate desires, make everything seem like a necessity, and advertise products. Markets, stores, food-beverage places, colors, lights, music designed in shopping centers as well as stores on the internet are planned for the consumer to consume by feeling happy (Tandaçgüneş, 2013, p.225-227).

Consumption shows itself not only in the food and clothing sector, but also in all kinds of products, from toys to household appliances, including symbols for the sacred. The concept of "use-throw", which became widespread with the industrial age in the 20th century, encourages people to squandering and makes life feel meaningful as much as one consumes. Today, almost every product is produced in disposable form. This perspective leads to the dissolution of human relations with existence and the complete mechanization of the structure of relations (Toffler,

1981, p.54-75). The culture of consumption or squandering culture impoverishes and, even worse, destroys the resources of the earth, which has enormous amount of resources. In other words, squandering leads to corruption.

The second concept that disrupts the ecological order in the Qur'an is the concept of subversion. The deviation from measure, the concept of subversion, which means the deterioration of its proper state, implies distorting the measure and balance (al-Isfahani, 2002, s. 636). It is recommended in the Qur'an not to interfere with the innate structure and not to disturb the ecological order (al-A'râf 7/56; 74), and at the same time, it is recommended not to obey those who perish by destroying the innate structure. In the verse "*Disorder and corruption has prevailed on land and sea owing to the evil (deeds) which people have wrought*." (Ral-Rum 30/41), it is stated that people disrupt the structure of seas and lands. Especially with the development of technology, unlimited resources; contaminated spring waters, seas, lands and air are also becoming unusable. Also, the intensive use of warfare technologies destroys organisms in the ecosystem (Bayraklı, 2004, v. 15, p.72). Therefore, the ecological order is dragged into chaos due to the corrupted activities of people.

The destruction of the ecosystem is reflected as environmental pollution. Environmental pollution adversely affects all the elements that make up the earth. In fact, deterioration and extinction occur within the ecosystem. However, these deteriorations and disappearances do not harm the system. So much so that the system has the nature of regulating the deteriorations and disappearances within itself. On the other hand, any intervention that is inappropriate for the nature of the ecosystem disrupts the order and mechanism of the system. Individual-based environmental pollution is created due to the increase in the use of substances such as solid waste, garbage, energy used per capita, water, paper, etc., as well as the destruction of forests, motor vehicles or sea vehicles, the drying of wetlands and lakes, urbanization, the misuse of land, the radiation caused by the spread of some medical devices such as X-ray, tomography, along with television and computers cause corporate

environmental pollution. Ecology, built on a magnificent system, can protect itself in its own integrity. However, human interventions against the nature of the ecosystem are destroying the ecology in every aspect. The services of the ecosystem are deteriorating from the state, which started with squandering first, followed by subversion and superstition. In fact, the consumption-centered understanding of life leads to the consumption of the ecosystem which diversely affects the quality of life of all living things in the system (Shende et al., 2015, p.23-25).

In terms of the sustainability of the ecological order, the assets in the ecosystem should not be squandered and their structures should not be corrupted by interfering with their creation. The Qur'an provides very clear information on this particular issue. It is stated that everything in the ecosystem is created to a certain extent, that when the scale is corrupted, the system will suffer and the existence in the system will also suffer. It is understood that each of the chains in the ecosystem is very important for the whole system. When ecology is destroyed, not only local problems are experienced, but also global environmental problems such as decrease in biological diversity and increase in waste diversity and amount, global warming and climate changes, reduction of forest areas, air pollution, water pollution, soil pollution, erosion and loss of fertile soil and food resources, decrease in forest areas, decrease in water and energy resources, acid rains etc. These problems negatively affect people and all beings in the world (Slingenberg et al., 2009, p.18-21).

According to the reports of the World Health Organization, an average of 1.7 million people get cancer every year due to unhealthy environmental conditions, and 12.6 million people die due to diseases related to environmental pollution. In addition, air pollution, which is one of the types of environmental pollution, causes the death of 4.2 million people annually (UN News, 2021). Apart from death cases, it is known that environmental air pollution is effective in respiratory failure, stroke, multiple sclerosis, Parkinson's and neurological diseases (Tan et al., 2022, p.8). For example, a study conducted in Mexico shows that children living in an area with high air pollution

lag behind in cognitive development compared to children living in an unpolluted area (Calderón-Garcidueñas, 2008, p.117, 124-126). It is stated that air pollution can cause a lot of damage to the brain. The peak point of air pollution and water pollution in nature is considered as soil pollution. Because soil pollution is a pollution that is almost irreversible in nature and very difficult to remediate. Human health is adversely affected as a result of the contamination of vegetables and fruits grown on soils contaminated with heavy metals and pastures where animals graze (İbadullayeva et al., 2019, p.54-55). Therefore, as the environment becomes polluted and the ecosystem deteriorates, the quality of life of the existence in the system decreases, number of physical and spiritual diseases increase and many people lose their lives. It should be noted that to sustain human–natures' interaction for shaping a better world, Muslims should consult the Quran and Sunnah teachings for they often manifest holistic relationships between man and God, man and fellow humanity and between man and the natural World (Muhamad, A. et al., 2020, p.1053-1054).

Conclusion

Ecology is an indispensable system in which human existence and all beings continue their lives. Due to the consumption-centered understanding of life, which started with the industrial revolution, and which is harmful to the ecological system, the internal mechanism of the system cannot intervene. Humanity, which has caused the disruption of the system, needs to take immediate action. Although there are many solution proposals in this regard, more efforts are required for the proposals to be implemented. The environmental issues should be given wide coverage in formal and prevalent education curricula. There is a need for studies on creating ecological awareness at all levels, starting from early childhood. In addition to providing information on the subject in education and religious education classes in schools, the conscious use of water, paper and electricity consumption should be demonstrated in practice. In religious education classes, it would be appropriate to refer to the recommendations of the

holy books on water, and even to give examples from the history of the prophets. In order to reduce the water consumption, a smaller amount of water should flow from the faucets in the washbasins in schools, and slogans such as "If the water runs out, life ends!" or "water means life, don't waste water!" or "less water to keep staying hydrated!" should be on the walls of the bathrooms. It can be thought that making this application at home will be effective in terms of gaining habits.

Especially in primary and secondary education levels, it can be effective in terms of emotional education to make a "thirst drill" by cutting off the water at certain times and making everyone feel what difficulties will be experienced when there is no water. In addition, there should be recycling boxes in every classroom of the schools, and awareness studies should be carried out for the recycling of products such as paper, glass and plastic. For example, special surprises can be made for the classes that throw the least amount of paper and throw the least trash in the trash bins. Or, the weight of the recycling bins could be measured every weekend, and a special activity can be organized for the classes with the heaviest recycling bins. Thus, children could be supported to gain awareness of recycling and also to be more careful about zero waste.

Placing compost bins in the corridors of the school could prevent the peels of the fruits from becoming waste. Students can compost the peels of their fruits and place that compost as fertilizer in the school garden or areas with a garden on a "Compost Event" day every 15 days. At the same time, students should be encouraged to bring organic waste from their homes to the compost bins at their schools. By creating greenhouse areas in schools, the students can be helped to grow plants or fruits by planting the seeds or peels of the fruits in the soil in these areas. The produced composts can be evaluated in these greenhouse areas. With this ecological activity, awareness and habit formation are supported through learning by experience, experimentation and observation techniques. Growing flowers and plants in the corridors of schools and in certain corners of the classrooms will also increase the interest in ecology. In addition, the use of natural products

should be supported by making studies on the production of cleaning materials used in schools and homes from natural substances such as vinegar, carbonate and lemon salt. Thus, the habit of using cleaning agents that do not harm water resources can be supported. For example, vinegar can be produced from fruits or vegetables such as apples, plums, grapes, by carrying out the "Vinegar day" activity once a month at school, so that students learn to produce their own vinegar.

Proverbs and idioms about vinegar can be learned and dramas can be produced about vinegar. They may be asked to sell their vinegar, create marketing strategies, and produce slogans for advertising. Ecological awareness can be extended by supporting all activities with family participation. As a result, studies should be carried out for the awareness of a life without destroying the ecology by regulating squandering and consumption habits. Ecological awareness activities should be given importance in all levels of education and in home life, especially in the early childhood period when children gain habits in many subjects. Children should be taught through education and religious education that we, humankind, must protect the ecosystem so that they can live better and healthier, and that everyone has an ecological responsibility. In addition, the issue of ecological responsibility should be among the priority topics in adult education.

Sustainable ecology is important for religious education. Therefore, children and adults should be educated on sustainable ecology, and it should be explained what can be done to prevent the declaration of ecology. The environmental awareness campaigns especially in the Muslim countries might collaborate with the Department of Religious Affairs and the religious commissaries might get included to teach about protecting the environment. An environmental division might be constituted amongst the Department of Religious Affairs and a committee of educators could be trained amongst the religious commissaries. Then the committee can educate the prayer leaders who lead the weekly Friday prayers. There are numerous studies towards a more sustainable environmental ecology. Interdisciplinary

collaboration between the environmental organizations and Religious Affairs might boost the studies. As an example, a study that focuses on the roadmap of the management of biodegradable solid waste management suggests the selection of a pilot district in Istanbul and proposes biodegradable bags (namely Istorba) to each household in that pilot district as a suggestion for collecting biodegradable waste separately. With the collaboration of the Municipality with the Religious Affairs; mosque officials can be trained on environmental sustainability and introduce environmental values into their sermons which usually includes topics as discouragement of greed, extravagance, materialism and lust for worldly pleasures. Pilot districts can be selected and the public might get encouraged through daily prayers; especially Friday prayers by the mosque attendants of the selected districts. All the attendants of each mosque of the selected district can be trained, and Istorbas can be distributed after the prayers and the importance of separate collection can be emphasized by the Islamic scholars and the mosque officials. Even this collaboration shall promote the initiatives of the government towards zero waste.

References

Abdulkareem, J. H., Muhammed, F., Arifuzzaman, M., Chowdhury, ABM A. (2020). A study on deforestation in ningi area of bauchi state, Nigeria. A.B.M. Alauddin Chowdhury's Lab. *Daffodil International University.*

Ak, H., & Sezer, K. (2020). Waste characterization in Istanbul and a proposal for biodegradable solid waste management. *Environmental Research and Technology*, 3(2), 40-45.

Barnosky, A.D., Matzke, N., Tomiya, S., Wogan, G.O., Swartz, B., Quental, T.B., Marshall, C., McGuire, J.L., Lindsey, E.L., Maguire, K.C., Mersey, B., & Ferrer, E.A. (2011) Has the Earth's sixth mass extinction already arrived?. *Nature, 471*(7336), :51-57.

Calderón-Garcidueñas, L., Mora-Tiscareñayır, A., Ontiveros, E., Gomez-Garza, G., Barragbir-Mejía, G., Broadway, J., Chapman, S., Valencia-Salazar, G., Jewells, V., Maronpot, R.R., Henriquez-Roldbir, C., Perez-guille, B., Torres-Jardüzerinde, R., Herrit, L., Brooks,

D.,Osnaya-Brizuela, N., Monroy, ME, González-Maciel, A., Reynoso-Robles, R.,Villarreal-Calderon, R., Solt, AC, Engle, RW, (2008a). Air Pollution, cognitive deficits and brain abnormalities: A Pilot study with children and dogs. *Brain and Cognition, 68*(2), 117-127.

Başlar, S., & Şahin, N. (1993). Ekolojik denge ve yok olan değerlerimiz. *Çevre Dergisi, 9*, 15-20.

Baudrillard, J. (2021). *Tüketim toplumu* (N. Tutal & F. Keskin, Çev.; 16. bs). İstanbul: Ayrıntı Yayınları.

Bayhan, V. (2011). Tüketim toplumunda bireyin ontolojik mottosu: Tüketiyorum öyleyse varım. *Sosyoloj, Konferansları, 43*, 221-248.

Bayraklı, B. (2004). *Yeni Bir Anlayışın Işığında Kur'an Tefsiri.* İstanbul: Bayraklı Yayınları.

Bilmen, Ö. N. (1965). *Kur'an'ı Kerim'in Türkçe Meali ve Tefsiri.* İstanbul: Bilmen Yayınevi.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27-40.

Choudhary, M. P., Chauhan, G. S., & Kushwah, Y. K. (2015). *Environmental degradation: causes, impacts and mitigation. National Seminar on Recent Advancements in Protection of Environment and Its Management Issues (NSRAPEM)*

Çakır, G., & Coşkun, E. (2012). Ekolojik Denge için yenilenebilir enerji kaynaklarının kullanımının önemi. *Ekoloji sempozyumu, Kilis.*

Davies, W. (2018). *Mutluluk endüstrisi* (M. Çavdar, Çev.). İstanbul: Sel Yayıncılık.

Abu Mansur al- Mâtürîdî, 2017, (2017). *Te'vilatül Kur'an Tercümesi* (B. Topaloğlu, Çev.; C. 14). İstanbul: Ensar Neşriyat.

F. (2002). *Tefsir-i Kebir (Mefatihu'l-Gayb),* (C. S. Doğru, Çev.; C. 1-21). İstanbul: Huzur Yayınevi.

Güven, M. (2014). Kur'ân-I Kerim'de çevre bilincine dair bazı ahlâkî esaslar. *Birey ve Toplum, 4*(8), 139-162.

İbadullayeva, J., Jumaniyazova, K., Azimzadeh, S., Canıgür, S., & Esen, F. (2019). Çevre kirliliğinin insan sağlığı üzerindeki etkileri. *Türk Tıp Öğrencileri Araştırma Dergisi, 1*(3), 52-58.

Al-İsfahani, Ragıp. (2002). *Müfredatu elfazi'l-Kur'an* (Safvab Adnan Davudi, Ed.; 3. bs). Beyrut: Darü'ş-Şamiyye.

Jenkins, W., & Chapple, C. K. (2011). Religion and environment. *Annual Review of Environment and Resources*, *36*(1), 441-463.

Karasar, N. (2007). *Bilimsel Araştırma Yöntemleri* (17.). Nobel Yayıncılık.

Khan, M. A., & Ghouri, A. M. (2011). Environmental pollution: Its effects on life and its remedies. *Researcher World: Journal of Arts, Science & Commerce*, *2*(2), 276-285.

Madge, J. (1965). *The Tools of Social Science: An Analytical Description of Social Science Techniques*. New York: Doubleday Anchor Books.

Muhamad, A., Syihab, A. H., & Ibrahim, A. H. (2020). Preserving human–nature's interaction for sustainability: Quran and Sunnah perspective. *Science and engineering ethics, 26*(2), 1053-1066.

Neiman, S. (2017). *Niçin büyüyelim? Çocuksu bir çağ için altüst edici düşünceler* (N. Tokdoğan, Çev.). İstanbul: İletişim Yayınları.

Niedzviecki, H. (2011). *Ben özelim! Bireysellik nasıl yeni konformizm haline geldi* (S. Erduman, Çev.). İstanbul: Ayrıntı Yayınları.

Sekercioglu, C. H. (2010). Ecosystem functions and services. İçinde N. S. Sodhi & P. R. Ehrlich (Ed.), *Conservation Biology for All* (Oxford, p.45-72).

Shende, V., Janbandhu, K., & Patil, K. G. (2015). Impact of human beings on environment. *Journal of Innovation in Sciences (JIIS)*, 2(1), 7-11.

Slingenberg, A., Braat, L., Van Der Windt, H., Rademaekers, K., Eichler, L.&Turner, K. (2009). *Study on understanding the causes of biodiversity loss and the policy assessment framework*. Framework 1-206..

Soysaldı, M. (2005). Kur'an'da İsraf Kavramı. *Ondokuz Mayıs Üniversitesi İlahiyat Fakültesi Dergisi*, *18*(18-19), 93-127.

Al-Taai, S. H. (2021). Water pollution its causes and effects. *Conference Series Earth and Environmental Science, 790*(1), *sayfa aralığı.*

Tan, L., Nakanishi, E., Lee, M. (2022). Association between exposure to air pollution and late-life neurodegenerative disorders: An umbrella review. *Environment International* (158), 1-12..

Tandaçgüneş, N. (2013). *Ütopya Antikçağ'dan günümüze "Mutluluk Vaadi"*. İstanbul: Ayrıntı Yayınları.

Thom, D., & Seidi, R. (2016). Natural Disturbance impacts on ecosystem services and biodiversity in temperate and boreal forests. *Biological Reviews*, *91*, 760-781.

Toffler, A. (1981). *Üçüncü dalga* (A. Seden, Çev.). İstanbul: Altın Kitaplar Yayınevi.

Villnäs, A. (2013). *Disturbance and ecosystem functioning-the role of changes in benthic biological traits.* Finland: Åbo Akademi University.

WHO (World Health Organization). (2021). *Ambient (Outdoor) Air Pollution.* (Accessed: 14. March.2022) https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

Yazır, E. M. H. (1935). *Hak Dini Kur'an Dili*. İstanbul: Matbaai Ebuzziya.

Yıldırım, A. (1999). Nitel Araştırma Yöntemlerinin Temel Özellikleri Ve Eğitim Araştırmalarındaki Yeri Ve Önemi. *Eğitim ve Bilim*, *23*(112), 7-17.

Yıldırım, A., & Şimşek, H. (2008). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri*. Ankara Seçkin Yayıncılık.

al-Zamakhshari, E. (2015). Keşşaf. Beyrut: Dar-u Kütübü'l İlmiye.

OPUS▸

RESEARCH ARTICLE

Evaluating the Views of Lecturers upon Virtual and Real Laboratory Implementations

Recep Öz[1] I Murat Tolga Kayalar[2] I Hüseyin Hüsnü Bahar[3]

[1] Asst. Prof. Dr., Erzincan Binali Yıldırım Univerity, Education Faculty, Erzincan/Turkey
ORCID: 0000-0001-9974-0022
E-Mail:
recepoz@erzincan.edu.tr

[2] Asst. Prof. Dr., Erzincan Binali Yıldırım Univerity, Education Faculty, Erzincan/Turkey
ORCID: 0000-0003-2442-9330
E-Mail:
mtkayalar@erzincan.edu.tr

[3] Prof. Dr., Erzincan Binali Yıldırım Univerity, Education Faculty, Erzincan/Turkey
ORCID: 0000-0003-0061-3344
E-Mail:
hhbahar@erzincan.edu.tr

Corresponding Author:
Recep Öz

Abstract

The views of lecturers carrying out real laboratory (RL) and virtual laboratory (VL) implementations were analyzed in this study. The descriptive phenomenology design as one of the qualitative research designs was used in the study. The study group was determined using the criterion sampling method. The study was carried out with six lecturers who voluntarily participated into the laboratory and virtual laboratory implementations of a university in the Eastern Anatolia Region. Participating faculty members carried out YÖK Virtual Laboratory implementations besides physics or chemistry laboratory implementations. Semi-structured interview form was used as the data collection tool. During the planning of the study, preliminary interviews were held with the faculty members in order to collect preliminary information and have information about the feasibility of the study. After completing the ethics committee process, a new interview was held with the faculty members making appointments. The interview records were written down after listening to several times, and the information out of the scope of the research was excluded. The answers were grouped categorically, and sub-themes related to each category were determined. The views related to the planning dimension of instruction and preparation for learning were possible to be discussed in three different groups as the views stating that VL was more advantageous, the views stating that RL was more advantageous, and the views that VL and GL provided sufficient opportunities to the lecturer. All the other participants except from one emphasized that RL was more advantageous in terms of correcting incomplete and incorrect learning.
Key Words: *Real Laboratory, Virtual Laboratory, Science.*

Öz

Bu çalışmada, gerçek laboratuvar (GL) ve sanal laboratuvar(SL) uygulamalarını yürüten öğretim elemanlarının görüşleri analiz edilmiştir. Çalışmada nitel araştırma desenlerinden birisi olan betimleyici olgubilim (fenomenoloji) deseni kullanılmıştır. Ölçüt örnekleme yöntemi kullanılarak çalışma grubu belirlenmiştir. Çalışma kapsamında Doğu Anadolu Bölgesinde bulunan bir üniversitenin, laboratuvar ve sanal laboratuvar uygulamalarını yürüten, gönüllü katılım gösteren altı öğretim üyesi ile yürütülmüştür. Katılan öğretim üyeleri fizik veya kimya laboratuvar uygulamalarının yanı sıra, YÖK Sanal Laboratuvar uygulamalarını da yürütmüş olan öğretim üyeleridir. Veri toplama aracı olarak, yarı yapılandırılmış görüşme formu kullanılmıştır. Çalışmanın planlanması aşamasında ön bilgi toplamak, çalışmanın yapılabilirliği konusunda bilgi sahibi olmak için öğretim üyeleri ile ön görüşmeler yapılmıştır. Etik kurul süreci tamamlandıktan sonra öğretim üyeleri ile randevu alınarak yeniden görüşme yapılmıştır. Görüşme kayıtları birkaç kez dinlendikten sora yazılı hale getirilmiş, araştırma kapsamında olmayan bilgiler ayıklanmıştır. Cevaplar kategorik olarak gruplandırılmış ve her kategori ile ilgili alt temalar belirlenmiştir. Öğretimin planlanması boyutu ve öğrenmeye hazırlama ile ilgili olarak görüşleri SL'nin daha avantajlı olduğunu belirten görüşler, GL'nin daha avantajlı olduğunu belirten görüşler ve SL ve GL'nin öğretim elemanına yeterli fırsatları verdiğine ilişkin görüşler olmak üzere üç farklı grupta ifade edilebilir. Bir katılımcı haricinde diğer tüm katılımcılar eksik ve hatalı öğrenmeleri düzeltme konusunda GL'nin daha avantajlı olduğunu vurgulamışlardır.

Anahtar Kelimeler: *Sosyal Sorumluluk, First Things First Manifestosu, Grafik Tasarım, Kurumsal Sosyal Sorumluluk.*

Introduction

Laboratories are essential in science teaching (Çepni and Ayvacı, 2006). Using laboratories in science, physics, chemistry and biology teacher education is undoubtedly one of the most efficient tools for meaningful learning (Batı, 2018). Laboratory activities have remarkable contributions upon students' acquiring scientific process skills such as observation, data collection, classification, making explanation and experimentation (Aydoğdu and Kesercioğlu, 2005). The use of laboratories is considered to be important in terms of enabling students to learn concepts related to the field of science more efficiently (Doğru, Gençosman and Ataalkın, 2011). In laboratories, there are tools and equipment for the activities with which experiment and application studies are carried out. The students study natural sciences by trial and errors under the supervision of the teacher (Çepni and Ayvacı, 2006).

Online laboratories have recently been developed with the improvements in technology (Uğuz, Oral and Aksoy, 2018). Virtual laboratory as an online laboratory implementation refers to an environment where computer-assisted applications are used. Virtual laboratory implementations are considered as simulations that motivate students to the lesson, direct them to research, develop creativity and satisfy curiosity about learning (Akgül, Geçikli, Konan and Konan, 2018). Another online laboratory implementation is distance laboratory. A virtual laboratory is different from distance laboratory. Distance laboratories refer to digital platforms requiring students to interact with a distance laboratory using an interface software (Esquembre, 2004). Due to the global pandemic, a virtual laboratory was created in cooperation with YÖK and TÜBİTAK to carry out general chemistry and general physics laboratory courses, and it has been used since 2020. The virtual laboratory includes lectures, experimental applications and evaluation studies (YÖK, Council of Higher Education, 2020).

In addition to some positive contributions of virtual laboratories (Çivril, 2018; Özdener, 2005; Bozkurt & Sarıkoç, 2008), it has been expressed to affect the development of students' manual skills negatively and remain insufficient in terms of improving ability of using and recognizing the tools of experiment (Çinici, Özden, Akgün, Ekici and Yalçın, 2013). The students' lack of interaction with the laboratory equipment, the absence of some unpredicted errors in the virtual laboratory environment, lack of feedback, lack of discussion and interaction and some problems possible to be experienced due to the use of computers are expressed as some other negative features of virtual laboratories (Çivril, 2018; Kaba, 2012).

In a study carried out upon the efficiency of virtual laboratories (Kaba, 2012), installed form of the experimental setup has been considered as one of the perceived advantages of the virtual chemistry laboratory. Furthermore, the perceived advantages of the virtual laboratory have been identified as not needing to stroll in the classroom for control, students' being able to focus better, completing the experiments in a shorter time, chances of repeating, making mistakes and learning from mistakes as well as being able to be used out of class hours (Çivril, 2018; Kaba, 2012).

It was determined in a study carried out on science teachers and virtual laboratory (Ekici, 2015) that virtual laboratory activities could be used efficiently in science teaching, and it would be appropriate to consider laboratories used for experiments as a complementary method rather than an alternative.

In a study on virtual laboratory applications of secondary school students, it was determined that virtual laboratory implementations were efficient in terms of ensuring both student success and permanence of learning when compared to teacher-centered method (Duman and Avcı, 2016).

Importance of the Study

It was considered that this study contributed upon determining the advantages and inadequacies of the lecturers in terms of necessary planning, implementation and evaluation activities in virtual and real laboratory environments. Determining the deficiencies, inadequacies and advantages in terms of lecturers was possible to contribute upon

making virtual laboratory conditions more suitable for practitioners.

Purpose of the Study

Within the context of the planning, implementing and evaluating the teaching process, it was aimed to evaluate the views of the lecturers on VL and RL implementations. For this purpose, answers to the following questions were sought:

The purpose of the study was to determine the advantages and inadequacy of virtual laboratory implementation and real laboratory implementation according to the views of the lecturer in terms of

1. Planning the instruction,
2. Preparation for learning,
3. Implementing the curriculum,
4. Ensuring student participation,
5. Giving feedback to the student,
6. Correcting incomplete or incorrect learning,
7. Reinforcing what has been learned,
8. Evaluating the student,
9. Supply of laboratory tools and equipment,
10. Ensuring safety in the laboratory

Method

Study Model

In this study, the descriptive phenomenology design as one of the qualitative research designs was planned to be used. Phenomenology studies have focused on people's experiences. It aims to reveal people's perceptions and experiences on a certain subject with their own perspectives (Ersoy, 2017). Phenomenological studies focus on identifying the way people make sense of their experiences (Merriam, 2013). Descriptive phenomenology, on the other hand, aims to describe people's experiences and perceptions (Ersoy, 2017). Some universities have started to use YÖK Virtual Laboratory with the transition to distance education due to the global pandemic. In this planned study, the views of the lecturers who carried out real and virtual laboratory implementations were analyzed.

Study Group

In this study, the study group was determined using the criterion sampling method. In criterion sampling as a purposive sampling method, volunteers who met some criteria participated in the research process (Creswell & Port, 2015). The criteria determined were being carried out laboratory and virtual laboratory implementations at the university where the study was conducted and volunteering to participate into the study. In this context, the study was carried out with six faculty members who voluntarily participated into the laboratory and virtual laboratory implementations of a university in the Eastern Anatolia Region. Participating faculty members carried out YÖK Virtual Laboratory implementations as well as physics or chemistry laboratory implementations.

Data Collection Tools

Semi-structured interview form was used as the data collection tool. During the planning of the study, pre-interviews were held with the faculty members in order to collect preliminary information and have information about the feasibility of the study. After completed the ethics committee process, a new interview was held with the faculty members making appointments. During this process, the interview was started with the questions prepared by the researchers after the approval of the interviewed lecturer about the audio recording, and the flow of the interview was maintained with additional side and sub-questions depending on the answers given. As stated by Türnüklü (Türnüklü, 2000), the lecturers were accordingly enabled to answer in more details. The audibly recorded answers were subsequently listened to and written down by the researchers.

Data Analysis

During the data collection process, face-to-face interviews were held with the faculty members included into the study group with voluntary participation. The interviews made in a semi-

structured form were audio-recorded. In the first step of the analysis, the interview recordings were written down after listening to a few times, and the information regarded to be irrelevant was excluded. In the process of transcribing the verbal expressions, emotional expressions (pause, laughing, stuttering, saddening, etc.) considered to be relevant with the research topic were also regarded. The answers were grouped categorically in line with the research questions and sub-themes related to each category were determined in order to make the information in the interview ready for analysis.

Findings

Findings related to the planning of instruction

There were opinions referring that VL and RL had different advantages in terms of planning the instructional process. While three lecturers regarded VL more advantageous in terms of planning instruction (AA, CC, FF), two lecturers considered RL more advantageous (BB, EE), and one lecturer mentioned that VL and RL provided similarly sufficient advantage (DD). The faculty members who stated VL to be more advantageous offered different reasons for this. It was considered that experimental apparatus' not creating a limitation in planning due to malfunctions and inadequacies in RL simplified the studies of lecturers in planning process. For example, AA stated this as "*Since the breakdown, loss, etc. of experimental apparatus do not occur in VL as in RL, certainty in the instructional plan is ensured.*" The CC supported this view saying that "*VL program is well designed and designed for students. Plan the instruction in terms of the number and variety of experiments is very substantial.*" FF, on the other hand, stated that the time given for the laboratory activity in RL was specific and limited, the experiment was carried out within specified hours, whereas VL was stated to facilitate the study of the lecturers in planning process giving a time interval of two weeks for the same subject, and therefore VL was indicated to be more efficient in the process of planning the instruction.

On the other hand, there were lecturers who considered differently on this subject since the subjects in VL were standard and face-to-face feedback could be received. For example, BB said that "*…YÖK virtual laboratory application is insufficient in this respect when compared to the real laboratory. The number of experiments in the YÖK virtual laboratory should be increased considering the subjects lectured in Physics 1 and Physics 2 courses in general.*" EE stated that "*Virtual laboratory is literally virtual laboratory as its name implied. Something with the remote control… I consider it as more disadvantageous rather than RL since VL is not one-to-one, and the students carry out with their own initiative.*"

A lecturer (DD) also considered that RL and VL offered similar opportunities in terms of planning the instructional process. In this regard, DD said that "*They are the same in planning the instruction and both are sufficient.*"

Table 1. Views of lecturers on planning the instruction in VL and RL

Views	Lecturer	Reason
VL is more advantageous.	AA CC FF	1. Experimental devices are full in VL. 2. No problems are experienced in terms of breakdown, etc. in VL. 3. VL is advantageous in terms of the number and variety of experiments. 4. The experiments are prepared more professionally in VL. 5. The students are flexible in use of time in VL.
RL is more advantageous.	BB EE	1. VL is insufficient in Physics 1 and Physics 2 courses. 2. The standard subjects in VL limit the lecturer in the planning process. RL is more flexible in this regard. 3. Courses in VL are lectured at the initiative of the student, and the lecturer do not have enough control over the process.
VL and RL offer similar opportunities.	DD	1. Both VL and RL provide sufficient opportunities for the lecturer in the instructional planning process.

Findings related to readiness to learning

In addition to the opinions expressing that VL was more advantageous (AA, BB) in terms of preparing students for learning, there were also views expressing that RL was more advantageous (DD, EE, FF) and VL and RL had different advantages in this process (CC) has elements. There was no opinion stating that there was no difference between VL and RL.

The reasons for the advantageousness of VL were carrying out VL experiments with the help of devices such as computers or tablets, possibility to receive support from different digital sources related to the subject during the experiment, including the test sheets on the electronic environment, and benefiting from videos, animations, etc. related to the experiments. In this regard, AA expressed the superiority of VL saying that *"Since virtual laboratory experiments are carried out with devices such as a computer and tablet, students can receive support from different digital resources related to the subject at that moment during the experiment."*

On the other hand, the lecturers who stated RL to be advantageous stated that the students' readiness for the experiment was possible to be measured with quizzes and questions, and whether the student was ready enough for the experiment observing the gestures and mimics of the students was also determined in RL. Regarding this issue, DD stated the superiority of RL related to readiness for learning expressing that *"We can measure students' readiness for learning in real laboratory implementations either verbally or writing with a quiz. In other words, whereas we can measure whether our students are ready for an experiment in real laboratory implementations, there is no tool to measure whether a student is ready for an experiment or not in YÖK virtual laboratory."* FF expressed the superiority of RL in readiness for learning stating that *"So yes, one of the superior aspects of the virtual laboratory is to see the experimental setups and systems there, to use them, and to know that these opportunities will not be available in every laboratory; however, in face-to-face laboratories, we can also predict what they have learned and what they have not learned from their gestures and acts. In this respect, a face-to-face laboratory is better than a virtual laboratory."* Furthermore, it was mentioned that some students did not fully follow the instructions after the feedback from the student, and this was noticed when the experiment was completed. In this regard, EE drew attention to the negative side of VL saying *"The student said s/he did it because it is managed with a remote control and acted on his/her own initiative, s/he can skip some things without doing it, but of course, we see that the reports of the things done*

as result of this, because we do not want reports immediately, so we see that they come with corrections in their subsequent reports." There was also a view emphasizing that RL and VL had different advantages in this regard. For example, CC drew attention to the different aspects of RL and VL saying that *"Having no opportunity to hold quizzes/quizzes in the YÖK VL to measure the knowledge and deficiencies of the students before the experiment in real laboratory applications is a disadvantage. It is an advantage that the test sheets are in the YÖK VL system and the students can use them whenever and wherever they want."*

Table 2. Views of lecturers on the dimension of readiness to learning in VL and RL

Views	Lecturer	Reason
VL is more advantageous.	AA, BB	1. Access to digital resources for information required during the experiment in VL. 2. Availability of test sheets in electronic form in VL. 3. Possibility to benefit from opportunities such as videos and animations related to experiments in VL.
RL is more advantageous.	DD, EE, FF	1. In RL, the student's readiness for the experiment can be measured with quizzes and questions. In VL, on the other hand, it is not known whether the student is ready enough or not. 2. In VL, whether the students follow the given instructions adequately is not known, and students who are not ready can participate in the experiment. 3. Some students do not follow the instructions exactly, participate in the experiment without being prepared enough, the lecturer become aware of this situation after the experiment is completed or not become aware ever.
VL and RL offer similar opportunities.	CC	1. In RL, it is possible to check the readiness of the students taking an exam/quiz before the experiment. In VL this is a disadvantage. 2. The presence of the test sheets in VL and student access to these sheets at different times are considered as advantages.

Findings related to the implementation of the instructional plan

In VL, the students were possible to participate into the system at any time within a wide period of time defined for them. AA emphasized the advantage of VL expressing that *"In VL implementations, the students can log in to the system and complete experiments at any time since the*

experimental setups included digital content apart from the individual problems caused by the student and the lecturer." This could be considered as a solution to problems such as course conflicts and lack of time for the student. FF, on the other hand, expressed this issue indicating some of the difficulties in RL: *"It is a little more difficult to plan if different students will use the laboratory and there is a conflict for the student to take the course from the failed or higher grades."*

It was considered that the possibility of conducting more experiments in VL was an advantage. In this regard, CC drew attention to the positive side of VL mentioning that *"It is an advantage to include more experiments in virtual laboratory. Sometimes, the program plan is disrupted in terms of both time and material in real laboratory."*

Being deprived of teacher support during the experiment was considered as a negativity in terms of VL. BB expressed this as: *"The implementation of YÖK virtual laboratory is insufficient in terms of administering the instructional plan when compared to the real laboratory due to the absence of a responsible lecturer during the experiment."* Experiencing some unpredicted disruptions in VL was regarded as a negativity. Students' not touching the experimental devices deprived them of real experiences. This could also be considered as a deficiency of VL. Regarding these issues, EE said *"There is no disruption in the instructional plan, but various problems have been experienced in virtual laboratories in terms of implementing the instructional plan. The reason for these problems is, for example, that the student does not touch the straw, does not touch the support trench, and cannot measure."*

Table 3. Views of the lecturers related to the implementation of the instructional plan in VL and RL

Views	Lecturer	Reason
VL is more advantageous.	AA, CC, DD, FF	1. SL offers flexibility to the student in terms of time regarding the instructional plan. 2. Providing the opportunity of repetition in VL is considered as an advantage for students who need repetition. 3. It is an advantage for VL to include more experiments. Problems in terms of time and material in RL can prevent further experimentation.
RL is more advantageous.	BB, EE	1. Lack of lecturer support during the experiment is a disadvantage for VL. 2. Experiencing some unpredicted disruptions in VL is considered as a negativity.
		3. The impossibility of touching the test apparatus and having real experiences can be considered as the negativity of VL.

Findings related to ensuring student participation

VL provided students the opportunity of using a wider range of time for laboratory use. It was considered that this opportunity indicated more advantageousness for students to participate into the course making use of the laboratory when compared to RL. Regarding this issue, AA mentioned *"Students can do their experiments at the time intervals determined by the lecturer. This provides a great advantage in terms of student participation."* BB, on the other hand, emphasized that VL was more advantageous in terms of ensuring student participation saying that *"VL implementation is more advantageous in terms of ensuring student participation as it allows a wider time interval (such as weekends, out of working hours) for conducting experiments."*

Four faculty members stated that RL was more advantageous in terms of ensuring student participation. CC expressed that *"Student participation in YÖK virtual laboratory implementation has been less than expected"* and stated that VL did not reveal what was expected in terms of student participation. While the other three lecturers had actual and physical control over participation in RL, it was stated that this opportunity was not available in RL. Regarding this issue, the view of DD was as: *"We have control of our students in real laboratory implementations in terms of ensuring student participation…We can clearly determine whether students have attended the course or not through attendance forms and observations."* EE stated that VL did not meet the expectations about student participation saying that *"the student regarded a little more loosely and with less participation."* FF, on the other hand, emphasized that student participation in VL could not adequately be controlled saying *"We cannot follow up, we can only see whether the reporting system is right or wrong."* DD, EE and FF, expressed that participation in VL could be increased rewarding class participation and introducing additional control mechanisms.

Table 4. Views of lecturers related to the dimension of ensuring student participation in VL and RL

Views	Lecturer	Reason
SL is more advantageous.	AA, BB,	1. In VL, more time is allocated for students to use the laboratory. The opportunity to benefit from the laboratory in a wide range of time is more advantageous when compared to RL in terms of course participation.
GL is more advantageous.	CC, DD, EE, FF	1. While actual and physical control over participation were possible in RL, VL did not provide this opportunity. 2. Whether participation is actually achieved or not is not possible to be fully controlled in VL.

Findings related to giving feedback to the students

It was stated that feedback was not possible to be given to the student since there was no face-to-face interaction in VL, therefore RL was more advantageous in terms of providing feedback to the students. In RL, on the other hand, all participants agreed about providing instant feedback. For example, AA stated this as *"It is not possible to give feedback while the student is doing the experiment due to the lack of instant interaction on the VL system."* On the other hand, BB mentioned *that "...it is sufficient in terms of giving feedback to the student since the lecturer who evaluated the experiment and students did not have face-to-face communication after the experiment."* CC emphasized the problems experienced in this sense saying that *"Problems were experienced at the point of feedback since the students could not explain their problems by writing. No answer could be offered to the problem since the problem was not fully understood."* Whereas DD said *"YÖK VL is not very helpful in terms of feedback,"* and EE said *"…face-to-face laboratories are more advantageous rather than VL,"* FF emphasized VL's lack of feedback saying that *"We can see reporting in the virtual environment in VL."*

Table 5. Views of lecturers related to the dimension of giving feedback to students in VL and RL

Views	Lecturer	Reason
GL is more advantageous.	AA, BB, CC, DD, EE, FF	1. No feedback can be given to the student since there is no face-to-face interaction in VL. 2. Instant feedback can be provided in RL.

Findings related to correcting incomplete or incorrect learning

Since no instant feedback could be given to the students in VL, whether there was a learning deficiency or this deficiency was not known and could not be corrected. AA stated this saying *"Not giving instant notifications to the class or students in VL and not observing during the experiment cause incomplete and incorrect learning not to be corrected."* BB, on the other hand, mentioned that *"VL is insufficient in terms of correcting incomplete and incorrect learning when compared to the real laboratory due to the absence of the responsible lecturer especially during the experiment."* CC stated that *"We can give direction saying to repeat if there is an error in the real laboratory environment, but this is not possible in virtual laboratory environment"*. DD expressed that *"There is no opportunity to see the mistakes of students and intervene immediately. This opportunity is not available in YÖK virtual laboratory."*

DD stated that VL and RL were complementary implementations for correcting incomplete and incorrect learning. DD expressed that *"Sometimes, I have seen the aspects that are closer to the truth in VL, that is, the teachings here are more beneficial for the students in terms of practice. However, the thing is, in RL we apply face-to-face, I have noticed that the test sheets given to the students are carefully followed, and as result, I notice the two complement each other."*

Table 6. Views of lecturers related to correcting incomplete or incorrect learning in VL and RL

Views	Lecturer	Reason
RL is more advantageous.	AA, BB, CC, DD, EE	1. Since instant feedback cannot be given to the students in VL, it is not known whether there is a learning deficiency or what it is, and it cannot be corrected. 2. In RL, there is an opportunity to see errors and deficiencies in a timely manner and repeat and correct them.
VL and RL were complementary for each other.	EE	1. VL and RL are complementary implementations for correcting incomplete and incorrect learning.

Findings related to reinforcing what was learned

Whereas three of the lecturers considered SL as more advantageous in terms of reinforcing what was learned, the other three considered RL as more advantageous. It was reported that the student had the opportunity of logging into the system again

and again in VL, repeating the experiment and reinforcing what they learned, but they had no such chance in RL. In this regard, AA emphasized the positive side of VL in terms of reinforcing what was learned saying that *"It is a great advantage that virtual laboratory offers the opportunity of reinforcing logging in at different times for the students."* CC, on the other hand, said that *"students can try an experiment as many times as they want, but in real laboratory applications, there is no opportunity to repeat it due to time and material limitations."* EE mentioned that *"Now, we see that an environment where students can turn back and watch over and over again when they are willing is provided in VL in terms of reinforcing the knowledge learned here."*

The views related to advantageousness of RL in reinforcing what was learned focused on face-to-face instruction and noticing and correcting the mistakes and deficiencies immediately. For example, depending on this, BB said that *"YÖK virtual laboratory is insufficient when compared to the real laboratory in terms of reinforcing what has been learned due to the absence of face-to-face communication between the lecturer and the student."* DD stated RL to be more advantageous saying *"In RL, the test notebooks are collected from the students on a weekly basis, their deficiencies are followed, evaluated, and delivered to the student. However, this is not possible in YÖK VL. And the evaluation is made regarding the file uploaded by the student to the system… We do not have the chance to make an explanation about the incorrect files uploaded in VL."* FF, on the other hand, expressed that *" In terms of reinforcing what was learned, students can personally ask the teacher about the points where they need support in face-to-face experiment."*

Table 7. Views of lecturers related to reinforcing what was learned in VL and RL

Views	Lecturer	Reason
SL is more advantageous.	AA, CC, EE	1. In VL, it is possible to log in the system again and again, repeat the experiment and reinforce what has been learned. RL does not offer this opportunity.
GL is more advantageous.	BB, DD, EE	1. Deficiencies in RL are controlled during the course, and immediate feedback and corrections can be provided if necessary. 2. In VL, deficiencies are noticed later, but there is doubt as to whether these deficiencies are also real deficiencies. Deficiencies that are considered to be available are not eliminated, as well.

Findings related to student assessment

Whereas five lecturers considered that RL was more advantageous in terms of assessing the students, one lecturer stated that there was no difference between VL and RL. AA, CC, DD, EE and FF stated that RL was more advantageous in terms of assessing students. Upon this, AA stated that SL was insufficient saying that *"In VL, the students can only be assessed with the report they prepare at the end of the experiment. It is not possible to include the students' progress in the course in the assessment process."* CC and DD, on the other hand, stated inadequacy of VL for the student assessment emphasizing the ethical dimension of VL. CC expressed that *"I think YÖK virtual laboratory is not objective because the student can upload someone else's test sheet."* DD stated that *"I have also witnessed that the students have not prepared the files uploaded in YÖK VL themselves. And I cannot interfere and prevent this too much".* Stating that RL was superior in student assessment, FF said that *"...we also have an idea about discovering what the students do, how they do, what they know and what they do not know, and their handcraft in a one-to-one relationship."* FF also emphasized that RL was more advantageous in terms of assessing students saying that *"We can only learn how much a student has learned from the virtual reporting system they have prepared in VL…I believe that face-to-face assessment gives easier and more precise results in face-to-face education."* Unlike the other lecturers, BB, on the other hand, stated in terms of student assessment that both laboratories had no superiority or inadequacy in this regard. Upon this, BB expressed both implementations to offer similar opportunities saying that *"There is no difference between the two since the reports prepared after the experiment are assessed by the responsible lecturer in both YÖK virtual laboratory and the real laboratory."*

Table 8. Views of lecturers related to student assessment in VL and RL

Views	Lecturer	Reason
GL is more advantageous.	AA, CC, DD, EE, FF	1. In VL, assessment can only be made depending upon the report prepared at the end of the experiment, not an assessment of the process is possible to be made. This is not possible in RL. 2. In VL, someone else can write a report and upload it to the system instead of the student. This is not possible in RL. 3. In RL, both the process and output are assessed; result-based assessments are noticed in VL.
VL and RL offer similar opportunities.	BB	1. In both implementations, the responsible faculty member makes the assessment. Therefore, the two implementations offer similar opportunities for student assessment.

Findings related to the supply of laboratory tools and equipment

The participants agreed that VL was more advantageous in terms of supplying laboratory tools and equipment. For example, BB stated that *"YÖK VL implementation is more advantageous when compared to the real laboratory in terms of supplying laboratory equipment."* CC, on the other hand, expressed that *"There appears no danger in YÖK VL environment, since there is no deterioration or breakage in the materials."* However, BB, CC and DD immediately emphasized another inadequacy of VL adding that virtual was not possible to replace reality.

Table 9. Views of lecturers related to the supply of laboratory tools and equipment in VL and RL

Views	Lecturer	Reason
SL is more advantageous.	AA, BB, CC, DD, EE, FF	1. There is no need to have tools and equipment physically. 2. There are no problems such as breakage, deterioration, loss, wear and depletion of tools and equipment.

Findings related to ensuring safety in the laboratory

All participants stated that VL was more advantageous rather than RL in terms of ensuring laboratory safety as in the supply of laboratory tools and equipment. For example, BB expressed that *"Because there is no risk of accident in the virtual environment in terms of laboratory safety, YÖK virtual laboratory implementation is more advantageous when compared to the real laboratory."* EE mentioned that

"I don't think there is any danger here, as there is no dangerous chemical to be used in VL. But at RL, students can create an environment they can harm themselves or sometimes harm the laboratory touching any unfamiliar chemical substance or creating a different environment at a different time."

Table 10. Views of lecturers related to ensuring laboratory safety in VL and RL

Views	Lecturer	Reason
SL is more advantageous.	AA, BB, CC, DD, EE, FF	1. VL does not pose any risk in terms of laboratory safety since the tools, equipment and hardware are not real and the environment where the experiments are carried out is virtual, as well.

Conclusion and Discussion

Planning the Instruction

The views about the dimension of planning the instruction could be expressed in three different groups. The views mentioning that VL was more advantageous were indicated to have reasons such as the fullness of experimental devices, absence of malfunctions or problems with the devices, advantages in terms of the number and variety of experiments, professional preparation of the experiments and flexibility offered to the students about laboratory. Faour and Ayoubi (2018) used virtual laboratory implementation in physics lesson for the 10th grade students. They noted that students of the experimental group using VL revealed significantly better performance rather than the students of the control group who were lectured with interactive demonstrations using real laboratory equipment. Unlike RL which only revealed macroscopic features, VL was based on ability to introduce concepts referring to the microscopic level (Wieman & Perkins, 2006). Findings of this study did not confirm the findings of previous studies carried out by Finkelstein et al. (2006), Shegog et al. (2012), Tüysüz (2010), Tsihouridis, Vavougios and Ioannidis (2013) and Zoubeir (2000).

The views stating that RL was more advantageous in terms of planning the instruction indicated the inadequacy of SL with the reasons that VL did not cover all physics subjects, the standardization of subjects in VL limited the lecturer in planning, and the lecturer had no

sufficient domination related to the process. This result was similar to some previous studies carried out by American Chemical Society-(ACS) (2011), National Science Teachers Association-NSTA (2007), Quinn et al. (2009), Tsihouridis et al. (2014), and Zacharia (2007). Another view was that VL and RL provided sufficient opportunities for the lecturers in the planning process of the instruction.

Readiness to learning

The views related to adequacy of VL for readiness to learning could be classified into three different groups. The lecturers who stated that VL was more advantageous rather than RL considered that it was an advantage to reach the necessary information from electronic sources during the experiment, have test sheets on electronic environment and benefit from the visuals such as videos and animations related to the experiment. In the study conducted by Chodijah, Fauzi & Ratnawulan (2012), it was mentioned that there was a need for practicality and perfection for VL-based learning tools.

Those who considered that RL was more advantageous rather than VL created the second group. The ones in this group considered that the readiness of the student for the experiment was not checked in VL with quizzes, so that students who were not ready for the experiment could participate in the experiment, and some students could participate in the experiment without fully checking the instructions in VL (Zgheib, 2013). The third view was that VL and RL offered different opportunities for readiness to learning, and they did not have any superiority between each other.

Implementing the instructional plan

Whereas there were those who stated that VL was more advantageous in terms of implementing the instructional plan, there were also the ones who stated that RL was more advantageous. Those who argued that VL was more advantageous mentioned that VL provided flexibility for the students in a wide period of time and the opportunity of repeating the experiment when necessary, did not pose a problem in terms of time

and material, and included more experiments. Similarly, while listing the advantages of VL, Domingues et al. (2010) reported the shortness of the instructional period, more interaction during the learning process, providing more interesting learning process, and fulfilling the learning process at anywhere and anytime. Furthermore, in their study, Cağıltay et al. (2011) created two different courses for electrical and electronic engineering students including a virtual and distance laboratory, and this virtual and distant access laboratory was assessed by the students. In the study, the students stated that both laboratories were useful because they enabled them to do their experiments without time and place limits.

The ones who stated RL to be more advantageous stated that the lack of support from the lecturer during the experiment, the possibility of experiencing some unforeseen disruptions, and not carrying out the experiment with real devices indicated negative aspects for VL and positive aspects for RL. When Auer (2001) compared RL and VL, he argued that RLs were superior to VLs in terms of having real experimental setup and providing real laboratory experience for the users. Moreover, Deniz et al. (2003) compared RL and VL in terms of hands-on experience, sense of reality, feeling and fact control, freedom of experimentation and form, teacher support, technical support, access time, access limit, supervision, progress control, and educational promotion and obtained similar results.

Ensuring student participation

There were also the ones who argued that VL was more advantageous in terms of ensuring student participation as well as the ones who argued that RL was more advantageous. Students' having the opportunity of using VL in a wide period of time was considered as an advantage in this sense. According to Tatlı and Ayas (2012), VLs played a role in improving students' participation in course and improving their experimental skill activities because they enriched experiences and provided the opportunity of conducting an interactive experiment for students. Actual and physical

control in RL was considered as an advantage. On the other hand, it was stated that impossibility to fully control whether the person participating in the VL and the person who should attend were the same people was a limitation. Experimental activities were possible to improve creative thinking skills of the students, increase mastery on concepts in physics and provide opportunities for students to practice scientific methods (Hermansyah, Gunawan and Herayanti, 2015).

Giving feedback to the student

All participants stated that RL was more advantageous rather than VL in terms of giving feedback to the students. They cited the lack of face-to-face interaction in VL as the most important reason for this. They mentioned that providing instant feedback was an advantage in RL implementations. Arndt (1993) reported that verbal feedback was perceived as a very important way to give direct feedback to written texts; however, students preferred receiving written feedback in addition to verbal feedback. According to the research carried out by Bare (2005), students preferred the collaborative feedback method in small groups.

Correcting missing or incorrect learnings

All the participants except from one emphasized that RL was more advantageous in correcting incomplete and incorrect learning. It was stated that the inability of providing instant feedback and failure to see mistakes and deficiencies in VL in a timely manner were important reasons. A lecturer stated that there was no difference between VL and RL in terms of eliminating missing and incorrect learning. He indicated that VL and RL implementations were complementary to each other in terms of correcting incomplete and incorrect learning.

The feedback process should be completed in a private environment and allocating sufficient time, giving the necessary importance to the teacher's feelings to provide opportunity for explanation and discussion (Hewson and Little, 1998; Clynes, 2008; Kelly, 2007). In another definition, feedback

was the process of informing students about whether the desired behaviors were acquired or not, and at what level these behaviors were acquired in teaching-learning process. Regarding the result of this statement, deficiencies and mistakes of the students were determined: the process of completing these deficiencies and correcting the mistakes was also called correction. During the teaching-learning process, feedback and correction were generally used together and remarkable in terms of motivating further learning (Reece, Walker, Clues & Charlton, 2007).

Reinforcing what was learned

There were two different views related to the superiority of VL or RL in terms of reinforcing what was learned. Whereas half of the participants stated that VL was more advantageous in this sense, the other half supported that RL was more advantageous. Those who argued that VL was advantageous justified that logging into the system again and again and repeating the experiment created an opportunity to reinforce what was learned. And the ones who discussed that RL was advantageous stated that students could be controlled throughout the process, mistakes and deficiencies were immediately noticed and corrected in RL implementations. Furthermore, they argued that deficiencies in VL could not be noticed immediately, whether there were deficiencies in real terms after the written reports was not known, and even if there were deficiencies in real terms, they were not eliminated. It was noticed in some previous studies that computer-aided learning environments including virtual laboratories increased the interest in lessons, provided safe repetition especially for laboratory environments in terms of enabling students to see the mistakes and provided success and permanence as result (Martinez-Jimenez, Pontes-Pedrajas, Polo and Climent-Bellido, 2003; Jensen, Voigt, Olbrich & Nejdl, 2004; Yu, Brown & Billet, 2005; Bozkurt, 2008; Duman and Avcı, 2016).

Student assessment

As in correcting missing and incorrect learnings, all participants except one stated that RL was more advantageous in terms of student assessment. Assessing the output along with the process in RL, and assessment just about the product in VL were revealed to be reasons for the positive aspect of RL in student assessment. Similarly, in their study, Koç Ünal (2019) concluded that virtual laboratory implementations were efficient upon increasing success, permanent knowledge, and real laboratory implementations increased success and ensured permanence. On the contrary, when the literature was reviewed, it was revealed that virtual laboratory implementations had a significant effect upon the success of students studying at various grades from primary education to higher education (Gabbard, Hix and Swan II, 1999; Özdener and Erdoğan, 2001; Akçay et al., 2005; Köse et al., 2007; Karalar and Sarı, 2007; Özdener, 2005; Bozkurt and Sarıkoç, 2008; Karamustafaoğlu et al., 2005; Kulik, 2002; Ong and Manan, 2004; Sherwood and Hasselbring, 1986; Nirmalakhandan et al., 2007; Kim, 2006; Wieman and Perkins, 2006; Güvercin, 2010; Bülbül, 2009; Salgut, 2007; Pektaş et al., 2009; Akkağıt and Tekin 2012). Another view on student assessment indicated that the lecturer was the evaluator in both applications, so VL and RL offered similar opportunities for student assessment.

Supply of laboratory tools and equipment

The participants agreed that VL was more advantageous rather than RL in terms of supplying laboratory tools and equipment. There was no need to physically have tools and equipment, and there was no equipment breakage, deterioration, breakdown, and loss in VL. Due to the lack of equipment in the school laboratories and high number of students in the classrooms, most of the possible experiments were performed as demonstration experiments. In this case, simulation software was a good alternative to the demonstration method. Preferring simulation instead of experimenting using costly laboratory equipment provided economic benefits (Akkağıt

and Tekin, 2012; Rutten, Joolingen and Van der Veen, 2012).

Ensuring safety in the laboratory

As in supplying the laboratory tools and equipment, the participants agreed that VL was more advantageous rather than RL in terms of ensuring safety in laboratory. The remarkable reason for this superiority was expressed as the fact that the experiments to be carried out included no risk because the tools and equipment were not real but virtual. Duman and Avcı (2016) concluded in their study that virtual laboratories were possible to be an alternative and support to traditional laboratories because the dangers possible to occur in the laboratory environment and the waste of materials could be prevented.

Recommendations

Due to their advantages and disadvantages, VL and RL could be used together. Especially the experiments posing danger and risk could be carried out in virtual environments such as computer laboratories under the supervision of the lecturer. Thus, the risks possible to appear in real experimental environments could be minimized. Moreover, the occasional use of computer laboratories instead of RL could pave the way for the use of existing RL potential by other experimental groups.

In VL implementations, transformations and add-ons such as monitoring and controlling of the processes carried out by the students by the instructor or their assistants, receiving feedback and corrections when necessary, and the lecturers' assessing the process were possible to be created. So that, the issues regarded as a restraint and inadequacy for VL were eliminated relatively.

The number of experiments possible to be performed in VL environment could be increased. So, an environment to gain experience in different subjects was created for students. In addition, opportunity was created for students who lacked laboratory environments or missed the experiments in RL environment.

References

Akçay, S., Aydoğdu, M., Yıldırım, H. ve Şensoy, Ö. (2005). Fen eğitiminde ilköğretim 6. sınıflarda çiçekli bitkiler konusunun öğretiminde bilgisayar destekli öğretimin öğrenci başarısına etkisi. *Kastamonu Eğitim Dergisi, 1*(13). 103-116.

Akgül, G. D., Geçikli, E., Konan, F. ve Konan, E. (2018). Fen eğitiminde sanal laboratuvar kullanımı hakkında öğretmen adaylarının görüşleri. *Kesit Akademi Dergisi*, *4*(14). 61-74.

Akkağıt, Ş. F., ve Tekin, A. (2012). Simülasyon tabanlı öğrenmenin ortaöğretim öğrencilerinin temel elektronik ve ölçme dersindeki başarılarına etkisi. *Ege Eğitim Dergisi, 13*(2), 1-12.

American Chemical Society-ACS. (2011). Importance of hands-on laboratory activities. American Chemical Society Public Policy Statement. *https://www.acs.org/content/dam/acsorg/policy/publicpolicies/invest/computersimulations/hands-on-science.pdf* Erişim tarihi:15.01.2022.

Arndt, V. (1993). Response to writing: Using feedback to inform the writing process. In M. Brock & Walters [Eds.], Teaching composition around the pacific rim: Politics and pedagogy, Cleveland, Philadelphia, and Adelaide. *Multilingual Matters,* 90-90

Auer, M. E. (2001). Virtual lab versus remote lab. *20th World Conference on Open Learning and distance Education,* Dusseldorf, April 2001.

Aydoğdu, M. ve Kesercioğlu, T. (2005). *İlköğretimde fen ve teknoloji öğretimi.* Ankara: Anı Yayıncılık.

Bare, I. K. (2005). *Feedback during the writing process: second grade native american students' preferences.* Doctoral dissertation. Antioch University, Seattle.

Batı, K. (2018). Türkiye'de fen eğitimi ve kimya eğitimi laboratuvar uygulamalarına genel bir bakış. *Doğu Anadolu Sosyal Bilimlerde Eğilimler Dergisi, 2*(1), 45-55.

Bozkurt E. ve Sarıkoç A. (2008). Fizik eğitiminde sanal laboratuvar geleneksel laboratuvarın yerini tutabilir mi? *Selçuk Üniversitesi Ahmet Keleşoğlu Eğitim Fakültesi Dergisi, 25*, 89-100.

Bülbül, O. (2009). *Fizik dersi optik ünitesinin bilgisayar destekli öğretiminde kullanılan animasyonların ve simülasyonların akademik başarıya ve akılda kalıcılığa etkisinin incelenmesi.* Yayımlanmamış Yüksek Lisans Tezi.

Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.

Cagiltay, N., Aydin, E., Kara, A., Erdem, C., & Ozbek, M. E. (2011, June). Virtual or remote laboratory why. In *EdMedia+ Innovate Learning* (p.3772-3777). Association for the Advancement of Computing in Education (AACE). *https://www.learntechlib.org/p/38402*

Chodijah, S., Fauzi, A., & Ratnawulan, R. (2012). Pengembangan perangkat pembelajaran fisika menggunakan model guided inquiryyang dilengkapi penilaian portofolio pada materi gerak melingkar. *Jurnal Penelitian Pembelajaran Fisika, 1*(1), 1-19. https://doi.org/10.24036/jppf.v1i1.603

Clynes, M. (2008). Providing feedback on clinical performance to student nurses in children's nursing: challenges facing preceptors. *Journal of Children's and Young People's Nursing*, 2(1), 29-35. https://doi.org/10.12968/jcyn.2008.2.1.28070

Creswell, J. W., & Poth, C. N. (2015). *Qualitative inquiry and research design: Choosing among five approaches.* London: Sage publications. https://doi.org/10.1177/1524839915580941

Çepni, S. ve Ayvacı, H.Ş. (2006). *Laboratuvar destekli fen ve teknoloji öğretimi. S. Çepni (Ed.) (5. Baskı). Kuramdan uygulamaya fen ve teknoloji öğretimi* içinde (p.158-188). Ankara: PEGEM-A Yayınevi.

Çinici, A., Özden, M., Akgün, A., Ekici, M. ve Yalçın, H. (2013). Sanal ve geleneksel laboratuvar uygulamalarının 5. sınıf öğrencilerinin ışık ve ses ünitesiyle ilgili başarıları üzerine etkisinin karşılaştırılması. *Bayburt Eğitim Fakültesi Dergisi, 8*(2), 92-105.

Çivril, H. (2018). Açık ve uzaktan öğrenmede laboratuvar uygulamaları. *Yükseköğretim ve Bilim Dergisi, 1*, 41-50.

Deniz, D. Z., Bulancak, A., & Ozcan, G. (2003). A novel approach to remote laboratories. In *33rd Annual Frontiers in Education, 2003. FIE 2003. 1, T3E-T3E*, https://doi.org/10.1109/fie.2003.1315161.

Doğru, M., Gençosman, T., Ataalkın, A. (2011). Examination of natural science laboratory perception levels of students at primary education grade 6 and their attitudes towards laboratory practices of natural science course. *The International Journal of Educational Researchers, 2*(1), 17-27.

Domingues, L., Rocha, I., Dourado, F., Alves, M., & Ferreira, E. C. (2010). Virtual laboratories in (bio) chemical engineering education. *Education for Chemical Engineers, 5*(2), e22-e27. https://doi.org/10.1016/j.ece.2010.02.001.

Duman, M. Ş. ve Avcı, G. (2016). Sanal laboratuvar uygulamalarının öğrenci başarısına ve öğrenilenlerin kalıcılığına etkisi. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi, 18*(1), 13-33.https://doi.org/10.17556/jef.08804.

Ekici, M. (2015). *Fen bilimleri öğretmenlerinin sanal laboratuvar hakkındaki görüşleri ve bu yöntemden faydalanma düzeyleri.* Yayımlanmamış Yüksek Lisans tezi. Adıyaman Üniversitesi, Fen Bilimleri Enstitüsü, Adıyaman.

Ersoy, A. (2017). *Fenomenoloji. A. Saban ve A. Ersoy (Ed.) Eğitimde nitel araştırma desenleri (2. Baskı).* Ankara: Anı Yayıncılık.

Esquembre, F. (2004). Easy Java Simulations: A software tool to create scientific simulations in Java. *Computer Physics Communications, 156*(2), 199-204. https://doi.org/10.1016/S0010-4655(03)00440-5.

Faour, M. A. & Ayoubi, Z. (2018). The effect of using virtual laboratory on grade 10 students' conceptual understanding and their attitudes towards physics. *Journal of Education in Science, Environment and Health (JESEH), 4*(1), 54-68.https://doi.org/10.21891/jeseh.387482.

Finkelstein, N. D., Adams, W. K., Keller, C. J., Perkins, K. K., Wieman, C., & the Physics Education Technology Project Team. (2006). High-tech tools for teaching physics: The physics education technology project. *MERLOT Journal of Online Learning and Teaching, 2*(3), 110-120.

Gabbard, J. L., Hix, D., & Swan, J. E. (1999). User-centered design and evaluation of virtual environments. *IEEE computer Graphics and Applications, 19*(6), 51-59. https://doi.org/10.1109/38.799740.

Güvercin, Z. (2010). *Fizik dersinde simülasyon destekli yazılımın öğrencilerin akademik başarısına, tutumlarına ve kalıcılığa olan etkisi.* Yayınlanmamış Yüksek Lisans Tezi. Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.

Hermansyah, H., Gunawan, G., & Herayanti, L. 2015. Pengaruh penggunaan laboratorium virtual terhadap hasil belajar kognitif dan kemampuan berpikir kreatif peserta didik pada materi getaran dan gelombang. *Jurnal Pendidikan Fisika dan Teknologi, 1*(2), 97-102. https://doi.org/10.29303/jpft.v1i2.242.

Hewson, M. G., & Little, M. L. (1998). Giving feedback in medical education: Verification of recommended techniques. *Journal of General Internal Medicine, 13*(2), 111-116. https://doi.org/10.1046/j.1525-1497.1998.00027.x

Jensen, N., Seipel, S., von Voigt, G., Raasch, S., Olbrich, S. & Nejdl, W. (2004). Development of a Virtual Laboratory System for Science Education and the Study of Collaborative Action. In L. Cantoni & C. McLoughlin (Eds.), *Proceedings of ED-MEDIA 2004--World Conference on Educational Multimedia, Hypermedia & Telecommunications* (p.2148-2153). Lugano, Switzerland: Association for the Advancement of Computing in Education (AACE).

Kaba, A. U. (2012). *Uzaktan fen eğitiminde destek materyal olarak sanal laboratuvar uygulamalarının etkinliği.* Yayımlanmamış Yüksek Lisans tezi. Anadolu Üniversitesi, Sosyal Bilimler Enstitüsü, Eskişehir.

Karalar, H., & Sarı, Y. (2007). Bilgi teknolojileri eğitiminde bdö yazılımı kullanma ve uygulama sonuçlarına yönelik bir çalışma. *Akademik Bilişim*, *31*, 1-9.

Karamustafaoglu, O., Aydın, M., & Özmen, H. (2005). Bilgisayar destekli fizik etkinliklerinin öğrenci kazanımlarına etkisi: Basit harmonik hareket örnegi. *TOJET: The Turkish Online Journal of Educational Technology, 4*(4),67-79. http://tojet.net/articles/v4i4/4410.pdf.

Kelly, C. (2007). Student's perceptions of effective clinical teaching revisited. *Nurse education today, 27*(8), 885-892. https://doi.org/10.1016/j.nedt.2006.12.005

Kim, P. (2006). Effects of 3D virtual reality of plate tectonics on fifth grade students' achievement and attitude toward science. *Interactive Learning Environments, 14*(1), 25-34. https://doi.org/10.1080/10494820600697687.

Koç Ünal, İ. (2019). *Sanal ve gerçek laboratuvar uygulamalarının, 5. sınıf fen dersi elektrik ünitesi öğretiminde öğrencilerin akademik başarıları üzerine etkisinin incelenmesi.* Doktora Tezi.

Necmettin Erbakan Üniversitesi, Eğitim Bilimleri Enstitüsü, Konya.

Köse, S., Gezer, K., Bilen, K., & Gencer, A. (2007). Bilgisayar destekli öğretim materyalinin canlıların sınıflandırılması konusunda öğrencilerin başarı düzeyine ve bilgisayara yönelik tutumlarına etkisi. *Selçuk Üniversitesi Eğitim Fakültesi Dergisi, 23,* 287-298.

Kulik, J. A. (2002). *School mathematics and science programs benefit from instructional technology.* InfoBrief.

Martinez-Jimenez, P., Pontes-Pedrajas, A., Polo, J. & Climent-Bellido, M.S. (2003). Learning in chemistry with virtual laboratories. *Journal of Chemical Education, 80*(3), 346. https://www.learntechlib.org/p/95042.

Merriam, S. B. (2013). *Nitel araştırma desen ve uygulama için bir rehber (S. Turan, Çev.).* Nobel Yayın Dağıtım.

National Science Teachers Association-NSTA. (2007). NSTA Position Statement: The Integral Role of Laboratory Investigations in Science Instruction.*http://www.nsta.org/about/positions /laboratory.aspx .*

Nirmalakhandan, N., Ricketts, C., McShannon, J., & Barrett, S. (2007). Teaching tools to promote active learning: Case study. *Journal of Professional Issues in Engineering Education and Practice, 133*(1), 31-37. https://doi.org/10.1061/(ASCE)1052-3928(2007)133:1(31).

Ong, S. K., & Mannan, M. A. (2004). Virtual reality simulations and animations in a web-based interactive manufacturing engineering module. *Computers & Education, 43*(4), 361-382. https://doi.org/10.1016/j.compedu.2003.12.00 1.

Özdener, N. (2005). Deneysel Öğretim Yöntemlerinde Benzetişim (Simulation) Kullanımı. *The Turkish Online Journal of Educational Technology –TOJET, 4*(4), 93-98.

Özdener, N., & Erdoğan, B. (2001). Bilgisayar destekli eğitimde kullanım amaçlı bir simülasyonun tasarlanması ve geliştirilmesi. *Yeni Bin Yılın Başında Fen Bilimleri Eğitimi Sempozyumu Bildiriler Kitabı*, p.235-241. https://hdl.handle.net/20.500.12415/8448.

Pektaş, H. M., Çelik, H., KATRANCI, M., & Köse, S. (2009). 5. sınıflarda ses ve ışık ünitesinin öğretiminde bilgisayar destekli öğretimin öğrenci başarısına etkisi. *Kastamonu Üniversitesi Kastamonu Eğitim Dergisi, 17*(2), 649-658.

Quinn, J. G., King, K., Roberts, D., Carey, L., & Mousley, A. (2009). Computer-based learning packages have a role, but care needs to be given as to when they are delivered. *Bioscience Education, 14*(1). https://doi.org/10.3108/beej.14.5.

Reece, I., Walker, S., Clues, D., & Charlton, M. (2007). *Teaching, training and learning: A practical guide.* Tyne and Wear: Business Education Publishers.

Rutten, N., Van Joolingen, W.R., ve Van der Veen, J.T. (2012). The learning effects of computer simulations in science education. *Computers & Education, 58*(1), 136-153. https://doi.org/10.1016/j.compedu.2011.07.01 7.

Salgut, B. (2007). *İlköğretim 5. sınıf fen ve teknoloji dersi Işık ve Ses ünitesinde internetin de kullanıldığı bilgisayar destekli öğretimin öğrenci başarısına etkisi.* Yayınlanmamış Yüksek Lisans Tezi. Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.

Shegog, R., Lazarus, M.M., Murray, N.G., Diamond, P.M., Sessions, N., Zsigmond, E. (2012). Virtual transgenics: Using a molecular biology simulation to impact student academic achievement and attitudes. *Research in Science Education, 42*(5), 875-890. https://doi.org/10.1007/s11165-011-9216-7

Sherwood, R. D., & Hasselbring, T. (1986). A comparison of student achievement across three methods of presentation of a computer-based science simulation. *Computers in the Schools, 2*(4), 43-50. https://doi.org/10.1300/J025v02n04_06.

Tatlı, Z., Ayas, A. (2012). Virtual Chemistry laboratory: Effect of constructivist learning environment. *Turkish Online Journal of Distance Education-TOJDE, 13*(1), 183 –199.

Tsihouridis Ch., Vavougios D.&Ioannidis G.S. (2013). The effectiveness of virtual laboratories as a contemporary teaching tool in the teaching of electric circuits in Upper High School as compared to that of real labs. In Auer M.E. (Eds.), In *Proceedings of the 16th International Conference on Interactive Collaborative Learning ICL 2013 & the 42nd International Conference on*

Engineering Pedagogy IGIP 2013, Kazan, Russia (p.816-820).

Tsihouridis Ch., Vavougios D., Ioannidis G. S., Alexias A., Argyropoulos Ch., Poulios S. (2014). Using sensors and data-loggers in an integrated mobile school-lab setting to teach Light and Optics*. In* Auer M.E. (Eds.) *Proceedings of 2014 International Conference on Interactive Collaborative Learning, (ICL2014), Dubai* (p.439-445). https://doi.org/10.1109/ICL.2014.7017813

Türnüklü, A. (2000). Eğitimbilim araştırmalarında etkin olarak kullanılabilecek nitel bir araştırma tekniği: Görüşme. *Kuram ve uygulamada eğitim yönetimi, 24*(24), 543-559.

Tüysüz C. (2010). The Effect of the virtual laboratory on students' achievement and attitude in chemistry. *International Online Journal of Educational Sciences, 2*(1), 37-53.

Uğuz, S., Oral, O. ve Aksoy, B. (2018). STEM eğitimi için sanal laboratuvar oluşturulması. *Eğitim ve Öğretim Araştırmaları Dergisi, 7*(1), 69-77.

Wieman, C. E., & Perkins, K. K. (2006). A powerful tool for teaching science. *Nature physics, 2*(5), 290-292. https://doi.org/10.1038/nphys283

Yu, J. Q., Brown, D. J., & Billet, E. E. (2005). Development of a virtual laboratory experiment for biology. *European Journal of Open, Distance and e-learning, 8*(2), 1-8.

Yüksek Öğretim Kurumu (YÖK) (2020). YÖK sanal laboratuvar projesi'nin tanıtımı yapıldı Üniversite öğrencileri, "YÖK sanal laboratuvarı" ile dijital ortamda deney imkânına kavuşuyor*. https://www.yok.gov.tr/Sayfalar/Haberler/2020/ yok-sanal-laboratuvar-projesi-tanitildi.aspx*, Erişim tarihi: 04.10.2021.

Zacharia, Z. C. (2007). Comparing and combining real and virtual experimentation: An effort to enhance students' conceptual understanding of electric circuits. *Journal of Computer Assisted Learning, 23*(2), 120-132. https://doi.org/10.1111/j.1365-2729.2006.00215.x.

Zgheib, R. S. (2013). *Organizational support of technology integration in one school in Lebanon* (Doctoral dissertation, Saint Louis University). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3596298).

Zoubeir, W. F. (2000). *Grafting computer projected simulations and interactive engagement methods within a traditional classroom setting: the influence on secondary level students' understanding of Newtonian mechanics and on attitudes towards physics.* Doctoral dissertation. Retrieved from ProQuest Dissertations and Theses database. (UMI No. 9988370).