# NESİBE AYDIN EĞİTİM KURUMLARI
# EĞİTİM VE GELECEK DERGİSİ

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## İÇİNDEKİLER

# NESİBE AYDIN EDUCATION INSTITUTIONS
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**Editörden**

Nesibe Aydın Eğitim Kurumları tarafından yayımlanan *Eğitim ve Gelecek Dergisi* yirmi ikinci sayısında sizinle buluşuyor. Dergimizin yirmi ikinci sayısında yer alan çalışmaları siz değerli okurlarımıza sunuyoruz.

**İsmail Kılıç ve Mustafa Yavuz** tarafından hazırlanan ***"Eğitim Politikaları, Yönetimi ve Liderliği Kapsamında 2019 ve 2020 Yıllarında Yayınlanmış Olan Makalelerin Analizi"*** başlıklı çalışmada üç farklı dergideki araştırmaların, 2019 ve 2020 yıllarında yayımlanan sayılarındaki makalelerin teması, yöntemi, nitelik ve niceliğine göre değerlendirilmesini amaçlamıştır. Analiz sonucunda, eğitim araştırmalarında son dönemde nitel araştırmaların çoğunlukta olduğu, araştırmaların analizinde içerik ve doküman analizinin ağırlık kazandığı ve araştırma konularında liderlik ana temasında farklı alt liderlik başlıklarının artış gösterdiği, problem temelli geniş bir okul perspektifinde, yeni konu başlıklarına yer verildiği görülmüştür.

**Berna Yüner** tarafından hazırlanan ***"Okul Yöneticilerinin Görüşlerine Göre Katılım ile Akademik Vurguları Arasındaki İlişkinin İncelenmesi"*** başlıklı çalışmanın araştırma grubu Uluslararası Öğretme ve Öğrenme Araştırması [TALIS] 2018'e katılan 828 Türk okul yöneticisinden oluşmaktadır. Araştırma sonucunda okul yöneticilerinin öğretmen ve paydaş katılımına ilişkin görüşlerinin yüksek düzeye yakın olduğu saptanmıştır. Akademik vurguya ilişkin görüşlerinin ise yüksek düzeyde olduğu belirlenmiştir. Araştırma değişkeni olan öğretmen katılımı, paydaş katılımı ve akademik vurgu arasında anlamlı pozitif yönlü ilişkiler olduğu belirlenmiştir.

**Yeliz Özkan Hıdıroğlu ve Abdurrahman Tanrıöğen** tarafından hazırlanan ***"Okul Yöneticilerinin Zihin Tipleri ve Örgütsel Vatandaşlık Davranışları Arasındaki İlişki"*** başlıklı çalışma nicel araştırmalardan ilişkisel tarama modelindedir. Çalışma Türkiye'de farklı bölgelerde görev yapan 346 okul yöneticisiyle gerçekleştirilmiştir. Veri toplama aracı olarak "Zihin Tipleri Ölçeği" ve "ÖVD Ölçeği" kullanılmıştır. Okul yöneticilerinin algılarına göre; yöneticilerin disiplinli, sentezci ve yaratıcı zihin tipleri yüksek; saygılı ve etik zihin tipleri ve okul yöneticilerinin örgütsel vatandaşlık davranışları çok yüksek düzeyde olarak bulunmuştur. Okul yöneticilerinin disiplinli ve sentezci zihin tipleri arasında yüksek düzeyde bir ilişki bulunmuştur.

**Büşra Nakış Yıldırım ve Aysel Tüfekci** tarafından hazırlanan ***"Okul Öncesi Çocukların Mizaç Özellikleri ve Annelerinin Kabul Red Durumları"*** başlıklı çalışmanın amacı, anne kabul reddi ile çocuk mizacı ilişkisini ve çocuk mizaç özelliklerinin anne kabul reddini yordayıp yordamadığını incelemektir. Yordayıcı korelasyonel araştırma yönteminde desenlenen araştırmanın verileri, okul öncesi eğitime devam eden 4-6 yaş grubu 349 çocuk ve annelerinden elde edilmiştir. Veriler, Ebeveyn Kabul Red/Kontrol Ölçeği Anne Baba Formu ve Çocuk Davranış Listesi Ölçeği ile toplanmıştır. Araştırma sonucunda, rahatsızlık, korku, utangaçlık, dürtüsellik ve yaklaşım/olumlu katılım dışındaki tüm mizaç özellikleri ile anne kabul reddi arasında anlamlı bir ilişki bulunmuştur.

**Kübra Babacan ve Mustafa Yıldız** tarafından hazırlanan ***"Okuyucu Tiyatrosunun İlköğretim 4. Sınıf Öğrencilerinin Akıcı Okuma ve Okuduğunu Anlama Becerilerine Etkisi"*** başlıklı çalışmada yarı deneysel desen kullanılmıştır. Araştırmaya ilkokul 4. sınıfta öğrenim gören 29 öğrenci katılmıştır. Araştırma sonucunda okuyucu tiyatrosunun okuduğunu anlama, kelime tanıma ve okuma prozodisini artırdığı, okuma hatalarını azalttığı belirlenmiştir. Ancak okuyucu tiyatrosunun okuma hızına anlamlı etkisinin olmadığı sonucuna ulaşılmıştır.

**Sebahat Türkyılmaz, Seher Esen ve Menşure Alkış Küçükaydın** tarafından hazırlanan *"Sağlıklı Beslenme Konusunda Hazırlanan Dijital Öykülerin İlkokul Çocuklarının Sağlık Davranışları Üzerindeki Etkisi"* başlıklı çalışma, ilkokul 2.sınıf öğrencileri için geliştirilen sağlıklı beslenme konulu dijital öykülerin sağlık algısı, beslenme davranışı, beslenme öz-yeterliği ve beslenme tutumu üzerindeki etkileri araştırılmıştır. Ön test son test deney-kontrol gruplu yarı deneysel desenin kullanıldığı çalışma, İstanbul ilinde bir devlet okulunda öğrenim görmekte olan 90 öğrenci ile gerçekleştirilmiştir. Çalışma sonunda deney grubunda yer alan öğrencilerin sağlık algısı, beslenme davranışı, beslenme öz-yeterliği ve beslenme tutumlarında olumlu yönde değişim olduğu görülmüştür.

**Didem Özkal Eminoğlu ve Tuğba Aydın** tarafından hazırlanan *"Diş Hekimliği Öğrencilerinin Sağlıklı Yaşam Biçimi Davranışlarının ve Stres Düzeylerinin COVID-19 Pandemisi Sürecinde İncelenmesi"* başlıklı çalışmada, COVID-19 salgınından etkilenen öğrencilerin stres düzeyleri ve yaşam tarzı değişiklikleri değerlendirilmiştir. Bu kesitsel çalışmanın sonuçları, COVID-19 salgınının öğrencilerin stres seviyeleri ve yaşam tarzı rutinleri üzerinde yıkıcı etkileri olduğunu göstermiştir.

**Dila Leylak ve Feride Ercan Yalman** tarafından hazırlanan *"Covid-19 Sürecinde Fen ve Sınıf Öğretmenlerinin Sürdürülebilir Çevre ve Yaşam Üzerine Görüşleri"* başlıklı çalışma nitel araştırma yaklaşımlarından fenomenolojik desene göre tasarlanmıştır. Çalışmada veriler, yarı yapılandırılmış görüşme soruları aracılığı ile toplanmıştır. Araştırmada elde edilen verilere göre, katılımcıların sürdürülebilirliği devam etmek olarak tanımladığı, sürdürülebilir çevre uygulamalarında devlet takibini yeterli bulmadığı tespit edilmiştir. Bazı katılımcılar tarafından salgın sürecinde kişisel olarak öze dönme ve aydınlanma dönemi yaşandığı dile getirilmiştir. Araştırmada ortaya çıkan çarpıcı bir sonuç ise salgının sürdürülebilir çevre ve yaşam üzerine etkileridir.

*Eğitim ve Gelecek Dergisi* olarak gösterdiğiniz ilgi ve değerli katkılarınız için teşekkür ediyorum.

Gelecek sayıda buluşmak üzere…

**Prof. Dr. Erten GÖKÇE**

*Eğitim ve Gelecek Dergisi Baş Editörü*

**Editorial**

*Journal of Education and Future* published by Nesibe Aydın Education Institutions, meets you with the twenty second issue. We present the studies in the twenty second issue of JEF to our valuable readers.

The article titled *"Analysis of Articles Published in 2019 and 2020 within the Scope of Education Policies, Management, and Leadership"*, which is prepared by **İsmail Kılıç and Mustafa Yavuz**, aimed to evaluate the research articles in three journals according to the theme, method, quality, and quantity of the articles published in 2019 and 2020. As a result of the analysis, it was observed that in recent years qualitative research has dominated in educational research, content and document analysis has gained weight in the analysis of research, different sub-leadership titles have increased in the main theme of leadership in research issues, and new topics have been included in a problem-based broad school perspective.

In the article titled *"Examining the Relationship between Participation and Academic Emphasis Based on the Views of School Principals"*, which is prepared by **Berna Yüner**, the research group consisted of 828 Turkish school principals who participated in the 2018 Teaching and Learning International Survey. As a result of the research, it was determined that school principals' views were close to high levels regarding teacher and stakeholder participation and they were at high levels regarding academic emphasis. Significant positive correlations were observed between teacher participation, stakeholder participation, and academic emphasis.

The research titled *"The Relationship between Mind Types and Organizational Citizenship Behaviors of School Administrators"*, which is prepared by **Yeliz Özkan Hıdıroğlu and Abdurrahman Tanrıöğen**, was carried out by the quantitative relational survey model. The study was conducted with 346 school administrators who work in different regions of Turkey. The data of this research has been collected by employing "Mind Types Scale" and "OCB Scale". According to the perceptions of administrators, the disciplinary, synthesizing and creating mind types of the administrators were high, respectful and ethical mind types and OCBs of the administrators were found to be very high. A high level relationship was found between the disciplinary and synthetic mind types of administrators.

The aim of the article titled *"Temperament Characteristics of Preschoolers and Maternal Acceptance and Rejection Statuses of Their Mothers"*, which is prepared by **Büşra Nakış Yıldırım and Aysel Tüfekci**, is to examine the relationship between maternal acceptance-rejection and children's temperament characteristics and whether children's temperament characteristics predicted maternal acceptance-rejection. The data of the study, which employed a predictive correlational design, were obtained from 349 children in the 4-6 age group attending preschool education and their mothers. The data were collected using the Parental Acceptance-Rejection Questionnaire and the Child Behavior Checklist. As a result of the study, a significant relationship was found between maternal acceptance-rejection.

In the study titled *"The Effect of the Reader's Theatre on Reading Fluency and Reading Comprehension Skills of 4th Grade Primary School Students"*, which is prepared by **Kübra Babacan and Mustafa Yıldız**, quasi-experimental design was used. As a result of the analysis, the reader's theater method was efficient in the increase in reading prosody and reading fluency skills, and the decrease in the number of misspelled words. Although no significant effect of the reader's theater method on the participants' reading speed was observed, it was concluded that the reader's theater method increased the participants' reading comprehension skills.

In the article titled *"The Effect of Digital Stories about Healthy Eating on Health Behaviors of Primary School Children"*, which is prepared by **Sebahat Türkyılmaz, Seher Esen and Menşure Alkış Küçükaydın**, the effects of digital stories about healthy eating developed for primary school 2nd-grade students on health perception, nutritional behavior, nutritional self-efficacy, and nutrition attitude were investigated. The study, in which the quasi-experimental design with the pre-test and post-test control group was used, was carried out with 90 students studying at a public school in Istanbul. At the end of the study, it was observed that there was a positive change in the health perception, nutritional behavior, nutritional self-efficacy, and nutrition attitudes of the students in the experimental group.

The article titled *"Evaluation of Healthy Lifestyle Behaviors and Stress Levels of Dentistry Students during the COVID-19 Pandemic"*, which is prepared by **Didem Özkal Eminoğlu and Tuğba Aydın**, focuses on the stress levels and daily lifestyle changes of students because of the pandemic. The study was carried out with 601 students of dentistry faculty. The study's findings reveal that COVID-19 pandemic has devastating effects on students' stress levels and lifestyle routines.

The article titled *"Science and Classroom Teachers' Views on Sustainable Environment-Life during Covid-19 Epidemic"*, which is prepared by **Dila Leylak and Feride Ercan Yalman**, was conducted with phenomenological design, a qualitative research approach. It was found that the participants defined sustainability as continuity, did not find the state follow-up sufficient in sustainable environmental practices and believed that citizens lacked awareness about sustainability. Some participants reported experiencing a process of returning back to basics and enlightenment during the epidemic. The majority of the participants believed that the epidemic would have a negative impact on sustainability.

Thanks for your interest and valuable contributions for *Journal of Education and Future*.

Look forward to meeting in the next issue…

**Prof. Dr.  Erten GÖKÇE**
*Editor in Chief of*
*Journal of Education and Future*

# Analysis of Articles Published in 2019 and 2020 within the Scope of Education Policies, Management, and Leadership

**İsmail Kılıç***      **Mustafa Yavuz****

## Abstract

This research aimed to evaluate the research articles in the journals *Educational Administration Quarterly* (EAQ), *Educational Management Administration & Leadership* (EMAL), and *Educational Policy* (EP) according to the theme, method, quality, and quantity of the articles published in 2019 and 2020. The data used in the research were collected by document analysis, one of the qualitative research techniques. The data was analyzed with the help of frequency and categorical analysis using the descriptive analysis method. In this study, the following themes were predetermined as research design and method, purpose and subject, study group, and analysis of data. As a result of the analysis, it was observed that in recent years qualitative research has dominated in educational research, content and document analysis has gained weight in the analysis of research, different sub-leadership titles have increased in the main theme of leadership in research issues, and new topics have been included in a problem-based broad school perspective. It was concluded that teachers, school administrators, students, and documents related to school processes were treatedas the study group, and, in general, document analysis and accordingly content analysis were used in the analysis of the data. It was observed that the largest number of articles published in the journals came from North America, particularly the USA while a certain proportion of research took place in other parts of the world. The findings can be interpreted as guiding researchers and practitioners in the field of educational policies, management, and leadership. According to these results, it is suggested that publications in the field should be published in journals that guide education policies by using a mixed pattern in the focus of school and school stakeholders, and such publications should be conducted in the local and regional context.

*Keywords:* Education research, education management research, article review, document analysis

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# Eğitim Politikaları, Yönetimi ve Liderliği Kapsamında 2019 ve 2020 Yıllarında Yayınlanmış Olan Makalelerin Analizi

**İsmail Kılıç**[*]          **Mustafa Yavuz**[**]

## Öz

Bu araştırma, Ecucational Administration Quarterly (EAQ), Educational Management Administration & Leadership (EMAL), Educational Policy (EP), dergilerindeki araştırmaların, 2019 ve 2020 yıllarında yayımlanan sayılarındaki makalelerin teması, yöntemi, nitelik ve niceliğine göre değerlendirilmesini amaçlamıştır. Araştırmada kullanılan veriler, nitel araştırma tekniklerinden doküman incelemesi ile toplanmış olup; betimsel analiz yöntemiyle frekans ve kategorik analizler yardımıyla çözümlenmiştir. Bu araştırmada temalar araştırma deseni-yöntemi, amaç ve konu, çalışma grubu ve verilerin analizi olarak önceden belirlenmiştir. Analiz sonucunda, eğitim araştırmalarında son dönemde nitel araştırmaların çoğunlukta olduğu, araştırmaların analizinde içerik ve doküman analizinin ağırlık kazandığı ve araştırma konularında liderlik ana temasında farklı alt liderlik başlıklarının artış gösterdiği, problem temelli geniş bir okul perspektifinde, yeni konu başlıklarına yer verildiği görülmüştür. Çalışma grubu olarak öğretmenler, okul yöneticileri, öğrenciler ile okul süreçlerine ilişkin dokümanların ele alındığı, verilerin analizinde ise çoğunlukla doküman analizi ve buna bağlı olarak içerik analizi kullanıldığı sonucuna varılmıştır. Dergilerde yayımlanan makalelere en çok katkının Kuzey Amerika'dan ABD'den sağlandığı, Dünya'nın diğer yerlerinde yapılan araştırmalarında belirli oranlarda yer aldığı görülmüştür. Elde edilen bulgular eğitim politikaları, yönetimi ve liderlik alanında araştırmacılara ve uygulayıcılara yol gösterir nitelikte yorumlanabilir. Bu souçlara göre; alandaki yayınların okul ve okul paydaşları odağında karma desen kullanılarak, yerel ve bölgesel bağlamında yürütülmek suretiyle eğitim politikalarına yol gösterici nitelikli dergilerde yayına sunulması önerilebilir.

*Anahtar Sözcükler:* Eğitim araştırmaları, eğitim yönetimi araştırmaları, makale incelemesi, doküman analizi

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**Introduction**

The analysis of scientific publications according to journal type goes back to 1665 when the first scientific journal, the *Journal des Scavans,* was published in France (Singleton, 2014). We can express the role of scientific publications, apart from sharing theoretical knowledge, as providing application direction and inspiration. Today, within the world of science, more than a million authors in fifty thousand scientific journals in the world bring together three million scientific studies (Gül ve Maksüdünov, 2019; Mabe, 2003; STM, 2018). Scientific research and articles, methodological research, and social science research in the field of educational sciences have been going on since the 1960s (Elmore & Woehlke, 1996; Karadağ, 2010). Scientific research has a leverage function in terms of development; it also contributes significantly to the level of accuracy of future policies (Al, 2008, p. 4). Educational research also has this important role (Gülmez & Yavuz, 2016; Kısakürek, 1971; Yıldırım & Şimşek, 2016). While the published research articles that guide education and school management are extremely successful in our country and all over the world, they also contribute scientifically to the quality and function of continuing research (Karadağ, 2009, p. 76; Özdemir & Alpaydın, 2018, p. 10). This caregiver perspective is presented in Turan & Şişman (2013, p. 509), and Turan et al. (2014, p. 94). Compilation and synthesis type research provides evidence and data to improve education and training (Mortimore, 2000; Selçuk, Kandemir, Palancı, & Dündar, 2014). Categorical analyzes covering certain periods are presented to researchers and the public for information and confirmation. In this context, it is known that scientific journals and postgraduate theses are included in the research category, especially articles. The *International Journal of Educational Administration Quarterly* (EAQ) (Balcı, 1988; Hoy, 1982; Miskel & Sandlin, 1981; Swafford, 1990) examined articles published in scientific journals in terms of content, Kozak and Flowers (2012), Kurtoğlu & Seferoğlu (2013) examined the teachers who use technology-focused articles published in Turkey, Turan et al. (2014) reviewed the *Journal of Education Management in Theory and Practice*, which publishes in the field of educational management. According to Güven (2014), Eren et al. (2014), Ulutaş et al. (2015), Dönmez Gündoğdu (2016), and Aykan & Kıncal, (2016), research articles published abroad do content analysis. Similarly, in the international context, in the" Stars" (2016) article in *Language Magazine*, presented a meta-analysis of the research on adult education in Turkey, and Gülmez &Yavuz (2016) discussed education management and the scope of the articles with similar variables within the scope of school management and leadership. In the journal *Nature* which is published in Turkey, Tok (2018) authored "Education and Science" about the scope of articles, and Lightning (2018) authored "Education Management, " an analysis of articles in the magazine; Yılmaz (2019) examined articles on organizational behavior, and Taşkın & Aksoy (2019) examined graduate theses and articles. The article analysis form was used in very few of the studies conducted, and it was seen that the results were widely interpreted by content analysis. Scientific publication analysis covers the description of the current situation in a certain period of time, which includes the purpose, subject, method, universe, and sample of the research and the interpretation of the findings. It can be said that trends and different research skills have been gained in studies conducted with researchers from different countries (Skene, 2007, p. 1). The categorical examination of publications in the field of educational administration brings a different perspective to the problems in the field, while revealing the progress towards the theoretical framework (Aypay, 2010; Hallinger, 2013). Reviewing and summarizing national and international studies together contributes to the understanding of the subjects studied, trends, and systematic organization of the scientific processes followed.

**Purpose of the Research**

In this study, a situation assessment was completed by analyzing the research topics, methodologies, and statistical analysis techniques in the quarterly period of 2019 and 2020 in the journals *Educational Management Administration & Leadership* (EMAL), *Educational Administration Quarterly* (EAQ), *Educational Policy* (EP) which are regarded as some of the most respected journals in the international arena. The study aimed to provide direction for and make a contribution to future academic studies in the field of educational administration. The research in this study encompassed articles that were included in the study, the subject which was the number of authors participating in the research, the research design, samples and sampling techniques, the

statistical analysis techniques chosen for the studies, and the analysis of the distribution according to the countries where the research was conducted.

## Method

**Research Design**

This research is qualitatively designed with the aim of examining the events in the natural environment in a realistic and holistic way. Creswell (2017) and Yıldırım & Şimşek (2011) express qualitative research as a process of interpretation by questioning social life and human-related problems with their own unique methods. Data were collected through document analysis, one of the qualitative research methods, and analyzed using frequency and categorical analysis including descriptive analysis (Günbayı, 2019) and method (Yıldırım & Şimşek, 2006). The data were subjected to a methodological evaluation, and this type of evaluation is essentially expressed as an evaluation based on the analysis of published research (Neuman, 2014).

## Materiel

The *Eucational Administration Quarterly* (EAQ*), Educational Management Administration & Leadership* (EMAL), *Educational Policy* (EP) journals were included in the research using the SAGE database, which has a high impact factor in the field.

**Table 1**

*Distribution of Articles by Journals*

| Scientific Journals | Number of Studies | Research Number Percentage % |
|---|---|---|
| *Educational Administration Quarterly* | 17 | 14,4 |
| *Educational Administration Management and Leadership* | 56 | 47,5 |
| *Educational Policy* | 45 | 38,1 |
| Total | 118 | 100 |

**Data Collection**

The articles and texts to be evaluated in the research were obtained electronically from the web addresses of the journals. The number of articles in Table 1 has been examined within the scope of the research. The analyzed resources were obtained through the analysis of the documents and were carried out by analyzing the data produced from reliable sources in a set time period for the purpose of the research (Yıldırım & Şimşek, 2006; Karasar, 2007). In the analysis dimension, the theme of the articles, the number of authors, keywords, research design, sample population, and sampling techniques were evaluated by considering the continent and countries where the research was conducted.

**Data Analysis**

With the document analysis, the research data obtained from the articles were examined by the descriptive analysis method, a framework was formed from the summarized data, and the process of describing and interpreting the findings was followed by processing the data (Yıldırım & Şimşek, 2006; Altunışık, 2012). Qualitative researchers follow this process and indicate the steps in data analysis in their research proposal (Creswell, 2017, p. 196). During the analysis process, data coding, creating and organizing categories, definition, and interpretation of the findings was completed. During the interpretation of the findings, interpretations were made regarding the importance of the results obtained from the findings by making sense of the data and establishing a cause and effect relationship between them.

**Validity and Reliability**

In order to ensure qualitative research validity, the research was included in the study in order for the researcher to observe the research phenomenon objectively and to see the facts and events revealed in a holistic manner that can be confirmed. For internal validity (whether the findings are consistent and meaningful within themselves), the consistency of the findings with the previously created conceptual framework or theory, and the predictions and generalizations made based on the research findings were taken into account, and the opinion of a professor of educational administration science was obtained during the research (Kirk & Miller, 1986; Yıldırım & Şimşek, 2016: 270). In order to ensure external validity (Miles & Huberman, 1994) (the reader's ability to associate research results with their own experiences), the research question, the findings and theoretical consistency, and detailed explanations were provided. For the reliability of the study, the data were analyzed by two researchers, and independent coding was made and compared. The conceptual framework and assumptions used in the analysis of the data obtained in order to ensure the external reliability of the study were defined, and detailed explanations were made about the data collection and analysis methods so that the method, process, and approaches used are clearly demonstrated (Creswell, 2017: 201; Gülmez & Yavuz, 2016, p. 322; Yıldırım & Şimşek, 2016, p. 274).

## Results

For research purposes, articles in three journals were analyzed. The findings obtained as a result of the analysis were collected under six themes: the purpose-subject distributions of the studies, the number of authors participating in the research, the pattern-method of the research, the sample population-sampling techniques, the statistical methods used in data analysis, the continent where the research was conducted, the country distribution, and the research problems related to this distribution. The categories created under the aim-subject theme of the research are given in Table 2.

**Table 2**

*Theme and Subject Distribution of the Articles*

| Thema Area | Topic | EMAL | EAQ | EP |
|---|---|---|---|---|
| Leadership (47 studies) | Democratic Leadership | 1 | | |
| | Basic Leadership, Teacher Leadership | 2 | | |
| | Emotional Intelligence, School Leaders | 1 | | |
| | School Leaders, Ethical Considerations | 1 | | |
| | Instructional Leadership-Distributed Leadership | 9 | 3 | |
| | School Leadership | 11 | 2 | |
| | Leaders' Decision Making Process | 1 | | |
| | Effective School Leadership | 1 | | |
| | Early Childhood Education Leadership | 2 | | |
| | Ethical and Unethical Leadership | 1 | | |
| | Leadership of Women | 1 | | |
| | Analysis of 1993-2019 Leadership Identity | 1 | | |
| | Leadership Roles | 1 | | |
| | Medium Leadership | 1 | | |
| | Education Leadership | 3 | 2 | |
| | Transformational Leadership | 1 | | |
| | Academic Leadership | 1 | | |
| | School Leaders: Learning From Experience and Development | | 1 | |

| Category | Title | | | |
|---|---|---|---|---|
| School Administrators (10 studies) | Adult Ego Development: School Principals | 1 | | |
| | School Principals Selection and Preparation | 1 | | |
| | Beginner School Principals | 1 | | |
| | School Principals' Perception of Their Future Roles | 1 | | |
| | Learning for Principals | 1 | | |
| | State School Principals, Accountability, Education Goal Priorities | | 1 | 2 |
| | Relationship of Decision Making Power Between District Head Offices and School Principals | | 1 | |
| | Understanding the Wear and Tear and Mbility of School Principals | | | 1 |
| | School Autonomy and School Expenses | | 1 | |
| | Academic Trust | | 1 | |
| | School Climate, Education Policies, Violence at School | | 1 | |
| | Deciding Factors for School Selection | | 1 | |
| | Early Childhood Education, Care Managers, Understanding of | | 1 | |
| | Regional Micropology During Basic Vocational Education | | 1 | |
| | Managing Academic Results in the Context of Multiple Deprivations | | 1 | |
| | Cross-sectoral Cooperation in Education, Setting Common Compatible | | 1 | |
| | Social Justice in Schools | | 1 | 1 |
| | Independent Public Schools, Social Justice | | 1 | |
| | Ethnography - Study of Practices and Positions on the Street | | 1 | |
| | Education Supervisory Boards | | 1 | |
| | Negotiating Authority in the Meeting Ritual | | | 1 |
| | Teacher Evaluation, Feedback, Self-Efficacy, Teacher Certification | | | 1 |
| | Parental Empowerment, Involvement, and Satisfaction | | | 2 |
| | Data Culture Continuity; Study of School Data Cultures, Data-driven | | | 1 |
| | School Diversity Mismatch, Integration Initiative | | | 1 |
| | Test Scores, Identities, and Cultural Possibilities | | | |
| | School Reform Inspired by Business in the Age of Financialization | | | |
| | Language Teaching and Ideologies, Policy Analysis | | | |
| | Community Schools as an Urban School Reform Strategy | | | |
| | Exclusionary Discipline | | | |
| | Citizenship Development and Market Impact: Charter Schools | | | |
| | Teacher Unions | | | |
| | Higher Education Policies | | | |
| | Literature in the Standard Paradigm | | | |
| | College Admission, College Access | | | |
| | Income Inequality | | | |
| | High Incidence Students, Teaching Mathematics | | | |
| | Documentation of the Geographical Isolation of Schools and Their Effects | | | |
| | Undocumented Students, Immigration Policy | | | |
| | School Performance Indicators and Academic Achievement | | | |
| | Student-based Budgeting, School Governance | | | |
| | Adult Literacy, | | | |
| | Education Technology | | | |
| | **118** | 56 | 17 | 45 |

37 categories emerged under the theme of the aims and subjects of the articles examined. Under the subjects studied, 47 fell under the leadership theme: 13 of them were in the field of school leadership and 12 of them were in the majority with instructional leadership. There were 10 studies on school administration; four on school climate, education policies and violence at school; four on school choice and decision-making factors,;two on early childhood education; three on social justice in schools; four on teacher evaluation, self-efficacy and certification; four on parents; two on data culture,; two on test scores; two on school reform, three on language teaching and policies; two on urban school reform; two on exclusionary discipline concepts; two on citizenship development and the impact of the market; two on teacher unions,;three on higher education policies; two on college admissions and access;and one each on private ethnography and practices on the street, academic trust, academic results and poverty, basic vocational education, cooperation between sectors in education, negotiating authority in the meeting ritual, education supervisory boards, school autonomy and school expenses, school diversity mismatch, standard paradigm, income inequality, special students, geographical isolation of schools, immigration policy, school performance indicator and academic achievement, budgeting-school governance, adult literacy, and educational technology. Most of the research was on leadership, specifically the field of school and instructional leadership, and the research subjects were quite diverseincluding school administrators and internal and external stakeholders of the school, and almost all current problems of school processes were analyzed. The categories created in terms of the number of authors and co-authors participating in the study are given in Table 3.

**Table 3**

*Distribution of Articles by the Number of Authors*

| Scientific Journals | Distribution by Number of Authors | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total |
| *Educational Managament, Administration Leadership* (EMAL) | 13 | 20 | 17 | 2 | 2 | 1 | 1 | 56 |
| *Educational Administration Quarterly* (EAQ) | 6 | 3 | 6 | 2 | - | - | - | 17 |
| *Educational Policy* (EP) | 12 | 22 | 4 | 4 | 2 | - | 1 | 55 |
| Total | 31 | 45 | 27 | 8 | 4 | 1 | 2 | 118 |

In Table 3, it may be seen that the majority of the research articles have two authors (f = 45) while 31 have one author (f = 31), 27 have three authors (f = 27), and 15 have four or more authors (f = 15).

**Table 4**

*Distribution of Articles According to Design/Methods*

| Design/Method | Number of Articles | | | Total |
|---|---|---|---|---|
| | EMAL | EAQ | EP | |
| Qualitative | 36 | 29 | 7 | 72 |
| Quantitative | 12 | 14 | | 12 |
| Qualitative-Quantitative (Mixed) | 8 | 2 | 1 | 11 |
| Unspecified | - | - | - | - |
| Total | 56 | 45 | 17 | 118 |

The research methods of the articles were interpreted in quantitative, qualitative and mixed design categories. It may be seen that there is no article whose method is not specified. In the theme of research method and design, it may be seen that 72 are in the category of qualitative design, 35 in quantitative design, and 11 both quantitative and qualitative (mixed). The qualitative and mixed-pattern studies together form the highest percentage at 70%. The methodology element of the studies was comprehensively covered.

**Table 5**

*Articles by Working Group, Source, and Materials*

| Working Group | EMAL | EAQ | EP | Total | (%) |
|---|---|---|---|---|---|
| Document | 8 | 13 | 1 | 22 | 16.54 |
| School Administrators | 20 | 1 | 4 | 25 | 18.79 |
| School Administrators and Teachers | 9 | 2 | 4 | 15 | 11.27 |
| School Based | 1 | 9 | 3 | 13 | 9.77 |
| Teacher | 6 | 6 | 3 | 15 | 11.27 |
| Manager-Student | 1 | - | - | 1 | 0.07 |
| Administrator-Teacher-Student | 3 | - | 1 | 4 | 3.07 |
| Student | 1 | 6 | - | 7 | 5.26 |
| Academician | 2 | 2 | - | 4 | 3.07 |
| Administrator-Teacher-Student-Family | 2 | 3 | - | 5 | 3.75 |
| Education Policy Makers | 2 | 5 | - | 7 | 5.26 |
| Parents | 1 | 3 | 2 | 6 | 4.51 |
| Inspectors | 1 | - | - | 1 | 0.07 |
| Provincial and District Education Managers (Professionals) | 1 | 1 | 2 | 4 | 3.07 |
| Sector Representatives | 1 | 1 | - | 2 | 1.5 |
| School General Manager-Chairman of the Board, CEO | 2 | - | - | 2 | 1.5 |
| Total | 61 | 53 | 19 | 133 | 100 |

In terms of article subject, 25 focused on school administrators (f = 25), 25 on school documents (f = 22), 30 on school administrators-teachers and teachers (f = 30), 13 on schools (f = 13), and 13 on students and parents (f = 13). It may be seen that school administrators and teachers were the two most studied groups.

**Table 6**

*Distribution of Articles by Data Collection Tool*

| Data Collection Tool | EMAL | EAQ | EP | Total |
|---|---|---|---|---|
| Interview | 26 | 11 | 9 | 46 |
| Survey | 12 | 4 | 2 | 18 |
| Scale | 9 | 12 | 5 | 26 |
| Document Analysis | 8 | 18 | 1 | 27 |
| Other | 1 | - | - | 1 |
| Total | 56 | 45 | 17 | 118 |

As seen in Table 6, the frequency of use of data collection tools were as follows in descending order: interview (f = 46), document analysis (f = 27), scale (f = 26), and questionnaire (f = 18).

**Table 7**

*Distribution of Research Data According to Analysis Type*

| Analysis | EMAL | EAQ | EP | Total |
|---|---|---|---|---|
| Content Analysis | 35 | 15 | 8 | 58 |
| Document Analysis | 10 | 19 | 1 | 30 |
| Structural Equation Model | 3 | - | 5 | 8 |
| Regression Analysis | 9 | 9 | 6 | 24 |
| Correlation | 8 | 6 | 1 | 15 |
| Anova | 5 | 4 | 2 | 11 |
| Manova-Mancova | 5 | 4 | 1 | 10 |
| Giversary Theory (theorizing) | 1 | - | - | 1 |
| Nonparametric Tests | 1 | - | - | 1 |

According to the data analysis, the distribution in the research type consists of nine categories, and it be seen that more than one analysis technique is used. The breakdown is as follows: content analysis, 58; document analysis, 30; structural equation model, 8; regression analysis, 24; correlation, 15; Anova,11; MANOVA-MANCOVA, 10; research embedded theory, 1; and nonparatric tests, 1. Content and document analysis were the most used.

**Table 8**

*Distribution by Continents and Countries according to Where the Studies Were Conducted*

| Asia | | Europe | | South America | | North America | | Australia | | Africa | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Israel | 9 | Britain | 10 | Chile | 1 | USA | 58 | Australia | 4 | Kenya | 2 |
| Turkey | 4 | Finland | 1 | Trinidad and Tobago | 1 | Canada | 1 | New Zeland 1 | 1 | S.Africa Rep. | 5 |
| S. Arabia | 1 | Spain | 2 | | | | | | | Ethiopia | 8 |
| India | 3 | Germany | 1 | | | | | | | | |
| China | 3 | Nether-lands | 1 | | | | | | | | |
| Malaysia | 1 | Ireland | 1 | | | | | | | | |
| Nepal | 1 | | | | | | | | | | |
| Hong Kong | 1 | | | | | | | | | | |
| Singapore | 1 | | | | | | | | | | |
| Iran | 1 | | | | | | | | | | |
| Bahrain | 1 | | | | | | | | | | |
| United Arab Emirates | 1 | | | | | | | | | | |
| Qatar | 1 | | | | | | | | | | |
| Total | 28 | | 16 | 2 | 2 | | 59 | 5 | 5 | | 8 |

In the distribution where the studies were conducted in the world according to the continents, 59 were in North America constituting 50% of the total number. Following North America, 28 studies were conducted in Asia, 16 in Europe, eight in Africa, five in Australia, and two in South America. In North America, 58 were in the United States; in Asia, nine were in Israel, and four were in Turkey; in Europe, 10 were in Great Britain; inAfrica, eight were in Ethiopia, and five were in South Africa. In the continent of Australia, there were four studies. In South America, Chile and Trinidad and Tobago each contributed one study.

**Figure 1.** *Distribution of Research by Continent and Country*

Clearly, the vast majority of journal articles published are from the North American continent and particularly the United States; this can be interpreted in the research results as the primary source and publication of the problem areas and research subjects of the country.

**Discussion, Conclusion, and Recommendations**

Most of the research was in the area of leadership, particularly in the field of school and instructional leadership where there are a wide variety in terms of subject. Articles focusing on school administrators included analyzes of the current problems of school processes including with internal and external stakeholders of the school; the research results supported the view that school administrators have a long way to go (Balcı 1988) and that their qualifications should be high (Aypay, 2010; Yılmaz, 2019; Gülmez & Yavuz, 2016). According to Bellibaş & Gümüş (2019), the topic of leadership is the field that has been studied the most, and this trend continues (Turan et al., 2014). Contrary to the narrow scope of research, 118 research topics are distributed in 37 categories. The fact that the main theme of leadership is handled under 47 sub-headings reveals that the diversity of topics in international publications is widely discussed in the field of educational management and policies. Today, education and school management are associated with leadership roles on their own, and it is seen that an attempt is made to be based on the assumption that they can be resolved with situational leadership approaches. The research results of Bellibaş & Gümüş (2019) show that school leadership and school principals are priority research participants in international studies.

It is seen that most of the studies have two authors (f=45), one author (f=31), three authors (f=27), and four or more authors (f=15). Although it is similar to the research results of Çiçek & Kozak (2012), Dönmez & Gündoğdu (2016), Yıldırım (2018), Yılmaz (2019), and Gül & Maksüdünow (2019), 42 articles were written by three or more researchers. It can be interpreted that the interdisciplinary researcher and research problem theme relationship and cooperation increased in the periods.

It is seen that the studies are 72 qualitative, 35 quantitative, and 11 are both quantitative and qualitative. Qualitative and mixed pattern studies are at a high rate at 70%. In contrast to Miskel & Sandlin (1981), seeing the methods section was weak in the studies published in the EAQ in the study period, it is understood that the method and the pattern were mentioned in the studies, and the researchers included the methods section comprehensively (Balci, 1988). In the survey model, Aypay (2010) focused on qualitative, and Turan et al. (2014) focused on screening. Güven (2014) stated that qualitative studies before 2009 were fewer than quantitative studies (Selçuk et al., 2014). Although sampling in quantitative research is more practical, easy and accessible, data collection and interpretation is easy and can be done in a short time which seems to be the reason why it is less often chosen according to the studies. It can be said that 61% of the 118 studies were carried out with a qualitative design, and in the studies, it can be said that the qualitative research was carried out because of the opportunity to complete it in a more in-depth and natural environment. Yılmaz (2019), Taşkın & Aksoy (2019), and Bellibaş & Gümüş (2019) are in consensus regarding the more common use of the scanning model and quantitative design in educational science articles. This situation can be interpreted as face-to-face interaction in school-based studies, the use of observation-interview and document review tools, the tendency to contribute to the results of the research with a high degree of

accuracy, and qualitative research as the reason for preference. Bellibaş & Gümüş (2019) showed an increase in the qualitative and qualitative balance of patterns in their research despite the scarcity of experimental designs and the lack of observation and documentary analysis. This situation is similar to the result of Busch & Crawford (2012) in that the number of studies in qualitative design is gradually increasing. It can be interpreted that mixed method studies are of a type that can eliminate the limitations of qualitative and quantitative research and that both methods can have a research advantage compared (f = 11).

The most studied group as a sample in the studies is school administrators (f = 25), school and documents (f = 22), school administrators-teachers and teachers (f = 30), school-themed (f = 13), and students and parents (f = 13). Balcı (1988) stated that careful sample selection was made in EAQ, and in the three journal articles in our study, it is seen that teachers, students and parents, and school administrators in particular constitute the sample mass being studied within the framework of school stakeholders. Aypay (2010) focused on school-centered, and Eren et al. (2014), Dönmez & Gündoğdu (2016), Aykan & Kıncal (2016), and Yılmaz (2019) focused on the fact that teachers and teacher candidates are mostly included in the research as a sample. Yıldırım (2018) concluded that school principals are preferred, and Doğan &Tok (2018) concluded that students are given more space as a sample; this is the case when educational sciences and management researches are school-centered. The result was that students, teachers, administrators, school processes, and documents belonging to the school should be included in the sample selection at a sufficient rate. Miskel & Sandlin (1981) confirm that the sample selection was well executed in the articles in the EAQ journal.

The data collection tools of the researchers were, in descending order interview (f = 46), document analysis (f = 27), scale, (f = 26), and questionnaire (f = 18) according to Balci (1998), Balcı & Apaydın (2008), and Dönmez & Gündoğdu (2016). Although Gül and Maksüdünow (2019) concluded that the survey technique is the one most used in the studies, it is seen that the interview technique was most used in our study with 46 articles. Aykan & Kıncal (2016) stated that the observation and interview techniques but mostly the questionnaire were used in the articles. Bellibaş & Gümüş (2019) reached the conclusion that the questionnaire and interview techniques were used. Creswell (2017) said that = information about the stages to be followed in the analysis of data in studies should be provided. If the stages are given in the form of successive steps, the reader can see how one stage guides the other stages, and although a holistic introduction of the data analysis process can be made, it was concluded that the data collection process and tools are not adequately explained in the studies.

In the analysis of the data, it is seen that content analysis and document analysis are most emphasized although according to Balcı (1988) descriptive and relational techniques are used extensively in articles. Emphasizing that analysis units were neglected, Arık &Türkmen (2009) stated that quantitative research types were used the most in their research (f = 55), and the most frequently used technique was frequency and percentage (f = 52) while variance and t -test analysis was also used. It is understood that in qualitative research (f = 21) and content analysis (f = 6) is more frequently chosen than other types (Kurtoğlu & Seferoğlu, 2013). Kılıç & Arslan (2016) concluded that in the articles using qualitative data analysis, content analysis and descriptive analysis were used at a similar rate. In the study by Gülmez & Yavuz (2016), content analysis (f = 30) and (f = 20) document analysis were used, and this result is similar to the content (f = 30) and document analysis rate of the articles of our study (f = 58). Doğan & Tok (2018), Yıldırım (2018), Arık & Turkmen (2009), and Turan et al. (2014) concluded that descriptive and content analysis are mostly used as data analysis in the articles examined in the research results. The reason for the use of such analyzes in research is that the features dealt with within the scope of the research are fewer in quantity and thus suitable for easy explanation.

This study provides the opportunity to know from which country and region the studies published in EAQ, EMAL, EP originated, the rate of scientific contribution of each country and region, and the priority problem areas in the country where the research was carried out. The largest number of studies, 59, were from North America. 28 studies were from Asia, 16 from Europe, eight from Africa, five from Australia, and two from South America. Of the studies from the North American continent, 58 were from the United States; of the studies from the continent of Asia, nine

were from Israel, four were from Turkey; of the studies from the European, 10 were from Britain; of the studies from the African continent, eight were from in Ethiopia and five were from South Africa; and four articles were from in the continent of Australia; and in South America, it was seen that the two countries of Chile and Trinidad and Tobago each were involved in one study. While this does not represent the total publications of these journals, it is clear that there are not enough contributions from the continents of Australia, Africa, and South America. It can be said that the pragmatic world view has gained weight in research. As Creswell (2017) emphasized, studies emphasize actions, situations, and results rather than preliminary conditions. It was concluded that the researchers focused on the problem rather than the method. In the field of international education management, the research studies published in the EAQ, EMAL, EP journals in 2019 and 2020 primarily focused on subjects, method translations, and regional problem priorities, and the results will contribute to the researchers. Performing this kind of survey analysis at certain periods can create awareness about the scope of and trends in the field of science. Researchers can analyze the publications with high impact rates published in different continents and regions such as Europe, Asia, and the Far East in the field of educational administration as well as completing comparative analysis studies of the publications of other fields of educational sciences with a multidisciplinary perspective.

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# Examining the Relationship between Participation and Academic Emphasis Based on the Views of School Principals

## Berna Yüner[*]

## Abstract

The aim of this study was to examine the relationship between participation and academic emphasis in schools based on the views of school principals. The research group consisted of 828 Turkish school principals who participated in the 2018 Teaching and Learning International Survey. Within the scope of the research, the School Leadership Scale was used to determine the approaches of school principals to the participation of teachers, the Participation Among Stakeholders Scale was utilized to determine their views of stakeholder participation, and the Academic Pressure Scale was applied to determine the academic emphasis of the schools. In order to determine the participation level, the School Leadership Scale and Participation Among Stakeholders Scale were combined in path analysis. In the analysis of the data, *t*-tests, ANOVA, and LSD tests were used as post hoc tests, and Pearson correlation analysis and path analysis were performed. As a result of the research, it was determined that school principals' views were close to high levels regarding teacher and stakeholder participation and they were at high levels regarding academic emphasis. Significant positive correlations were observed between teacher participation, stakeholder participation, and academic emphasis, and school principals' views on participation were found to be significant predictors of academic emphasis.

*Keywords:* Teacher participation, stakeholder participation, academic emphasis, school principals

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# Okul Yöneticilerinin Görüşlerine Göre Katılım ile Akademik Vurguları Arasındaki İlişkinin İncelenmesi

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## Öz

Bu çalışmanın amacı, okul yöneticilerinin katılıma ve akademik vurguya ilişkin görüşlerini incelemektir. Araştırma grubu Uluslararası Öğretme ve Öğrenme Araştırması (The Teaching and Learning International Survey [TALIS]) 2018'e katılan 828 Türk okul yöneticisinden oluşmaktadır. Araştırma kapsamında okul yöneticilerinin öğretmenlerin katılımına ilişkin yaklaşımlarının belirlenmesi için okul liderliği ölçeği, paydaş katılımına ilişkin yaklaşımının belirlenmesi için paydaş katılımı ölçeği ve okulun akademik vurgusunun belirlenmesi için akademik vurgu ölçeği kullanılmıştır. Okul yöneticilerinin katılımcılık düzeyinin belirlenmesi için okul liderliği ölçeği ve paydaş katılımı ölçeği yol analizi modelinde birleştirilmiştir. Verilerin analizinde t-testi, ANOVA ve post hoc testlerinde LSD testi, Pearson Korelasyon analizinden ve yol analizinden yararlanılmıştır. Araştırma sonucunda okul yöneticilerinin öğretmen ve paydaş katılımına ilişkin görüşlerinin yüksek düzeye yakın olduğu saptanmıştır. Akademik vurguya ilişkin görüşlerinin ise yüksek düzeyde olduğu belirlenmiştir. Araştırma değişkeni olan öğretmen katılımı, paydaş katılımı ve akademik vurgu arasında anlamlı pozitif yönlü ilişkiler olduğu belirlenmiştir. Ayrıca, katılımcı okul yönetiminin akademik vurgunun anlamlı bir yordayıcısı olduğu belirlenmiştir.

*Anahtar Sözcükler:* Öğretmen katılımı, paydaş katılımı, akademik vurgu, okul yöneticileri

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**Introduction**

In the 21ˢᵗ century, innovations and changing social expectations have affected the fundamental values of organizations. These expectations require schools and principals to adapt to the changes. Education is a dynamic process that needs to be constantly updated and renewed. Therefore, in the literature, the topic of school leadership that adopts innovative approaches; values the concepts of accountability, participation, transparency, and democracy; and gives priority to the effectiveness of education is among the topics that are now frequently discussed (OECD, 2009).

An education system can only reach its targeted goal if educational organizations, or, in other words, schools, work effectively. Successful school leadership is at the forefront for schools to continue their existence efficiently and effectively. Effective school leadership is seen as the key for widespread educational reforms and the attainment of targeted educational outcomes (OECD, 2009). Contemporary leadership studies go beyond the traditional understanding of leadership and explain effectiveness not only according to the school principal but also considering other school stakeholders (Harris, 2014; Sergiovanni, Kelleher, McCarthy, & Fowler, 2009). While earlier studies on leadership focused on individual school principals, studies today are turning toward an approach that shares leadership. In this approach, leadership is considered as a process carried out together in cooperation rather than the individual leadership of the school principal.

The new trend in school leadership involves the sharing of authority and responsibility and an emphasis on teacher leadership (OECD, 2018). This leadership emphasizes the cooperation between schools, local governments, policy-makers, and non-governmental organizations. With distributed leadership, the relationships among teachers, students, parents, and school staff, as well as school principals, come to the fore (Grubb & Flessa, 2006). Basic elements of distributed leadership in educational organizations are co-decision-making, the participation of stakeholders in the academic development of the school, and school governance that involves empowering stakeholders and strengthening accountability for academic learning (Hallinger & Hack, 2010). School governance is defined as "the participation of [the] school community…in decision making, actively operated accountability, multidirectional communication channels, financial and administrative transparency, and the initiative towards the demands of the school community" (Yüner & Burgaz, 2019).

Studies in the literature reveal that regardless of school type and level, school principals are actors who contribute greatly to school success (Buluç, 2019; Yıldız & Akbaşlı, 2018). As school leaders, school principals are primarily responsible for the effective performance of teachers and other employees, the physical equipment of the school, the advancement of students, the building of positive relationships, and especially the successful execution of educational activities. It can be stated that school leaders are not only responsible for the execution of educational processes; they are also responsible for the regulation of relations within the school environment.

Contrary to the Coleman Report (1996), which stated that only a small percentage of student achievement can be explained by school factors, studies conducted with more detailed analyses and larger volumes of data have shown that besides socioeconomic conditions, many factors that are under the control of the school have impacts on student achievement (McGuigan & Hoy, 2006). Studies on the relationship between student achievement and school characteristics show that the school's collective efficacy (Goddard, 1998, Tschannen-Moran & Hoy, 2001), the school's trust in students and parents (Bryk & Schneider, 2003; Goddard, Tschannen-Moran, & Hoy, 2001; Hoy, 2002; Hoy & Tschannen-Moran, 1999), and the academic emphasis of the school (Bryk, Lee, & Holland, 1993; Goddard, Sweetland, & Hoy, 2000) have significant effects on success. Each of these qualities can be shaped by the actions of school principals. Therefore, even in schools with students of low socioeconomic status, there is an opportunity to increase academic success and make a difference. At this point, school principals have an important responsibility because school leadership is arguably the most important factor affecting educational effectiveness and student outcomes (Chapman et al., 2016). School leadership influences student outcomes by increasing teacher effectiveness and creating a proper school environment (Hallinger, 2011; Reynolds & Muijs, 2016). Accordingly, school leaders affect the academic emphasis of the school and the academic achievement of the students.

The goals of schools are to develop students mentally, physically, culturally, and socially and to realize their learning at the highest level. Along with social expectations, the academic performance expected from students is of great importance. Accordingly, it can be stated that academic emphasis in schools is a quality that needs to be evaluated. Academic emphasis is a school's degree of pursuit of academic excellence (Hoy, Tarter, & Kottkamp, 1991). The academic performance of students, the quality of the learning environment, and the trust in the students are among the basic elements of academic emphasis. In schools with high academic emphasis, high academic goals are set for students by teachers, parents, and school leaders. These goals are high but achievable. An organized learning environment is created and academic achievements have primary importance for students (Hoy, Tarter, & Kottkamp, 1991; Hoy, Tarter, & Woolfolk Hoy, 2006). Students have high levels of motivation for school and learning (Hoy & Miskel, 2005). In these schools, the focus is on learning and it is believed that all students can achieve their academic goals (Hoy, 2012). Both parents and teachers support students. Students are expected to fulfill their responsibilities, seek out additional studies, collaborate, and show respect to those who achieve academic success (Hoy, Tarter, & Kottkamp, 1991).

Studies on academic emphasis show that the quality of educational outcomes is higher in schools with high levels of academic emphasis. Goddard, Hoy, and Woolfolk Hoy (2000) revealed that academic emphasis affects teacher and student behaviors. It raises the collective efficacy of the school. Hoy (2002) defined academic emphasis as an important feature that affects student achievement despite socioeconomic status and differences in academic levels. This finding supports other studies reporting that the academic emphasis of the school, regardless of the school level, is significantly related to student achievement when socioeconomic variables are controlled (Hoy, Tarter, & Kottkamp, 1991; Hoy & Sabo, 1998). For example, Goddard, Sweetland, and Hoy (2000) revealed that academic emphasis increased students' performances in the fields of language and mathematics. Similarly, academic emphasis has been found to reduce the differences in success among students (Phillips, 1997).

In the context of contemporary school leadership, the leadership and participation policies of the principal affect the school's climate, vision, effectiveness, and expectations for academic success. Supporting teacher leadership leads teachers to work more collaboratively with their colleagues. Teachers become more willing to achieve the school's visions and goals (Harris & Muijs, 2004). Empowering school leadership enhances teachers' competencies and fosters a collaborative culture in the school, which leads teachers to realize their potential.

In the present study, school principals' participatory policies for school stakeholders, and especially teachers and parents, are discussed because the new paradigm for school leadership entails a leadership that empowers, enables, and facilitates. It can be thought that a participatory form of leadership that gives responsibility to teachers, students, and parents and takes their demands into account will increase the academic emphasis of the school. It can furthermore be assumed that schools in which processes are carried out with stakeholders in harmony and cooperation will ensure and advance academic success. Accordingly, this study aimed to examine the relationship between school leaders' participatory policies and academic emphasis in schools.

## Method

### Research Design

This research was undertaken as a quantitative study and conducted with a relational survey model. Within the scope of the study, it was aimed to examine the direction and degree of the relationships between school leadership, stakeholder engagement, and academic emphasis based on the views of school principals.

### Study Group

The research group of the study was composed of 828 school principals from Turkey who participated in the 2018 Teaching and Learning International Survey (TALIS). As a result of the examination of the research data, it was seen that 780 participants would be statistically sufficient for the analysis. The data of the participants are presented in Table 1.

**Table 1**
*Participant Data*

| Variable | | N | % |
|---|---|---|---|
| Gender | Woman | 57 | 7.3 |
| | Male | 723 | 92.7 |
| ISCED | 1 | 165 | 21,2 |
| | 2 | 187 | 24,0 |
| | 3 | 428 | 54,9 |
| Seniority | 1-5 years | 368 | 49.5 |
| | 6-10 years | 180 | 23,1 |
| | 11-15 years | 96 | 12,3 |
| | 16-20 years | 42 | 5,4 |
| | 21+ | 53 | 6,8 |
| Education level | Secondary | 18 | 2,3 |
| | License | 533 | 68.3 |
| | Master | 227 | 29.1 |
| | Doctor | 2 | 0.3 |
| Total | | 780 | 100 |

### Data Collection Tools

In this research, data from the 2018 TALIS were used. Within the scope of the study, the School Leadership Scale was utilized to determine school principals' views on teacher participation, the Participation Among Stakeholders Scale was used to examine principals' views on stakeholder participation, and the Academic Pressure Scale was applied to determine the academic emphasis of the schools. In order to determine the participation levels of the school principals, the School Leadership Scale and Participation Among Stakeholders Scale were analyzed together in a path analysis model. The necessary permission for this research was obtained from the Ethics Committee of Yozgat Bozok University (date: 23.12.2020; decision no: 17/10).

### School Leadership Scale

This scale includes items such as "I took action to ensure that teachers feel responsible for their students' learning outcomes." The scale has a Likert-type structure and items are scored between "very often" (4) and "never or rarely" (1). As a result of the reliability analysis of the scale, the omega coefficient was found to be .826. Within the scope of confirmatory factor analysis (CFA), the fit values were reported as CFI = .896, TLI = .896, RMSEA = .011, and SRMR = .446 (OECD, 2019).

### Participation among Stakeholders Scale

In this scale, there are items such as "This school provides staff with opportunities to actively participate in school decisions" and "This school has a culture of shared responsibility for school issues." Items are scored between "strongly agree" (4) and "strongly disagree" (1). As a result of the reliability analysis of the scale, the omega coefficient was reported as .885 and the fit values within the scope of CFA were reported as CFI = .985, TLI = .962, RMSEA = .056, and SRMR = .026 (OECD, 2019).

### Academic Pressure Scale

This scale has a one-factor structure and it was developed to determine the academic emphasis of schools according to the opinions of school principals. In this scale, there are items such as "Teachers hold high expectations for student achievement" and "Students have a desire to do well in school." School principals were asked how often the scale items were applied in their schools and they scored the items accordingly from "not at all" (1) to "a lot" (4). As a result of the reliability analysis of the scale, the omega coefficient was reported as .943 and, within the scope of CFA, the fit values were reported as CFI = .937, TLI = .937, RMSEA = .073, and SRMR = .247 (OECD, 2019).

**Data Analysis**

Before the analysis of the data, univariate and multivariate outliers were examined. In determining the univariate extreme values, the z score was examined and the data outside the range of -3 to +3 were excluded. In order to determine the multivariate extreme values, the Mahalanobis distance was calculated and the extreme values were removed ($p < .001$). In addition, scales containing missing data were not evaluated. The skewness and kurtosis of the data were examined and it was found that the values were within the acceptable limit of -1.5 to +1.5 (Tabachnick & Fidell, 2013). VIF and tolerance values were examined to determine whether the variables had multicollinearity problems. It was determined that the VIF values of the school leadership, participation among stakeholders, and academic pressure variables were less than 10 (1.17, 1.22, and 1.14, respectively) and the tolerance values were higher than .20 (.85, .81, and .87, respectively), which are reported as acceptable values in the literature. In addition, it was found that the correlation between variables was less than .80 (Table 6). Based on these results, the data were considered as normally distributed and parametric analyses were conducted. Descriptive analysis and path analysis were utilized. The SPSS and Mplus programs were used to analyze the data.

## Results

In this section, the findings obtained with the scales for school leadership, participation among stakeholders, and academic pressure are presented based on the views of the school principals. In Table 2, findings of the descriptive analysis are presented.

**Table 2**
*Descriptive Statistics*

|  | N | $\bar{x}$ | Ss | Skewness | Kurtorsis |
|---|---|---|---|---|---|
| School leadership | 780 | 2.9284 | .54589 | -.054 | .076 |
| Participation among stakeholders | 780 | 2.9833 | .36760 | .292 | -.041 |
| Academic pressure | 780 | 3.0600 | .54606 | .012 | -.629 |

As can be observed from Table 2, the average score of the school principals regarding school leadership, participation among stakeholders, and academic pressure was above the medium level. School principals had the highest average score for the Academic Pressure Scale ($\bar{x} = 3.06$). Whether the views of the school principals differed according to the variables of gender and education level was examined by *t*-test. For the variable of education level, associate degrees and bachelor degrees were labeled as "bachelor" while master and doctorate degrees were grouped together as "graduate." Analysis results are presented in Table 3.

**Table 3.**
*t-Test Results by Gender and Education Level*

| Scales | Variable | N | $\bar{x}$ | Ss | Sd | T | p |
|---|---|---|---|---|---|---|---|
| School leadership | Woman | 57 | 3.14 | .43 | 778 | 3.146 | .002* |
|  | Male | 723 | 2.91 | .55 |  |  |  |
|  | Bachelor | 551 | 2.90 | .54 | 778 | -1.763 | .078 |
|  | Graduate | 229 | 2.98 | .55 |  |  |  |
| Participation among stakeholders | Woman | 57 | 2.99 | .37 | 778 | .281 | .779 |
|  | Male | 723 | 2.98 | .36 |  |  |  |
|  | Bachelor | 551 | 2.97 | .37 | 778 | -.902 | .367 |
|  | Graduate | 229 | 3.00 | .35 |  |  |  |
| Academic pressure | Woman | 57 | 3.13 | .53 | 778 | 1.027 | .305 |
|  | Male | 723 | 3.05 | .54 |  |  |  |
|  | Bachelor | 551 | 3.05 | .53 | 778 | -.303 | .755 |
|  | Graduate | 229 | 3.06 | .57 |  |  |  |

*p<.05

As can be seen in Table 3, education level did not make a significant difference. Gender, on the other hand, made a statistically significant difference in favor of female teachers in school leadership ($t = 3.146$, $p < .05$). Female principals ($\bar{x} = 3.14$) had a higher average score than male principals ($\bar{x} = 2.91$). For participation among stakeholders and academic pressure, gender did not make a significant difference ($t = 0.281$, $p > .05$ and $t = 1.027$, $p > .05$, respectively). ANOVA was used to examine the

views of school principals according to the level of the schools in which they worked. The results of the analysis are presented in Table 4.

**Table 4**
*ANOVA Results by School Level*

| Scales | ISCED | N | $\bar{x}$ | Sd | F | p | Significant difference between groups |
|---|---|---|---|---|---|---|---|
| School leadership | 1 | 165 | 2.97 | 2-777 | 1.097 | .334 | |
| | 2 | 187 | 2.88 | | | | |
| | 3 | 428 | 2.92 | | | | |
| Participation among stakeholders | 1 | 165 | 2.99 | 2-777 | .139 | .871 | |
| | 2 | 187 | 2.97 | | | | |
| | 3 | 428 | 2.98 | | | | |
| Academic pressure | 1 | 165 | 3.20 | 2-777 | 8.364 | .000 | 1-2 |
| | 2 | 187 | 3.05 | | | | 1-3 |
| | 3 | 428 | 3.06 | | | | |

As can be seen in Table 4, school level did not make a statistical difference, whereas academic pressure was found to make a significant difference [$F(2, 777) = 8.364$, $p < .05$]. As a post hoc test, the LSD test was applied to determine among which groups a significant difference existed. It was observed that principals working in elementary schools ($\bar{x} = 3.20$) had a significantly higher average score than principals working in middle schools ($\bar{x} = 3.05$) and high schools ($\bar{x} = 3.06$). Table 5 presents ANOVA results regarding whether the variable of seniority made a difference in the results.

**Table 5**
*ANOVA Results by Seniority Variable*

| Dimensions | Seniority | N | $\bar{x}$ | Sd | F | p |
|---|---|---|---|---|---|---|
| School leadership | 1-5 | 386 | 2.93 | 4-752 | 1.063 | .374 |
| | 6-10 | 180 | 2.89 | | | |
| | 11-15 | 96 | 2.95 | | | |
| | 16-20 | 42 | 3.06 | | | |
| | 21+ | 53 | 2.86 | | | |
| Participation among stakeholders | 1-5 | 386 | 2.97 | 4-752 | .264 | .901 |
| | 6-10 | 180 | 2.99 | | | |
| | 11-15 | 96 | 3.01 | | | |
| | 16-20 | 42 | 2.97 | | | |
| | 21+ | 53 | 2.95 | | | |
| Academic pressure | 1-5 | 386 | 3.02 | 4-752 | 2.061 | .084 |
| | 6-10 | 180 | 3.07 | | | |
| | 11-15 | 96 | 3.19 | | | |
| | 16-20 | 42 | 3.11 | | | |
| | 21+ | 53 | 3.06 | | | |

As can be seen in Table 5, seniority did not make a significant difference for school leadership, participation among stakeholders, or academic pressure [$F(4, 752) = 1.063$, $p > .05$; $F(4, 752) = 0.264$, $p > .05$; and $F(7, 452) = 2.061$, $p > .05$, respectively]. Table 6 shows the results of the Pearson correlation analysis.

**Table 6**

*Pearson Correlation Results on School Leadership, Participation Among Stakeholders and Academic Pressure*

| Factors | 1 | 2 | 3 |
|---|---|---|---|
| 1. School leadership | 1 | | |
| 2. Stakeholder participation | .356* | 1 | |
| 3. Academic pressure | .260** | .323** | 1 |

**p<.01*

As can be seen in Table 6, there are statistically significant relationships between all variables. A positive moderate significant relationship existed between school leadership and participation among stakeholders ($r = .356$; $p < .01$). A significant positive low-level relationship was observed between school leadership and academic pressure ($r = .260$; $p < .01$). There was a significant positive moderate relationship between participation among stakeholders and academic pressure ($r = .323$; $p < .01$). Path analysis of the model is presented in Figure 1.
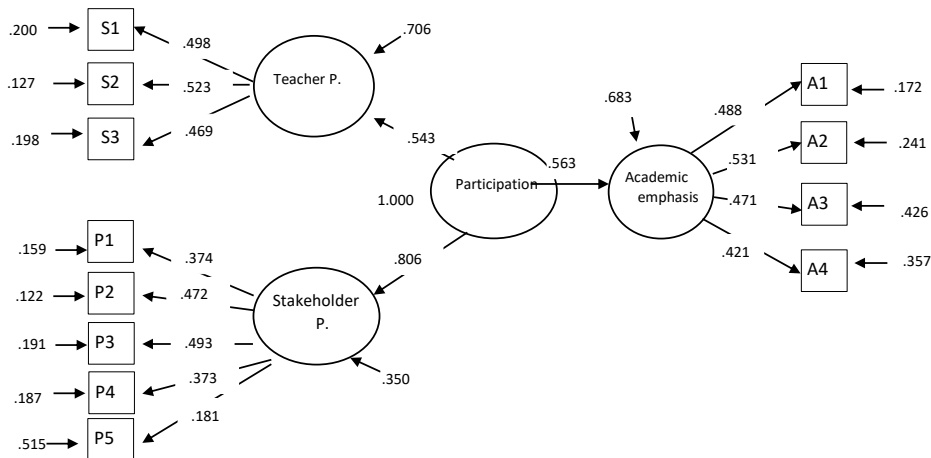


**Figure 1.**

As seen in Figure 1, the path coefficients of all items of the school leadership, participation among stakeholders, and academic pressure scales are significant (p < .05). School leadership and participation among stakeholders, which were the independent variables of the study, were determined to be significant predictors of academic pressure ($\beta = .563$, $p < .05$). Chi square ($\chi^2$), RMSEA, SRMR, and CFI values were analyzed for model fit. In this regard, it is expected that the ratio of $\chi^2$/sd should be ≤.05, the RMSEA value should be ≤.05, and the SRMR value should be ≤.08. CFI values of ≥.95 indicate perfect fit and values of ≥.90 indicate acceptable fit (Kline, 2005; Hooper Coughlan & Mullen, 2007). Regarding the goodness of fit values of the model established in this study, it was observed that the model had high fit values [$\chi^2 = 219.613$; sd = 51; $\chi^2$/sd = 4.306, $p < .001$; RMSEA = .077; CFI = .92; TLI = .89; SRMR = .046].

**Discussion**

This study aimed to examine the relationship between school principals' views on participation and the academic emphasis of the schools. Primarily, participation was examined. For the level of participation, the responses to the School Leadership Scale regarding teacher participation and the Participation Among Stakeholders Scale regarding stakeholder participation were used. According to the school principals, the participation of the teachers is above the medium level (close to a high level). This finding is consistent with the findings of Baş's study (2019), in which both teachers and school

principals stated that teachers' participation in decision-making was close to a high level (above a medium level).

School principals are expected to manage their schools in cooperation with the teachers, students, staff, and parents who make up the school community. School principals should acknowledge that participation increases the quality of education and that educational efficacy can be achieved not only by principals but with the participation of all stakeholders (Grubb & Flessa, 2006; Spillane, 2006). In the present study, it was determined that school principals supported stakeholder participation near high levels. This finding is in line with Arslan's (2018) results. Arslan (2018), based on interviews with principals of private schools, revealed that principals cared about the active participation of parents. However, the participation process was found to mostly take place within the framework of social responsibility projects. Principals were found to have relatively negative views on participation in decision-making processes. It has also been stated that school principals evaluate parents' decisions as recommendations, and the final decision-maker is perceived to be the school principal (Arslan, 2018; Çakır, 2017). In order to overcome this negative perspective and to realize the different expectations of different stakeholders, principals should adopt open and participatory approaches for dialogue. It should not be forgotten that the success of participatory administration depends on the management style and attitude of the school principal. Increased participation would enable everyone to be more willing to take responsibility for the aims of the school (Hoy & Miskel, 2005). The cooperation of school principals with the school community is important in solving the problems of the school and in increasing the effectiveness of the school. The Ministry of National Education of Turkey also holds the opinion that sharing the school's duties with society through the cooperation and participation of stakeholders will increase the quality of education (2015).

Students are the target actors of the education system. For this reason, the participation of students as stakeholders will have a positive influence on educational processes and outputs. The benefits of student participation can be considered within the two categories of results regarding personal development and learning and results regarding school and classroom management. The participation of students will increase their sense of belonging and self-confidence; will provide them skills for communication, research, teamwork, and solving conflicts and problems; and will improve their responsibility. In terms of educational institutions, as students' belonging to the school increases, their learning and success levels will increase, conflicts and bullying will decrease, and a learning environment based on solidarity will be achieved.

In terms of the variables considered in this study, it was observed that the education level, seniority, and school level of the school principals did not make a significant difference for school participation. On the other hand, gender made a significant difference regarding the participation of teachers. Female school principals had a higher average score for teacher participation. According to this finding, female school principals support teacher participation more than male principals. This may be due to the negative experiences women experience in professional life. Female managers who have experienced difficulties in participation and academic life may desire to help others avoid such experiences.

Regarding another variable of this study, it was observed that the academic emphasis level of the schools was high. Based on this finding, it can be stated that schools attach high importance to academic performance, trust in students, and academic support by teachers and parents. The ultimate aim in academic emphasis is to increase student performance and reach the highest levels that can be achieved (Hoy, Tarter, & Kottkamp, 1991). For this purpose, schools work in cooperation with families. Educational processes are carried out in two complementary environments in school and within the family. Schools with high academic emphasis have positive school climates that motivate academic progress and learning while respecting success. In such climates, challenging but achievable goals are set for students. Teachers are a source of both motivation and guidance for students to achieve these goals. In the family, parents provide the necessary support for students to take responsibility. They feel responsible for student's performances and are in communication with the school. Parents' support and expectations increase the achievement of academic goals. Thus, the academic emphasis of the school increases with the cooperation of the school and families.

In the present study, it was determined that the gender, education level, and seniority of the school principals did not make a significant difference for the school's academic emphasis. Studies in the literature present parallel findings for the variables of gender (Çağlar, 2013; Tepe, 2018), education level (Tepe, 2018), and seniority (Aydın, 2019). The only significant difference in terms of these variables was observed for school level. This study has revealed that the academic emphasis levels of school principals working in primary schools are higher. This finding is consistent with the conclusions of Yılmaz and Yıldırım (2017), who stated that academic emphasis was higher at the primary school level based on a study conducted with teachers at primary and middle school levels. This finding may be due to the fact that, in primary schools, teachers spend more time with students than they do at higher grade levels. Spending more time with students enables teachers to understand the students better. Identifying students' strengths and weaknesses more clearly will enable teachers to set individual achievable goals for students more accurately. Another characteristic of academic emphasis is that parents collaborate with teachers to support students. It can be stated that the primary school level has a great advantage in this regard. Parent support is particularly high in the literacy teaching process and families usually help students achieve their basic education goals.

When the relationship between participation and academic emphasis was examined, it was observed that academic emphasis had a low positive significant correlation with school leadership and a moderate positive significant correlation with stakeholder participation. School participation was also found to be a significant predictor of academic emphasis. Based on this finding, it can be stated that the academic emphasis of a school increases as the participation of teachers and other stakeholders increases. Many studies in the literature have observed positive effects of participation on school outcomes. Participation increases teacher motivation and job satisfaction and enables teachers to integrate with their schools (Hoy & Miskel, 2005). It is also seen that participation has both direct and indirect effects on learning outcomes. In the present study, it was observed that the efforts of school principals to ensure participation were related to the academic emphasis of their schools. This finding is in parallel with previous studies (Buluç, 2019; Yıldız & Akbaşlı, 2018) that revealed the effect of authority sharing by school principals.

One of the most important characteristics of academic emphasis is that it increases student achievement and decreases the gaps between students. Positive effects of academic emphasis have been observed even in cases of differences in socioeconomic situations, which can be considered as an alternative strategy for students who do not have equal opportunities. Equality of opportunity is one of the 14 principles included in the basic law of national education in Turkey. It is the responsibility of the Ministry of Education to take all necessary measures for this principle. However, socioeconomic and sociocultural factors may prevent the realization of this principle at the desired level. Considering the results of the current study and previous findings reported in the literature, it is important to increase the academic emphasis of schools and participation in schools for that purpose.

## Conclusion

This study aimed to examine the relationship between participation and academic emphasis in schools according to the views of school principals. As a result, it was determined that school principals' views were close to high levels regarding teacher and stakeholder participation and were at a high level regarding academic emphasis. Significant positive correlations were observed between teacher participation, stakeholder participation, and academic emphasis, and school principals' views on participation were significant predictors of academic emphasis. These findings show the importance of school principals' participatory policies. The ultimate goal of the education system is to achieve the highest level of learning. In line with this goal, schools should have high levels of academic emphasis. At this point, the importance of following a participatory policy in schools can be emphasized. School principals are expected to evaluate their schools as a whole together with teachers, students, and parents and support the participation of these stakeholders. Teachers and parents included in the process will also have more positive perspectives on school and education. A school climate that supports students in achieving success, teachers who trust students and believe that they can achieve, and parents who support students in cooperation with their schools will increase the academic emphasis in schools.

**Suggestion**

This study was conducted with the data of school principals who participated in the 2018 TALIS. Conducting the study with a larger sample would provide more generalizable results at the country level. In addition, repeating the study in schools with different socioeconomic levels would produce meaningful results in terms of examining the status of variables in socioeconomic differences. Examining the views of school principals, teachers, and parents regarding participation via qualitative studies would be useful in determining the factors that prevent participation and in finding solutions to increase participation. In addition, studies conducted with models that include organizational variables and learning outcomes can produce practical results.

For this research, the necessary permission was obtained from the Ethics Committee of Yozgat Bozok University (date: 23.12.2020; decision no: 17/10).

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# The Relationship between Mind Types and Organizational Citizenship Behaviors of School Administrators

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**Abstract**

The purpose of the study is to investigate the relationship between school principals' mind types and their organizational citizenship behaviors[OCBs]. This research was carried out by the quantitative relational survey model. The study was conducted with 346 school administrators who work in different regions of Turkey. The data of this research has been collected by employing "Mind Types Scale" and "OCB Scale". According to the perceptions of administrators, the disciplinary, synthesizing and creating mind types of the administrators were high, respectful and ethical mind types and OCBs of the administrators were found to be very high. A high level relationship was found between the disciplinary and synthetic mind types of administrators. A positive moderate level relationship between the disciplinary mind and OCB, a positive intermediate level relationship between the synthetic mind and OCB, a positive weak level relationship between the creating mind and OCB, a positive medium level relationship between respectful mind and OCB, and a positive high level relationship between the ethical mind and OCB have been found. Ethical, respectful, synthetic mind were found to be a significant predictor of OCB, while disciplinary and creating mind type were not found to be a significant predictor of OCB.

*Keywords:* Organizational citizenship behaviour [OCB], mind types, school administrator, correlation

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# Okul Yöneticilerinin Zihin Tipleri ve Örgütsel Vatandaşlık Davranışları Arasındaki İlişki

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## Özet

Okul yöneticilerinin sahip oldukları düşünce, tutum ve davranışlar etkili okula ulaşmada en önemli belirleyicilerden biridir. Araştırmanın amacı okul yöneticilerinin zihin tipleri ile örgütsel vatandaşlık davranışları arasındaki ilişkiyi incelemektir. Bu araştırma nicel araştırmalardan ilişkisel tarama modelindedir. Çalışma Türkiye'de farklı bölgelerde görev yapan 346 okul yöneticisiyle gerçekleştirilmiştir. Veri toplama aracı olarak "Zihin Tipleri Ölçeği" ve "ÖVD Ölçeği" kullanılmıştır. Verilerin analizinde betimsel istatistik, korelasyon analizi ve çoklu regresyon analizi kullanılmıştır. Okul yöneticilerinin algılarına göre; yöneticilerin disiplinli, sentezci ve yaratıcı zihin tipleri yüksek; saygılı ve etik zihin tipleri ve okul yöneticilerinin örgütsel vatandaşlık davranışları çok yüksek düzeyde olarak bulunmuştur. Okul yöneticilerinin disiplinli ve sentezci zihin tipleri arasında yüksek düzeyde bir ilişki bulunmuştur. Disiplinli zihin ve ÖVD arasında pozitif orta düzeyde; sentezci zihin ve ÖVD arasında pozitif orta düzeyde; yaratıcı zihin ve ÖVD arasında pozitif zayıf düzeyde; saygılı zihin ve ÖVD arasında pozitif orta düzeyde; etik zihin ve ÖVD arasında pozitif yüksek düzeyde ilişki belirlenmiştir. Etik, saygılı ve sentezci zihnin ÖVD'nın anlamlı bir yordayıcısı iken; disiplinli zihin ve yaratıcı zihin tipinin ÖVD'nın anlamlı bir yordayıcısı olmadığı bulunmuştur.

*Anahtar Sözcükler:* Örgütsel vatandaşlık davranışı [ÖVD], zihin tipleri, okul yöneticisi, korelasyon.

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**Introduction**

School administrators' thoughts, attitudes and behaviors are among the most important determinants in reaching an effective school. The role of school principals is very important in establishing the school culture, which are the building blocks of education, and in bringing the education system in a country to the track (Bursalıoğlu, 2002). The school principal's leadership skills are crucial for administrators, teachers and students, as well as for the establishment of school culture, the fulfillment of the school's functions, and the realization of remote, general and specific objectives (Law&Glover, 2000). As Howard Gardner points out in multiple intelligence theory, people with different types of minds can develop their minds over time. One of the important goals of the 21st century is to ensure that individuals with different types of mind come together to create productive jobs and create a better world (Altan, 2011). It is thought that determining the types of mind of school administrators as an instructional leader in school culture is also important in creating qualified and successful school culture.

For years, researchers have been working on how the mind develops, is organized, what it looks like. In his book "Five Minds for the Future" Howard Gardner sets out the types of minds needed to adapt to the world of the future. According to Gardner (2007), these types of mind are, disciplinary mind,synthesizing mind,creating mind,respectful mind,and ethical mind. According to Gardner (2007), people who use the disciplinary mind actively have one or more disciplinary ways of thinking, go through a certain stage of growth and work continuously to improve their knowledge and skills. Today, with the changes in education, individuals with thinking styles specific to certain disciplines are needed in the school culture. Because it can be said that people who do not acquire a specific discipline-specific way of thinking will have difficulty in being a reliable guide or thought leader and can easily fall in to the wrong thoughts about their field. People who actively use the synthetic mind type receive information from different sources, make sense and evaluate it and integrate this information in a meaningful way for both themselves and others. Today, there is a lot of information confusion with the use of the internet and people need consistent and integrated information.

For this reason, their ability to integrate information from different sources in a coherent and consistent manner is very crucial. The creating mind type follows innovations, raises new ideas by asking unasked questions, develops different thinking styles, and achieves unusual results. When people with respectful mind type see differences between individuals and groups, they treat them with respect, try to understand others, and seek ways to cooperate with them. Finally, people of the ethical mind type think about the needs and demands of society through their own work. For the ethical mind person, it is important to know how employees can serve their country and work beyond their personal interests and how they can work with self-sacrifice for the peace of society. In the future, organizations must have these five types of mind in order to be successful and competitive (Hagen, 2013). Which mind type is the most effective in the structure of school culture: is it the disciplinary mind in which school principals' thinking styles towards certain disciplines is developed, the synthetic mind that can combine different information, the creating mind that can produce new and different things, the respectful mind that respects different thoughts, or the ethical mind that considers society? Which of these types of mind or which managers with the desired roles and behaviors for the organization to determine the more effective and efficient in determining the creation of more effective school cultures will be important?

School administrators' thoughts, attitudes and behaviors are one of the most important determinants of reaching effective school (Born, 1998). Therefore, it can be thought that the OCBs of school administrators are an important variable on the organizational climate of a school. Organizations need administrators who have positive citizenship behavior in order to survive (Yıldız, 2017). OCBs for schools are roles and behaviors that address all of the students, teachers and administrators that are exhibited beyond defined roles (Somech & Drach-Zahavy, 2004). Organizational citizenship behaviors can take many forms. Some of them are behaviors towards the individual, such as helping colleagues with their work-related problems, organizing the work schedule to adapt to them, showing them genuine courtesy, sharing work resources (technology materials,tools,…) with their colleagues. Some of them are behaviors that involve cooperation and solidarity towards the organization, such as supporting the social image of the organization, thinking

about the future of the organization beyond business requirements, protecting the organization from possible problems, and adapting to new developments in the organization (McShane & Von Glinow, 2016). OCBs of school administrators are effective in creating an effective and efficient school culture (Yildiz, 2017). Organizations with high performance have employees who perform other tasks effectively beyond their official duties (Khalid, Jusoff, Othman, Ismail & Abdulrahman, 2010). OCB is an important variable that positively affects employees' motivation levels, job satisfaction, performance and organizational commitment (Yildiz, 2017). OCBs have negative effects on intention to quit, job stress and lack of balance between private and business life (Dash & Pradhan, 2014). OC can be an individual's active contribution to the organization or avoiding behaviors that may harm the organization. OCBs contribute to the effectiveness of the school and reduce the difficulty of the school administrator's management role (Dipaola & Tschannen-Moran, 2001). In addition, OCBs increase organizational performance and strengthen mutual ties between members of the organization (Organ, 1988). When all these researches are analyzed, the fact that researchers frequently focus on OCBs suggests that OCBs are related to effectiveness, productivity, individual and organizational performance and are important variables for organizations. Scientific and technological developments continue to play an important role in the formation of new industries, in increasing the military defense capacities of countries, in triggering productivity in existing industries, in increasing the quality of life and in the accessibility of education. Therefore, the economic development of a country depends on its capacity to conduct scientific studies, development of technology, entrepreneurship environment and innovation capacity. The development of science and technology, which have significant contributions to the economy, depends on the existence of schools that can approach problems with a creative perspective, think freely, question, produce innovative solutions, and raise a generation that cares about solidarity. In Gardner's multiple intelligences theory, each of the different cognitive skills that can occur in individuals independently of each other is considered as a mind type (Özkan Hıdıroğlu & Hıdıroğlu, 2021).This theory of Gardner (2007) is very important today in educational organizations where the human type needed in 21st century learning environments will be trained. Considering the power of organizations that direct the economic development of countries in the 21st century, the aim of education is to train the manpower that will be needed by the companies that shape the world. Companies such as Apple, Google, Microsoft direct the world economy and the organizational citizenship behavior of the people working in these companies becomes very important.In this sense, it can be said that organizational citizenship behaviors, which are an important component of school organizations as well as private companies, will add a different perspective to today's organizational understanding of the relationship between five minds types suggested by Gardner (2007) that will shape the future. Through this research, it will be determined which types of mind have significant effects on organizational citizenship behaviors. In line with these meaningful effects, studies can be conducted to develop those mind types of managers or these types of mind can be taken into account in the criteria for selecting managers.

When the related literature is examined, a limited number of studies on the types of mind have been encountered. Gardner (2007) identified five types of minds that will build the future. Aran and Senemoglu (2014) aimed at revealing the level of the activities aimed at developing disciplinary mind characteristics in science and technology teaching and learning environments. Retna (2016) conducted in-depth interviews to identify the necessary capacities of these five minds and develop skills for these types of mind. In the study of Sabahizadeh,Keshtiarai and Yarmohammadian (2016), the effects of the five theories of mind on education were discussed. San, Kis and Erdemir (2018) developed a scale related to these types of mind. Dag (2017) aimed to determine the type of mind of classroom teachers. Özkan Hıdıroğlu and Hıdıroğlu (2021) aimed to determine the relationship between the mind types of mathematics teachers and their computer thinking skills in their study. OCBs were put forward in the 1960s and were clearly put forward by the Organ in 1977. When the studies in the literature are examined, it is seen that the studies related to OCBs are examined similar to the theory of Organ (1988). In this study, mind types of school administrators and the effects of these mind types on OCBs will be determined. Sub-problems for this purpose are:
1) What are the mind types levels of school administrators?
2) What is the level of OCBs of school administrators?
3) Is there a significant relationship between mind types and OCBs of school administrators?
4) Do the mind types of school principals significantly predict OCBs?

**Method**

**Research Model**

This research, which examines the effect of mind types of school principals on OCBs, is a quantitative relational survey model. By the relational survey model, it is aimed to reveal the existence and degree of the relationship amaong the variables (Karasar, 2005). In this study, mind types are considered as independent, OCBs as dependent variable.

**Population and Sample**

The population of this research consists of all school administrators working in Turkey during 2019-2020 academic year. From this population (81.063) a total of 346 school administrators volunteered to participate in this study. According to the sample calculation formula (Gay&Airasian, 1996), 338 administrators are considered sufficient to represent the population. Simple random sampling method was used in the research. Demographic characteristics of the school administrators participating in the study are given in Table 1.

**Table 1**
*The demographic characteristics of the school administrators participating in the research*

| Demographic characteristics | Groups | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Gender | Female | 122 | 35 |
| | Male | 224 | 65 |
| Age | 20-30 | 34 | 10 |
| | 31-40 | 163 | 47 |
| | 41-50 | 113 | 33 |
| | 51 and over | 36 | 10 |
| | 0-10 | 91 | 26 |
| | 11-20 | 156 | 45 |
| Total Seniority | 21-30 | 79 | 23 |
| | 31 and over years | 20 | 6 |
| | 0-2 | 85 | 24.5 |
| Seniority as an administrator | 3-5 | 130 | 38 |
| | 6-8 | 42 | 12 |
| | 9 and over years | 89 | 25.5 |
| | Mediterranean | 45 | 13 |
| | East Anatolia | 21 | 6 |
| | Aegean | 46 | 13 |
| Region | South East Anatolia | 53 | 15 |
| | CentralAnatolia | 63 | 18 |
| | Black Sea | 40 | 12 |
| | Marmara | 78 | 23 |
| Type of duty | Principal | 128 | 37 |
| | Viceprincipal | 218 | 63 |

**Data Collection**

For the purpose of the study,"Demographic Characteristics Form","Mind Types Scale" and "OCB Scale" were used to collect the necessary data.

**Demographic Characteristics Form**

This form includes questions about school administrators themselves. These questions are; gender, age, total seniority year, seniority years as administrator, the region they work for, type of duty variables.

### Mind Types Scale

"Mind Types Scale" developed by San, Kis and Erdemir (2018) was used to determine the mind types of school administrators. The scale consists of 46 items and five dimensions which are;the disciplinary (DM) (items-1, 2, 3, 4, 5, 6, 7, 8, 9, 10), the synthesizing (SM) (items-11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21), creating (CM) (items-22, 23, 24, 25, 26, 27), respectful (RM) (items 28, 29, 30, 31, 32, 33, 34) and the ethical (EM) (items-35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46). Cronbach Alpha internal consistency coefficients were found as .81 in the "Disciplinary (DM)" dimension; .85 "Synthesizing (SM)" dimension; .66 in the "Creating (CM)" dimension; .79  "Respect (RM)" dimension and the .81 "Ethical(EM)" dimension.While developing "Mind Types Scale", 118 candidate items were created using Gardner's (2007) book named "Five Minds for The Future". 34 items were combined and eliminated in line with the referee feedback.Then the scale was divided into 5 sub-forms and applied. Exploratory and confirmatory factor analyzes were performed for each subscale, and Cronbach's-Alpha values were calculated.Factor loads of the scale are 0.836-0.475 for "disciplinary"; 0.760-0.409 for "synthesizing"; 0.740-0.419 for "creating"; 0.779-0.500 for "respectful"; 0.728-0.485 for "ethical". The eigenvalues of the dimensions of the scale are 6.487 for "disciplinary"; 5.590 for "synthesizing"; 2.306 for "creating"; 3.180 for "respectful"; 4.119 for "ethical".The variance explained by the "disciplinary" was 43.247%;"synthesizing" was 50.821%; "creating" was 38.429%; "respectful" was 45.426%; "ethical" was 34.324%.However, it was decided that the scale was a valid and reliable data collection tool for the research.In this study, Cronbach's-Alpha internal consistency coefficients were found as .88 in the "Disciplinary (DM)"; .93 "Synthesizing (SM)" dimension; .71 "Creating (CM)" dimension; .86 "Respectful (RM)" dimension and .89 "Ethical (EM)" dimension.

### OCB Scale

In this study, OCB Scale developed by Podsakoff and MacKenzie(1989) based on Organ's (1988) five dimensions of OCBs.This scale was revised by Podsakoff, MacKenzie, Moorman and Fetter (1990) and Moorman (1991) and was adapted to Turkish for teachers by Polat (2007).The Cronbach's alpha reliability coefficient of the scale was .89. In this study, Cronbach Alpha reliability coefficient of the scale was  .90. The scale, which was originally a 5-dimensional scale, emerged in 4 dimensions in Polat's study (solidarity, gentleness, conscientiousness and civil virtue). The items in the original scale's "help and courtesy" dimension were collected in one dimension. OCBs scale was applied in Turkish.

### Data Analysis

The descriptive statistics techniques were used to determine and interpret mind types and OC levels of school administrators (for first and second sub-problems). Skewness and kurtosis coefficients were examined in order to determine whether school administrators' perception of mind types and OCs were normally distributed.According to Karagoz (2016), the skewness and kurtosis values should be between -2 and +2 in order for the data to show normal distribution.The obtained skewness and kurtosis coefficients are given in Table 2. For this study, it was determined that the variables of "disciplinary (DM)", "synthetisizing (SM)" and "OCBs of school administrators" did not show normal distribution.

**Table 2**

*Skewness-kurtosis coefficients and results of normality analysis of mental types and OCBs*

|  | Skewness | Curtosis | Distribution |
| --- | --- | --- | --- |
| Disciplinary (DM) | -1.052 | 2.589 | No Normal |
| Synthesizing (SM) | -.962 | 2.453 | No Normal |
| Creating (CM) | -.382 | -.097 | Normal |
| Respectful (RM) | -1.033 | 1.121 | Normal |
| Ethical (EM) | -1.249 | 1.929 | Normal |
| OCB | -1.507 | 5.029 | No Normal |

Spearman Brown correlation analysis was used to determine the relationship between school principals' mind types and OCBs (3rd sub-problem).Multiple regression analysis was used to determine the effect of school administrators' mind types on OCBs (4th sub-problem).

## Results

Data obtained by administering "Mind Types Scale"and"OCB Scale", were analyzed with appropriate quantitative data analysis techniques to respond to sub-problems.Findings are given below with tables.

### Mind Types of School Administrators

Descriptive statistical techniques were used to find answers to the first sub-problem of the study,"What is the level of mind types of school administrators?".Analysis results are given in Table 3.

**Table 3**

*Descriptive statistics on mind types and OCBs*

|  | n | x̄ | Sd | Level |
|---|---|---|---|---|
| Disciplinary (DM) |  | 4.19 | .537 | High |
| Synthesizing (SM) |  | 4.18 | .571 | High |
| Creating (CM) | 346 | 3.94 | .611 | High |
| Respectful (RM) |  | 4.34 | .626 | Very High |
| Ethical (EM) |  | 4.43 | .513 | Very High |

The mean values were found to be very low between 1-1.79, low between 1.8-2.59, moderate between 2.6-3.49, high between 3.5-5.29, very high between 4.3-5. Table 3 shows high levels of disciplinary, synthesizing and creating mind types of school administrators ($X_D$=4.19; $X_S$=4.18; $X_C$=3.94); respectful and ethical mind types were very high ($X_R$=4.34; $X_E$=4.43). When the arithmetic means are analyzed according to the school administrators' perceptions; managers have ethical ($X_E$=4.43), respectful ($X_R$=4.34), disciplinary ($X_D$=4.19), synthesizing ($X_S$=4.18) and creating mind ($X_C$=3.94) types. In the Table 4, the items that the administrators have at a very high level according to the perceptions of the school administrators are given.

**Table 4**

*According to the managers, the items of the mind types found in the managers at a very high level*

|  | Items | n | x̄ | Ss |
|---|---|---|---|---|
| *Disciplinary* | 10)When I face problems, I focus on the solution. |  | 4.49 | .629 |
|  | 9)I update my knowledge by adapting it to new situations. |  | 4.35 | .711 |
| *Synthesizing* | 20)Once I have enough information, I focus on drawing conclusions. |  | 4.38 | .666 |
|  | 11)I combine information from different sources in a consistent and harmonious way. |  | 4.33 | .668 |
| *Creating* | 26)I work with the desire to increase existing knowledge. |  | 4.44 | .683 |
|  | 28)I also value those who are not in my own group. | 346 | 4.42 | .711 |
| *Respectful* | 34)Instead of waiting for someone else to respect the differences I try to implement myself. |  | 4.38 | .801 |
|  | 32)I don't see any one superior or the other below. |  | 4.38 | .893 |
|  | 29)I understand the differences between people, societies and events. |  | 4.35 | .756 |
|  | 33)I don't exclude anyone because of their preferences. |  | 4.33 | .882 |
|  | 31)I don't approach people who want to be included in the groups I'm in. |  | 4.32 | .850 |
| *Ethical* | 42)Loyalty in relationships is important to me. |  | 4.67 | .570 |
|  | 41)Honesty is important to me, although it contradicts my conclusions. |  | 4.67 | .615 |
|  | 37)I voluntarily pay everything I have to pay to the state (tax, military service, etc.). |  | 4.52 | .831 |
|  | 44)I try to learn from the experiences of myself and others. |  | 4.52 | .686 |

| | | |
|---|---|---|
| 39)I act with the awareness that I'm a role model for young people. | 4.52 | .682 |
| 40)I try to act in accordance with the moral principles even in cases where my elders (teacher, parent,supervisor) are condoned or not seen. | 4.50 | .699 |
| 43)I try to interpret things objectively. | 4.48 | .682 |
| 38)In social issues, I try to act principally,although it contradicts with my interest. | 4.39 | .777 |
| 45)I constantly question how much I fulfill my duties as a citizen. | 4.34 | .809 |

When table 4 is examined, it is observed that school administrators focus on solving the problem when they encounter problems in the disciplinary mind type; that they are focused on drawing conclusions after reaching sufficient information on the synthesizing mind type; that they are trying to increase their knowledge in the creating mind type; they also value individuals who are not from their own group in respectful mind type and value loyalty in relationships in ethical mind type.

**OCBs of School Administrators**

Descriptive statistical techniques were used to find the answer to the second sub-problem of the study: "What is the level of OCBs of school administrators?". Analysis results are given in Table 5.

**Table 5**

*Descriptive Statistics on OCBs of School Administrators*

| | n | x̄ | Sd | Level |
|---|---|---|---|---|
| OCB | 346 | 4.38 | .465 | VeryHigh |

The mean values were found to be very low between 1-1.79, low between 1.8-2.59, moderate between 2.6-3.49, high between 3.5-5.29, very high between 4.3-5. According to the perceptions of school administrators, OCBs of school administrators were found to be very high in Table 6.

**Table 6**

*OC Items Which are Very High Among School Administrators According to the Perceptions of School Administrators*

| | Items | n | x̄ | Ss |
|---|---|---|---|---|
| | 6)I pay attention to protect the rights of my teacher friends. | | 4.63 | .610 |
| | 3)When my teacher friends have problems, I voluntarily allocate time to help | | 4.59 | .668 |
| | 18)I voluntarily participate in all activities that strengthen the image of our | | 4.57 | .665 |
| | 5)Before I make a decision about my school, I get the opinions of my friends who will be affected by the outcome of this decision. | | 4.53 | .664 |
| | 20)I try to keep up with the changes in school. | | 4.50 | .691 |
| | 13)I come to work on time. | | 4.48 | .835 |
| OCB | 8)I always inform my managers before taking an important step in my | 346 | 4.48 | .758 |
| | 1)I help my teacher friends who have a heavy workload. | | 4.45 | .772 |
| | 16)I obey to school rules,regulations,and process steps, even if no one | | 4.45 | .730 |
| | 4)Even if the newly appointed teachers do not ask for help, I help them. | | 4.43 | .789 |
| | 17)I monitor changes in school and take an active part in helping my teacher friends accept these changes. | | 4.40 | .699 |
| | 19)I participate in all meetings that concern the school and actively participate in the discussions. | | 4.40 | .716 |
| | 10)I can magnify small problems in my school. | | 4.33 | .817 |

**The Relationship Between Mind Types and OCBs of School Administrators**

The third sub-problem of the study was "Is there a meaningful relationship between mind types of school administrators and OCBs?". In order to answer this sub-problem, Spearman Brown Correlation Analysis was employed and the results are given in Table 7.

**Table 7**

*Correlations between Variables*

| Variables | Disciplinary | Synthesizing | Creating | Respectful | Ethical | OCB | Relationship between Mind type and OCB |
|---|---|---|---|---|---|---|---|
| *Disciplinary* | 1 | .764 | .551 | .457 | .627 | .539 | Moderate Level |
| *Synthesizing* | | 1 | .597 | .452 | .581 | .516 | Moderate Level |
| *Creating* | | | 1 | .457 | .482 | .447 | Weak Level |
| *Respectful* | | | | 1 | .619 | .566 | Moderate Level |
| *Ethical* | | | | | 1 | .695 | High Level |
| *OCB* | | | | | | 1 | |

Since the disciplinary, synthesizing mind and OCBs do not show normal distribution, spearman correlation coefficient was used as the correlation coefficient. When interpreting the values; $.00 \leq r \leq .25$ very weak relationship, $.26 \leq r \leq .49$ weak relationship, $.50 \leq r \leq .69$ moderate relationship, $.70 \leq r \leq .89$ high level relationship, $.90 \leq r \leq 1.00$ was considered to have a very high level of relationship (Kalaycı, 2016). In this direction, the disciplinary and synthesizing mind positively high level (r=.76, p<.05); between the disciplinary and creating mind positively moderate (r=.55, p<.05); between disciplinary and respectful mind positively weak (r=.46, p<.05); between the disciplinary and ethical mind positively moderate(r=.63, p<.05);between the synthesizing and creating mind positively moderate(r=.60, p<.05); between the synthesizing and the respectful mind positively weak (r=.45, p<.05); between the synthesizing and ethical mind positively moderate(r=.58); between the creating and respectful mind positively weak(r=.46,p<.05);between the creating and ethical mind positively weak (r=.48, p<.05); respectful and ethical mind positively moderate relationship (r=.62, p<.05). There was a positive (r=.54, p<.05) positive relationship between the disciplinary mind and OCB;between the synthesizing mind and OCB positively moderate(r=.52, p<.05); between the creating mind and OCB positively weak (r=.45, p<.05); between the respectful mind and OCB positively moderate (r=.57, p<.05); There was a moderate (r=.70, p<.05) positive relationship between ethical mind and OCB.

**Predictive Levels of School Administrators' Mind Types on OCB**

A simple linear regression analysis was conducted to find the answer to the fourth sub-problem of the study; "Do the mind types of school principals significantly predict OCBs?". Analysis results are given in Table 8.

**Table 8**

*Regression Analysis of School Administrators' Prediction of OCBs of Mind Types*

| | Variables | B | StandardError | β | t | P |
|---|---|---|---|---|---|---|
| *OCB* | Disciplinary | .036 | .051 | .042 | .719 | .473 |
| | Synthesizing | .100 | .048 | .123 | 2.086 | .038 |
| | Creating | .035 | .034 | .046 | 1.032 | .303 |
| | Respectful | .131 | .033 | .176 | 3.925 | .000 |
| | Ethical | .471 | .045 | .519 | 10.399 | .000 |

R=.785;$R^2$=.616;P=.000;F=108.898

When t values and standardized β coefficient in Table 8 are examined, ethical (β=.519), respectful (β=.176) and synthesizing (β=.123), respectively (β=.176), are significant predictors of OC according to their relative significance level; creating (β=.046) and disciplinary mind (β=.042) are not a significant predictor of OC (R=.785;$R^2$=.616). Ethical,r espectful and synthesizing mind explain %62 of the total variance in OCBs. According to the t-test results related to the significance of regression coefficients, it is seen that ethical (t=10.399), respectful (t=3.925), synthetic minds (t=2.086) are significant predictors of OCBs.

**Discussion, Conclusion and Recommendations**

According to the perceptions of school administrators, it was determined that the administrators' disciplinary, synthesizing and creating mind types were on high, respectful and ethical mind types were on very high level. Hagen (2013) stated that managers must have these five types of mind in order for organizations to be successful and adapt to competition. In addition, managers stated that they have ethical, respectful, disciplinary, synthesizing and creating mind types respectively. Similar to this study, Cetin and Ozcan (2004) reported that the majority of teachers reported positive opinions about the ethical behaviors of administrators. In addition, Özkan Hıdıroğlu and Hıdıroğlu (2021) determined in their study that mathematics teachers perceive their "ethical mind" at a very high level, but they perceive the "disciplinary mind", "synthesizing mind", "creating mind"; and "respectful mind" at a high level. It is stated in the 2023 Educational Vision Document that school management should be based on a specialization in the disciplinary mind and that for this purpose, professional development programs at graduate level will be designed to improve the general and field-oriented skills of school administrators (MEB, 2017a). For this reason, managers who can use the disciplinary mind at school will be needed. The 2023 Education Vision Document aims to simplify and integrate the databases used by the school administrators.When faced with a problem, administrators who can integrate different knowledge, skills and abilities related to the existing situation will be more successful in solving the problems. In this respect, school administrators with synthetic minds will be needed.When the school finds its real identity in accordance with the needs of the today's society, team building, production and consciousness of humanity in that institution will increase. The most critical factor in this process is the school administrator. The administrator is the person who can destroy the existing capacity of the school and produce dreams and life from very limited opportunities (2023 Education Vision Document, 2018). In this respect, it is important that school administrators have a creating mind. It is stated in the 2023 Education Vision Document that school administrators should have values and care about them. Accordingly, school administrators are expected to have both respectful and ethical minds. In this study, the perceptions of school principals were taken into consideration and their perceptions were high in three types of mind and very high in two types of mind. The main reason for the high level of opinion is the positive perception of managers. But when their perceptions are examined, the creating and synthesizing mind of these five types of mind is in the last two places. In other words, managers feel more incomplete in these two types of mind than others. Therefore, in the future studies, especially the difference between the school administrators' feeling of being creative or synthetic and being creative and synthetic can be investigated. Interviews with teachers about these types of mind of school administrators can be made and observations can be included in the school.

In the disciplinary mind, school principals stated that they mostly focus on solving the problem when faced with the problem. Problem solving is to produce appropriate solutions for the problems encountered by the school administrator by recognizing the environment and opportunities of the organization. Effective and continuous self-renewal of an organization is possible with the good use of problem solving techniques by the school administrator (Semerci and Celik, 2002). Guclu (2003) states that school principals should produce the best solution in every situation and that their problem solving skills should be improved. Similarly, Akar (2016) found that school administrators think that they are sufficient to have problem solving skills. School administrators are expected to produce fast, effective and accepted solutions to the problems they face due to their corporate visions and school development programs (Palancı&Okutan, 2010). In this respect, problem solving is important in the disciplinary mind of school administrators. Problem solving skills of school administrators can be determined by presenting case studies.

In the synthetical mind type, school principals stated that they focused on drawing conclusions after reaching the most sufficient information. Bursalioglu (2002) stated that school administrators should analyze problems, run decision-making processes and develop appropriate solution strategies. In order to achieve this, Bursalioglu (2002) stated that school principals need to reach sufficient information and that this knowledge, skills and abilities are related to leadership ability. By making interviews with school administrators, prominent situations in synthetic mind type can be revealed in detail.

In the creating mind type, school principals stated that they were trying to increase their knowledge.Gurbuz, Erdem and Yildirim (2013) stated that it is very important for school administrators to have sufficient information about teaching-learning issues in becoming an effective teaching leader. Ozcer (2005) defines creativity as the production of non existed knowledge by using knowledge and information. For this reason, it is an expected and desirable situation for school administrators to complete the existing information deficiencies and deepen their knowledge in order to create new and creative situations. Qualitative and mixed method research can be used to determine which missing information is completed and creativity of school administrators.

In the respectful mind type, school administrators stated that they also value individuals who are not from their group at the highest level.According to Calabrese (1988), the behaviors of school administrators should be integrated with the values of democratic society, different ideas and cultures should be tolerated, and all members of society should be respected. One of the keys to the survival of changing world organizations is to show sensitivity to differences, to respect and to evaluate these differences as wealth (Memduhoglu, 2011). Observations regarding school principals' respect for individuals who are not from their group and interviews with teachers from the same school culture can be made.

In the ethical mind type, school administrators stated that they value loyalty the most. Yee, Yeung and Cheng (2010) also stated that employee loyalty is an important factor in understanding the behavior of employees at work. In some studies conducted with the sample of school administrators, strong positive relationships were found between employee loyalty and school effectiveness (Hoy, Newland&Blazovsky, 1977). Studies on the organizational loyalty, organizational commitment and professional commitment of school administrators can be made and compared with the results that they value the most loyalty in school.

According to the perceptions of school administrators, OCBs of school administrators are very high. High OCBs in institutions are extremely important and necessary for the success and efficiency of institutions (MacKeinzce et al.,1998). It is therefore pleasing that school administrators have high perceptions of their OCB. However, there may be different results between the perceptions of managers and the current situation.Therefore, observations and interviews with teachers about OCBs of school administrators can be made and the current situation can be revealed in more detail.

There is a high level of relationship between the disciplinary and synthesizing minds of the mind types of school administrators. The reason for this situation can be considered as the necessity of the managers who can think specific to a discipline to synthesize their knowledge, skills and abilities on that subject and reach a thought in that direction and act.

There have been found a positive moderate level between disciplinary mind and OCB; a positive intermediate level between synthesizing mind and OCB; a positive weak level between creating mind and OCB; apositive moderate level between respectful mind and OCB; a positive high level relationship between ethical mind and OCB. Among the types of mind of school principals and OCBs, the most ethical mind; then synthesizing, disciplinary and respectful mind; finally, a relationship between the creating mind has been put forward. These results show that all types of mind, especially the ethical mind type, strengthen OCBs. The ethical mind-type behaviors of school administrators can be identified and presented as an opportunity for them to exhibit more OCBs.

While the ethical, the respectful and the synthesizing minds are a significant predictor of OCB; the disciplinary and the creating minds are not a significant predictor of OCB. OCBs are extra roles and behaviors that develop for the benefit of the organization that do not rely on any legal process and OCBs are thought to be related to the values of school administrators. The disciplinary and creating mind can be considered as cognitive mind types. Therefore, it can be said that the disciplinary and creating minds of school administrators do not predict OCBs significantly.

In the research, according to the perceptions of school principals, the relationship between school principals' mind types and OCBs according to the perceptions of school principals has been analyzed. Based on the findings, the following recommendations have been developed:

1) This study can be carried out by determining teachers' perceptions of administrators in order to determine the current status of school principals regarding both types of mind and OCBs in order to give more objective results.

2) Both mind types and OCBs of school administrators can be examined in detail by observing their behaviors in school settings.

3) This study was conducted with school administrators in Turkey. This research can be conducted in countries with different cultures and the results can be compared.

4) In this study, the relationship between mind types and OCBs of school administrators was examined. Studies can be conducted to reveal the relationship between different independent variables and mind types of school administrators.

5) OCBs of school administrators were determined by teachers' opinions in the related literature. There were no studies in which school administrators had their own perceptions of OCBs. These studies can be carried out with the sample of school administrators.

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# Temperament Characteristics of Preschoolers and Maternal Acceptance and Rejection Statuses of Their Mothers[*]

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## Abstract

The study was conducted to examine the relationship between maternal acceptance-rejection and children's temperament characteristics and whether children's temperament characteristics predicted maternal acceptance-rejection. The data of the study, which employed a predictive correlational design, were obtained from 349 children in the 4-6 age group attending preschool education and their mothers. The data were collected using the Parental Acceptance-Rejection Questionnaire and the Child Behavior Checklist and analyzed using Pearson's Correlation Analysis and Multiple Linear Regression Analysis. As a result of the study, a significant relationship was found between maternal acceptance-rejection and all temperament traits except discomfort, fear, shyness, impulsivity, and approach/positive participation. It was also found that maternal coldness and lack of affection were predicted by perceptual sensitivity, low-intensity pleasure, and smiling and laughter, maternal hostility and aggression were predicted by falling reactivity and soothability, maternal indifference and neglect were predicted by sadness, and maternal undifferentiated rejection was predicted by the temperament characteristics of attentional focusing and anger/frustration.

*Keywords:* Maternal acceptance and rejection, child temperament characteristics, preschool period

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# Okul Öncesi Çocukların Mizaç Özellikleri ve Annelerinin Kabul Red Durumları *

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## Öz

Bu araştırma, anne kabul reddi ile çocuk mizacı ilişkisini ve çocuk mizaç özelliklerinin anne kabul reddini yordayıp yormadığını incelemek amacıyla yürütülmüştür. Yordayıcı korelasyonel araştırma yönteminde desenlenmiş olan araştırmanın verileri okul öncesi eğitime devam eden 4-6 yaş grubu 349 çocuk ve annelerinden elde edilmiştir. Veriler, Ebeveyn Kabul Red/Kontrol Ölçeği Anne Baba Formu ve Çocuk Davranış Listesi Ölçeği ile toplanmış ve Pearson Korelasyon Analizi ve Çoklu Doğrusal Regresyon Analizi ile analiz edilmiştir. Araştırma sonucunda, rahatsızlık, korku, utangaçlık, dürtüsellik ve yaklaşım/olumlu katılım dışındaki tüm mizaç özellikleri ile anne kabul reddi arasında anlamlı bir ilişki bulunmuştur. Ayrıca anne soğukluk ve sevgisizlik puanını algısal hassasiyet, düşük yoğunluklu uyaranla memnuniyet, gülümseme ve kahkaha; anne düşmanlık/agresyon puanını azalan tepki/sakinleşme; anne ilgisizlik/ihmal puanını üzüntü; ve annenin ayrıştırılmamış reddetme puanını dikkati odaklama ve kızgınlık/düş kırıklığı mizaç özelliklerinin yordadığı görülmüştür.

*Anahtar Sözcükler:* Anne kabul reddi, çocuk mizaç özellikleri, okul öncesi dönem

**Introduction**

Temperament is an important part of personality development and is of inherited origin. The first definition of temperament is known to date back to the Sumerians (Kılıçlar, Şahin, Sarıkaya, & Bozkurt, 2017; Taymur & Türkçapar, 2012), but the first definition of temperament as a composition of specific individual behavioral characteristics was made by Thomas and Chess in their longitudinal study of babies. They defined nine temperament characteristics and presented a triple temperament classification consisting of combinations of different temperament characteristics as easy, difficult, and slow-to-warm-up temperament (Chess and Thomas, 1996). Since then, several other scholars have provided various temperament definitions and classifications (Carminar, 1991; Goldsmith et al., 1987; Rothbart, Ahadi, Hershey, & Fisher, 2001). Rothbart defined 15 temperament characteristics (attentional focusing, inhibitory control, perceptual sensitivity, low-intensity pleasure, discomfort, falling reactivity and soothability, fear, sadness, anger/frustration, activity level, shyness, high-intensity pleasure, smiling and laughter, impulsivity, and approach) classified under the temperament factors of effortful control, negative affectivity, and extraversion (Rothbart, Ahadi, Hershey & Fisher, 2001).

Distinct temperament characteristics may become dominant and affect different areas of a child's development such as motor skills (Akın Sarı, 2018), linguistic skills (Dixon & Smith, 2000), cognitive skills, and social skills (Akın Sarı, 2018). Though it is an innate quality, temperament is also shaped by life experiences and becomes somewhat stable in time (Rothbart, Ahadi & Evans, 2000; Rothbart & Derryberry, 1981). Parent-child relationships are one of environmental factors that influence children's temperament (Hinde, Easton, Meller & Tamplin, 1982). Research indicated that while democratic fathers' children were more soothable, overprotective fathers' children were more fearful, authoritarian fathers' children displayed more discomfort, and permissive fathers' children had more impulsivity (Babadağı, 2015). Similarly, children's activeness and perseverance were positively related with and predicted mothers' democratic attitudes while reactivity predicted their authoritarian attitudes (Işıkoğlu Erdoğan, Yoleri & Tetik, 2017). Slagt, Dubas, Deković, and Van Aken (2016) found a relationship between unfavorable parental attitudes and children's challenging temperaments. In short, information in the literature has indicated that children's temperament and parental approaches to children affect each other reciprocally. One dimension of parental approach to children is the parental acceptance and rejection of children (Rohner, 1994).

From the perspective of the Parental Acceptance and Rejection Theory, developed by Rohner (Khaleque & Rohner, 2002), everyone receives a certain amount of warmth and affection from their primary caregivers in their childhood. The concept of warmth is related to the verbal-behavioral expressions of parents and the quality of ties established with their children. Warmth reflects a double-ended construct with acceptance on one side and rejection on the other side. Parental rejection consists of four basic terms and the combination of these: coldness and lack of affection (opposite of warmth and affection), hostility and aggression, indifference and neglect, and undifferentiated rejection. Parental warmth and affection are displayed by kisses, hugs, and pleasant words said to children. Parental aggression can be displayed by hostile and aggressive behaviors such as beating or bad words said to them. Indifferent parents may neglect or be inaccessible to their children. Undifferentiated rejection indicates that parents implicitly reject their children even if they do not display any behavior indicating rejection overtly (Rohner, Khaleque & Cournoyer, 2003).

The rejection-based behaviors of parents may result in many adverse impacts on children. Children who perceive parental rejection may have psychological adaptation problems and disorders, use addictive substances, suffer from disturbances in academic and cognitive aspects, and experience problems in their marriages (Rohner, 1994). Furthermore, it was found in a previous study that as maternal rejection increased, the levels of psychoticism and neuroticism also increased, while the level of extraversion decreased (Shahid et al., 2009). Children exposed to parental rejection are more inclined to display negative characteristics such as hostility, passive aggression or anger management issues, dependence or defensive independence, distorted self-esteem, emotional unresponsiveness, neuroticism, and a negative world view compared to accepted children (Rohner & Britner, 2002). In short, parental acceptance and rejection have serious impacts on children's development, personality, and mental health (Rohner, Khaleque & Cournoyer, 2005). Despite the reciprocal relationships between child temperament characteristics and parental approaches toward children as mentioned above, few

studies in Turkey have examined children's temperament characteristics in combination with maternal acceptance-rejection (Kaytez & Durualp, 2016). This study aimed to examine the relationship between maternal acceptance-rejection and children's temperament characteristics. Unlike previous studies which covered only a few temperament characteristics (Öztemür, 2018; Sönmez, 2019), this study covers all 15 temperament characteristics mentioned above. The research questions to be answered were:

1) Is there a relationship between children's temperament characteristics and maternal acceptance-rejection?

2) Do children's temperament characteristics predict maternal acceptance-rejection?

**Method**

**Research Design**

The study was designed with a predictive correlational research model. Correlational studies examine the relationships between two or more factors. Predictive correlational studies assess the relationships between factors and aim to predict one factor through another (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2010). This model was used to determine whether there was a relationship between children's temperament characteristics and maternal acceptance-rejection.

**Sample**

The population of the study consisted of 4-6-year-old children who were attending kindergartens in the central locations of Malatya and their mothers. Using the simple random sampling method, from a list of all 34 independent kindergartens within two central districts of Malatya, ten schools were randomly selected. A total of 349 children (f = 183, m = 166) from these schools and their mothers constituted the sample. Table 1 displays the demographic information of the mothers and children who participated in the study.

**Table 1**

*Demographic Information of the Mothers*

|  | Categories | *f* | % |
|---|---|---|---|
| **Monthly household income** | 4000 or lower | 154 | 44.3 |
|  | 4001-7999 | 125 | 35.9 |
|  | 8000 or higher | 70 | 19.8 |
| **Number of people living in the household** | 3 | 51 | 14.6 |
|  | 4 | 188 | 53.9 |
|  | 5 | 79 | 22.6 |
|  | 6 or more | 31 | 8.9 |
| **Mother's age** | 35 or younger | 172 | 49.3 |
|  | 35 or older | 177 | 50.7 |
| **Mother's Level of Education** | Elementary school | 38 | 10.9 |
|  | Secondary school | 30 | 8.6 |
|  | High school | 96 | 27.5 |
|  | Higher education | 185 | 53.0 |
| **Mother's Working Status** | Homemaker | 207 | 59.3 |
|  | Working | 142 | 40.7 |
| **Child's age** | 4 | 51 | 14.6 |
|  | 5 | 200 | 57.3 |
|  | 6 | 98 | 28.1 |
| **Child's Gender** | Female | 183 | 52.4 |
|  | Male | 166 | 47.6 |
| **Child's Birth Order** | First born child | 189 | 54.2 |
|  | Middle child | 38 | 10.8 |
|  | Last born child | 122 | 35.00 |
| **Number of children in the family** | 1 | 59 | 16.9 |
|  | 2 | 214 | 61.3 |
|  | 3 or more | 76 | 21.8 |

**Data Collection Instruments and Procedures**

**Parental Acceptance-Rejection Questionnaire (PARQ)**

The scale was developed by Rohner, Saavedro, and Granum (1978) and adapted to Turkish by Polat and Sunar (1988). The internal consistency coefficient of the scale was found to be α=.90 in a validity and reliability study later performed by Anjel (1993). The original scale consisted of 60 items and four subscales (Rohner & Ali, 2016). Later, 13 items were added under the control subscale which measures the levels of control and correction parents employ over their children. As the parental control subscale measures a concept not covered by the objective of this study, it was not included. Some items of the scale are inversely scored. The minimum and maximum total acceptance and rejection scores that can be obtained from the scale, excluding the control subscale, are 60 and 240. A higher score indicates higher rejection, while a lower score indicates higher acceptance (Rohner & Khaleque, 2005). The Cronbach's alpha coefficients of the subscales of PARQ, excluding the control dimension, recalculated by Erkman and Varan (2004) are as follows: warmth and affection α=.79, hostility and aggression α=.83, indifference and neglect α=.68, and undifferentiated rejection α=.59. The Cronbach's alpha coefficient for the overall PARQ was reported as α=.74 (Erkman and Varan, 2004 as cited in Öztürk Can and Aksel, 2017).

**Child Behavior Checklist (Short Form)**

The scale was developed by Rothbart et al. (1994) to measure the temperament characteristics of children aged 3-7 years. The original form had 195 items (Putnam and Rothbart, 2006). This 7-point Likert-type scale was shortened to 94 items. The scale measures 15 temperament characteristics under three categories, namely effortful control, negative affectivity, and extraversion. Effortful control reflects attentional focusing, inhibitory control, perceptual sensitivity, and low-intensity pleasure, while negative affectivity indicates discomfort, falling reactivity and soothability, fear, sadness, and anger/frustration. Additionally, extraversion refers to activity level, shyness, high-intensity pleasure, smiling and laughter, impulsivity, and approach. Some items of the scale are inversely scored. The Turkish translation, validity, and reliability study of the short form was performed by Akın Sarı, İşeri, Yalçın, Akın Aslan, and Şener (2012). The reliability coefficient of the scale was reported as α=.78, and all Turkish temperament subscales were found to be reliable. The reliability coefficients of the 15 subscales varied between α=.47 (impulsivity) and α=.87 (shyness). For the validity of the scale, the compatibility of the items with the subscales was checked. It was determined that the items in all subscales were compatible with the subscales to a statistically significant extent.

The data were collected in the spring semester of the academic year of 2018-2019. After permission for data collection was received from the Provincial Directorate of National Education in Malatya, the impact size was measured, and the size of data needed to achieve reliable results was calculated. Accordingly, ten kindergartens were selected from among 34 independent kindergartens within two central districts of Malatya. The selected schools were visited, and meetings were held with the teachers who were informed that the scales should be filled out by mothers according to the objectives of the study. Notes about the objectives of the study, how the scales were to be filled out, and the voluntary basis of participation in the study were added to the data collection forms. The schools were visited again one week after the administration of the scales, and the forms were collected from the teachers. The number of data collection forms that were filled out with no missing data was 349.

**Data Analysis**

The Cronbach's alpha coefficient was considered for the reliability analysis. The coefficient was found as α=.78 for PARQ and α=.80 for the Child Behavior Checklist (Short Form). As a Cronbach's alpha value of α=.70 is regarded as the minimum value to consider a study as reliable, it is safe to state that this study had reliable results (Gürbüz & Şahin, 2018). The correlation between the scales was examined using Pearson's correlation analysis. The prediction of the subscales of the Child Behavior Checklist (Short Form) by the subscales of PARQ was examined by multiple linear regression analysis. In the regression analysis, whether the variables had a multivariate normal distribution was determined by examining the Mahalanobis Distance values (Büyüköztürk, 2020). The variance inflation factor (VIF) and tolerance values were examined to determine whether there was a multicollinearity problem

between the predictor variables. The Durbin-Watson test was conducted to determine error independence (autocorrelation) (Seçer, 2015). The VIF and tolerance values indicated no multicollinearity, and the Durbin-Watson test results indicated no autocorrelation in the data.

## Results

This section presents results regarding the relationship between children's temperament characteristics and maternal acceptance-rejection.

**Table 2**

*Results of the Pearson's Correlation Analysis*

| | | | Coldness/ Lack of Affection | Hostility/ Aggression | Indifference/ Neglect | Undifferentiated Rejection |
|---|---|---|---|---|---|---|
| Effortful Control | Attentional Focusing | r | -.25* | -.19** | -.20** | -.21** |
| | | p | .00 | .00 | .00 | .00 |
| | Inhibitory Control | r | -.27** | -.27** | -.23** | -.14** |
| | | p | .00 | .00 | .00 | .01 |
| | Perceptual Sensitivity | r | -.24** | -.03 | -.06 | .05 |
| | | p | .00 | .57 | .27 | .38 |
| | Low-Intensity Pleasure | r | -.27** | -.10 | -.16** | -.05 |
| | | p | .00 | .06 | .00 | .36 |
| Negative Affectivity | Discomfort | r | -.01 | .05 | .03 | .06 |
| | | p | .88 | .38 | .60 | .29 |
| | Falling Reactivity and Soothability | r | -.08 | -.25** | -.16** | -.17** |
| | | p | .12 | .00 | .00 | .00 |
| | Fear | r | -.03 | .04 | .03 | .05 |
| | | p | .55 | .47 | .55 | .37 |
| | Sadness | r | -.15** | -.01 | -.13* | -.00 |
| | | p | .00 | .87 | .02 | .97 |
| | Anger/ Frustration | r | .08 | .25** | .15** | .30** |
| | | p | .15 | .00 | .00 | .00 |
| Extraversion | Activity Level | r | .07 | .10 | .07 | .06 |
| | | p | .17 | .08 | .19 | .24 |
| | Shyness | r | .04 | .04 | .08 | .01 |
| | | p | .42 | .49 | .12 | .87 |
| | High-Intensity Pleasure | r | .03 | .13* | .10 | .10 |
| | | p | .62 | .01 | .07 | .06 |
| | Smiling and Laughter | r | -.20** | -.08 | -.14* | -.05 |
| | | p | .00 | .16 | .01 | .37 |
| | Impulsivity | r | -.01 | .08 | .02 | .09 |
| | | p | .91 | .12 | .69 | .08 |
| | Approach | r | -.08 | -.02 | -.07 | .01 |
| | | p | .12 | .79 | .21 | .91 |

*p<.05, **p<.01

Table 2 displays results of the Pearson's correlation analysis. Negative, weak and significant relationships were found between the *coldness and lack of affection* subscale of PARQ and the temperament characteristics of attentional focusing (r=-.25, p<.05), inhibitory control (r=-.27, p<.01), perceptual sensitivity (r=-.24, p<.01), low-intensity pleasure (r=-.27, p<.01), sadness (r=-.15, p<.01), and smiling and laughter (r=-.20, p<.01). While negative, weak and significant relationships were observed between the *hostility and aggression* subscale of PARQ and attentional focusing (r=-.19, p<.01), inhibitory control (r=-.27, p<.01), and falling reactivity and soothability (r=-.25, p<.01), positive, weak and significant relationships were found between the hostility and aggression subscale and anger/frustration (r=.25, p<.01) and between high-intensity pleasure and aggression (r=.13, p<.05). Negative, weak and significant relationships were found between the *indifference and neglect* subscale

of PARQ and attentional focusing (r=-.20, p<.01), inhibitory control (r=-.23, p<.01), low-intensity pleasure (r=-.16, p<.01), falling reactivity and soothability (r=-.16, p<.01), and smiling and laughter (r=-.14, p<.05), and a positive, weak and significant relationship was observed between the indifference and neglect subscale and anger/frustration (r=.15, p<.01). While negative, weak and significant relationships were present between the *undifferentiated rejection* subscale of PARQ and attentional focusing (r=-.21, p<.01), inhibitory control (r=-.14, p<.01), and falling reactivity and soothability (r=-.17, p<.01), a positive, weak and significant relationship was observed between the undifferentiated rejection subscale and anger/frustration (r=.30, p<.01). Finally, no significant relationships were found between the subscales of PARQ and the temperament characteristics of discomfort, fear, shyness, impulsivity, or approach.

**Table 3**

*Results of Multiple Linear Regression Analysis for Maternal Coldness and Lack of Affection*

| Predictor Variables | | B | Standard Error | $\beta$ | t | p |
|---|---|---|---|---|---|---|
| | | 40.639 | 3.034 | | 13.396 | .000 |
| Effortful Control | Attentional Focusing | -.05 | .03 | -.10 | -1.60 | .11 |
| | Inhibitory Control | -.08 | .05 | -.11 | -1.55 | .12 |
| | Perceptual Sensitivity | -.13 | .06 | -.12 | -2.23 | .03* |
| | Low-Intensity Pleasure | -.09 | .04 | -.14 | -2.34 | .02* |
| Negative Affectivity | Discomfort | -.01 | .03 | -.01 | -.21 | .83 |
| | Falling Reactivity and Soothability | .00 | .03 | .00 | .06 | .96 |
| | Fear | -.01 | .02 | -.02 | -.35 | .73 |
| | Sadness | -.06 | .04 | -.09 | -1.63 | .10 |
| | Anger/Frustration | .02 | .03 | .04 | .64 | .52 |
| Extraversion | Activity Level | .00 | .03 | .01 | .09 | .93 |
| | Shyness | .02 | .03 | .04 | .58 | .56 |
| | High-Intensity Pleasure | .02 | .03 | .04 | .56 | .58 |
| | Smiling and Laughter | -.07 | .04 | -.12 | -1.97 | .05* |
| | Impulsivity | -.01 | .04 | -.02 | -.25 | .80 |
| | Approach | .03 | .05 | .03 | .50 | .61 |

R=.40, R²=.16
F=4.30, p=.000

Dependent factor: Coldness and Lack of Attention

Table 2 displays the results of the multiple regression analysis for the *coldness and lack of affection* subscale of PARQ and temperament characteristics. According to the results, the model was significant as a whole (*R*=.40, *R²*=.16, $F_{(15-333)}$=4.30, *p*<.01). Temperament characteristics explained 16% of the total variance in coldness and lack of affection. While low-intensity pleasure (β=-.14, p<.05), perceptual sensitivity (β=-.12, p<.05), and smiling and laughter (β=-.12, p≤.05) predicted maternal coldness and lack of affection, other temperament characteristics did not contribute to the regression model (p>.05).

**Table 4**

*Results of Multiple Linear Regression Analysis for Maternal Hostility and Aggression*

| Predictor Variables | | B | Standard Error | $\beta$ | T | p |
|---|---|---|---|---|---|---|
| | | 26.374 | 3.678 | | 7.171 | .000 |
| Effortful Control | Attentional Focusing | -.02 | .04 | -.03 | -.45 | .66 |
| | Inhibitory Control | -.11 | .06 | -.14 | -1.86 | .06 |
| | Perceptual Sensitivity | .03 | .07 | .03 | .46 | .64 |
| | Low-Intensity Pleasure | -.04 | .04 | -.05 | -.85 | .40 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Negative Affectivity** | Discomfort | -.00 | .03 | -.01 | -.12 | .91 |
| | Falling Reactivity and Soothability | -.09 | .04 | -.14 | -2.32 | .02* |
| | Fear | .01 | .03 | .02 | .41 | .68 |
| | Sadness | -.04 | .04 | -.05 | -.83 | .40 |
| | Anger/Frustration | .07 | .04 | .12 | 1.91 | .06 |
| **Extraversion** | Activity Level | -.04 | .04 | -.08 | -1.11 | .27 |
| | Shyness | .01 | .03 | .03 | .46 | .64 |
| | High-Intensity Pleasure | .05 | .04 | .08 | 1.19 | .23 |
| | Smiling and Laughter | -.05 | .04 | -.06 | -1.03 | .30 |
| | Impulsivity | .07 | .05 | .10 | 1.46 | .14 |
| | Approach | .00 | .06 | .00 | .02 | .99 |

R=.36, R²=.13
F=3.32, p=.000

Dependent Factor: Hostility/Aggression

Table 3 displays the results of the multiple regression analysis for the *hostility and aggression* subscale of PARQ and temperament characteristics. According to the results, the model was significant as a whole ($R$=.36, $R^2$=.13, $F_{(15-333)}$=3.32, p<.01). Temperament characteristics explained 13% of the total variance in hostility and aggression. While falling reactivity and soothability (β=-.14, p<.05) predicted maternal hostility and aggression, other temperament characteristics did not contribute to the regression model (p>.05).

**Table 5**

*Results of Multiple Linear Regression Analysis for Maternal Indifference and Neglect*

| **Predictor Variables** | | **B** | **Standard Error** | **β** | **T** | **p** |
|---|---|---|---|---|---|---|
| | | 24.955 | 2.731 | | 9.139 | .000 |
| **Effortful Control** | Attentional Focusing | -.03 | .03 | -.07 | -1.09 | .28 |
| | Inhibitory Control | -.06 | .04 | -.10 | -1.29 | .20 |
| | Perceptual Sensitivity | .03 | .05 | .03 | .60 | .55 |
| | Low-Intensity Pleasure | -.05 | .03 | -.09 | -1.53 | .13 |
| **Negative Affectivity** | Discomfort | .01 | .03 | .02 | .34 | .73 |
| | Falling Reactivity and Soothability | -.04 | .03 | -.08 | -1.26 | .21 |
| | Fear | .02 | .02 | .05 | .81 | .42 |
| | Sadness | -.09 | .03 | -.16 | -2.66 | .01* |
| | Anger/Frustration | .03 | .03 | .06 | .89 | .37 |
| **Extraversion** | Activity Level | -.02 | .03 | -.05 | -.70 | .48 |
| | Shyness | .03 | .02 | .09 | 1.45 | .15 |
| | High-Intensity Pleasure | .05 | .03 | .11 | 1.74 | .08 |
| | Smiling and Laughter | -.04 | .03 | -.08 | -1.26 | .21 |
| | Impulsivity | .02 | .04 | .05 | .72 | .48 |
| | Approach | -.01 | .05 | -.02 | -.25 | .80 |

R=.35, R²=.12
F=3.01, p=.000

Dependent Factor: Indifference/Neglect

Table 4 displays the results of the multiple regression analysis for the *indifference and neglect* subscale of PARQ and temperament characteristics. According to the results, the model was significant as a whole ($R$=.35, $R^2$=.12, $F_{(15-333)}$=3.01, $p$<.01). Temperament characteristics explained 11% of the total variance in indifference and neglect. While sadness (β=-.16, p≤.01) predicted maternal indifference and neglect, other temperament characteristics did not contribute to the regression model (p>.05).

**Table 6**

*Results of Multiple Linear Regression Analysis for Maternal Undifferentiated Rejection*

| Predictor Variables | | B | Standard Error | β | t | p |
|---|---|---|---|---|---|---|
| | | 12.222 | 2.046 | | 5.973 | .000 |
| Effortful Control | Attentional Focusing | -.05 | .02 | -.14 | -2.25 | .02* |
| | Inhibitory Control | .03 | .03 | .06 | .84 | .40 |
| | Perceptual Sensitivity | .05 | .04 | .07 | 1.27 | .21 |
| | Low-Intensity Pleasure | -.02 | .02 | -.05 | -.88 | .38 |
| Negative Affectivity | Discomfort | -.01 | .02 | -.02 | -.28 | .78 |
| | Falling Reactivity and Soothability | -.03 | .02 | -.09 | -1.41 | .16 |
| | Fear | .00 | .02 | .02 | .33 | .74 |
| | Sadness | -.03 | .03 | -.06 | -1.05 | .29 |
| | Anger/Frustration | .09 | .02 | .26 | 4.03 | .00* |
| Extraversion | Activity Level | -.02 | .02 | -.07 | -1.05 | .29 |
| | Shyness | -.00 | .02 | -.01 | -.19 | .85 |
| | High-Intensity Pleasure | .01 | .02 | .02 | .36 | .72 |
| | Smiling and Laughter | -.02 | .02 | -.05 | -.76 | .45 |
| | Impulsivity | .04 | .03 | .10 | 1.44 | .15 |
| | Approach | -.01 | .03 | -.01 | -.18 | .86 |

R=.36, $R^2$=.13
F=3.34, p=.000

Dependent Factor: Undifferentiated Rejection

Table 5 displays the results of the multiple regression analysis for the *undifferentiated rejection* subscale of PARQ and temperament characteristics. According to the results, the model was significant as a whole ($R$=.36, $R^2$=.13, $F_{(15-333)}$=3,34, $p$<.01). Temperament characteristics explained 13% of the total variance in undifferentiated rejection. While anger/frustration (β=.26, p<.01) and attentional focusing (β=-.14, p<.05) predicted maternal undifferentiated rejection, other temperament characteristics did not contribute to the regression model (p>.05).

### Discussion, Conclusion and Recommendations

The results of this study indicated negative significant relationships between the *coldness and lack of affection* subscale of PARQ and the temperament characteristics of attentional focusing, inhibitory control, perceptual sensitivity, low-intensity pleasure, sadness, and smiling and laughter. Additionally, maternal coldness and lack of affection was found to be predicted by perceptual sensitivity, low-intensity pleasure, and smiling and laughter. In other words, the children whose mothers had high levels of coldness and lack of affection were more likely to have less attentional focusing, inhibitory control, perceptual sensitivity, low-intensity pleasure, sadness, and smiling and laughter temperament characteristics. This finding supported previous studies in the relevant literature. Lengua and Kovacs (2005) found that children's temperament characteristics predicted parental acceptance. Gölcük and Kazak Berument (2019) reported that the mother's negative parenting significantly predicted the child's responsiveness and perceptual sensitivity temperament traits. Senehi and Brophy-Herb (2020) stated that a negative maternal approach towards children has a destructive effect on the intrinsic emotion-regulation behaviors of children. Additionally, Silinskas et al. (2019) revealed that high maternal warmth and low maternal stress together reduced the internalization and externalization problems of adolescents. As the first attachment figure, a mother who is cold and low in affection may negatively affect the psychological adjustment of a child (Ali, Khatun, Khaleque, & Rohner, 2018; Khaleque, 2015) which may then lead to a decrease in the child's attentional-focusing time, perceptual development, level of self-control against negative situations, and level of positive affect. Yavuz, Selçuk, Çorapçı, and Aksan (2017) reported that low maternal warmth had a significant effect on the internalization problems experienced by the child in regulating negative reactions. The child's level of self-control may decrease as a reaction to the mother's coldness. Furthermore, a child who lacks maternal warmth may start to overcome the unhappiness caused by emotional pain and disappointment

by getting used to the treatment they receive. The child's ability to cope with the mother's coldness and lack of affection may result in the reduced happiness of the child (Rohner & Khaleque, 2002).

Negative significant relationships were observed between the *hostility and aggression* subscale of PARQ and the temperament characteristics of attentional focusing, inhibitory control, and falling reactivity and soothability, whereas there were positive significant relationships of hostility and aggression with anger/frustration and high intensity pleasure. Additionally, maternal hostility and aggression were found to be predicted by falling reactivity and soothability temperament characteristics. In other words, the children whose mothers had high levels of hostility and aggression were more likely to have less attentional focusing, inhibitory control, and falling reactivity and soothability and more anger/frustration and high intensity pleasure temperament characteristics. Children who get angry quickly and have low levels of soothability when they get angry are considered to be difficult children, whereas those who can be soothed easily and can adapt quickly to new situations are described as easy children (Oliver, 2002). While parents of difficult children define parenting as a difficult process, parents of easy children define the task as easy (Trawick Swith, 2013). This may explain why the soothability levels of the children who were included in this study predicted the hostility and aggression levels of their mothers. These findings were also in line with the relevant literature. Denham (1989) found that as the mother's anger increased, the child's feelings of happiness decreased and sadness and fear increased, and as the mother's anger increased, so did the child's anger. Similarly, Lam, Chung, and Li (2018) stated that as maternal hostility increased, so did inhibition and cognitive flexibility problems in the executive functions of children. Sarıtaş, Grusec, and Gençöz (2013) reported that maternal hostility played a mediating role on the emotional regulation of adolescents.

The results of this study also indicated significant relationships between the *indifference and neglect* subscale of PARQ and the temperament characteristics of attentional focusing, inhibitory control, low-intensity pleasure, falling reactivity and soothability, and smiling and laughter, as well as a positive significant relationship between indifference and neglect and anger/frustration. Additionally, maternal indifference and neglect were found to be predicted by the temperament characteristic of sadness. In other words, the children whose mothers had high levels of indifference and neglect were more likely to have less attentional focusing, inhibitory control, low intensity pleasure, falling reactivity and soothability, and smiling and laughter and more anger/frustration. Similar to the findings of this study, in a meta-analysis, it was found that as parental indifference and neglect levels increased, the incidence of negative personality traits such as the child's hostility and aggression, dependence, negative self-esteem, negative self-efficacy, emotional instability, negative worldview, and emotional unresponsiveness also increased (Khaleque, 2015). Negative behaviors such as aggression may also develop, especially in a child who is neglected socially and emotionally (Özyürek, 2015).

Negative significant relationships were observed between the *undifferentiated rejection* subscale of PARQ and the temperament characteristics of attentional focusing, inhibitory control, and falling reactivity and soothability, while there was a positive significant relationship between undifferentiated rejection and anger/frustration. Additionally, maternal undifferentiated rejection was found to be predicted by attentional focusing and anger/frustration. In other words, the children whose mothers had high levels of undifferentiated rejection were more likely to have less attentional focusing, inhibitory control, and falling reactivity and soothability and more anger/frustration. Similarly, Ali, Khatun, Khaleque, and Rohner (2018) showed that the undifferentiated rejection behaviors of parents towards children and the general psychological maladjustment of children and adults were positively related. Karadeniz and Öngider (2012) also found that children who perceived rejection from their parents exhibited more incompatible psychological characteristics, had negative self-perceptions, and possessed a complex mood quality.

The results of this study indicated significant relationships between the PARQ subscales and all examined temperament characteristics but discomfort, fear, shyness, impulsivity, and approach. This was an important finding because the presence of children's temperament traits that predict rejection poses a risk in terms of their exposure to maternal rejection and negative parenting behaviors (Aytemiz, 2010; Işıkoğlu Erdoğan, Yoleri, & Tetik, 2017; Micalizzi, Wang, and Saudino, 2017). To prevent this situation, family education programs can be organized to support parents in recognizing the

temperament characteristics of their children and displaying parenting attitudes and behaviors appropriate for these characteristics.

The sample of this study was limited to children in the 4-6 age group attending preschool and their mothers. In future studies, by including children in the 0-3 age group and their parents in the sample, the relationship between child temperament characteristics and parental acceptance-rejection can be examined more comprehensively to reflect different stages of development.

In the study, our focus was solely on mothers. In future studies, other significant adults in children's lives such as fathers and teachers may be included in the sample and examined comparatively.

The findings of this study are also limited to the data obtained from the responses of the mothers to the data collection tools. For future research, the inclusion of qualitative data can be recommended to examine the dynamics of mother-child relationships in regard to maternal acceptance-rejection and child temperament.

Finally, this study was cross-sectional. Future research may be designed longitudinally to examine the course of the relationship between child temperament characteristics and parental acceptance-rejection at different developmental stages of the child's life.

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# The Effect of the Reader's Theatre on Reading Fluency and Reading Comprehension Skills of 4th Grade Primary School Students[*]

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## Abstract

In this study, reader's theater's effect on reading comprehension and fluency skills was examined. In research, quasi-experimental design was used. The research was applied in a public school in Mamak/Ankara for 14 weeks in the 2019-2020 Academic Year. 29 students took part in the research. In the experimental group reader's theater activities were carried out by the researcher and no application was done with the control group. To find out the reading comprehension levels of the students, reading comprehension test was used. In addition, the word recognition percentage, reading speed and Reading Prosody Rubric was utilized to determine the participants' reading fluency levels. As a result of the analysis, the reader's theater method was efficient in the increase in reading prosody and reading fluency skills, and the decrease in the number of misspelled words. Although no significant effect of the reader's theater method on the participants' reading speed was observed, it was concluded that the reader's theater method increased the participants' reading comprehension skills.

*Keywords:* Readers theater, reading fluency, reading comprehension

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# Okuyucu Tiyatrosunun İlköğretim 4. Sınıf Öğrencilerinin Akıcı Okuma ve Okuduğunu Anlama Becerilerine Etkisi[*]

**Kübra Babacan**[**]　　　　**Mustafa Yıldız**[***]

## Öz

Bu araştırmada okuyucu tiyatrosunun akıcı okuma ve okuduğunu anlama becerileri üzerindeki etkisi incelenmiştir. Araştırmada yarı deneysel desen kullanılmıştır. 2019-2020 eğitim öğretim yılında Ankara'nın Mamak ilçesindeki bir devlet okulunda 14 hafta süreyle gerçekleştirilmiştir. Araştırmaya ilkokul 4. sınıfta öğrenim gören 29 öğrenci katılmıştır. Okuyucu tiyatrosu etkinlikleri deney grubunda araştırmacı tarafından uygulanmış; kontrol grubunda ise herhangi bir uygulama yapılmamıştır. Veri toplama sürecinde öğrencilerin okuduğunu anlama düzeylerini belirlemek için okuduğunu anlama testi, akıcı okuma düzeylerini belirlemek için kelime tanıma yüzdesi, okuma hızı ve Okuma Prozodisi Rubriği kullanılmıştır. Araştırma sonucunda okuyucu tiyatrosunun okuduğunu anlama, kelime tanıma ve okuma prozodisini artırdığı, okuma hatalarını azalttığı belirlenmiştir. Ancak okuyucu tiyatrosunun okuma hızına anlamlı etkisinin olmadığı sonucuna ulaşılmıştır.

*Anahtar Sözcükler:* Okuyucu tiyatrosu, okuduğunu anlama, akıcı okuma

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**Introduction**

The current era is a time when accessing information is quite easy. Obtaining and using the right information has become a skill for an individual in this era in which people have been exposed to too much information day by day. The process of selecting and using the right information starts with reading the information encountered. Reading is followed by comprehension. Reading comprehension means inferring meaning from a text. Therefore, the aim is to gain a general insight of what is defined in the text, instead of obtaining meaning from isolated sentences (Woolley, 2011). Many studies show that reading and reading comprehension significantly affect other areas of an individual's life (Baştug, 2014; 2014; Kolić-Vrhovec, Bajšanski & Rončević Zubković, 2011). For this very reason, the reading action and reading comprehension skill, which are vital throughout an individual's life, should be gained in the primary education, which is the beginning of the education life, without a delay. When reviewing the literature, it may be seen that reading and reading comprehension skills contribute positively to students during their education life and the exams they attend (Jackson, 2005; Owusu-Acheaw, & Larson, 2014).

Reading fluency is required in order for the reading to be understood easily and to make the expression clear in terms of meaning. Baştuğ and Akyol (2012) studied the 2nd – 5th grades' students reading comprehension and reading fluency and it was seen that reading fluency skills significantly predicted reading comprehension. A number of approaches and methods are used in schools to make students gain those skills. Reader's theater may help these approaches and improve reading comprehension skills and reading fluency (Jones, 2014; Lewis & Feng, 2014; Millin, 1997; Suggs, 2019; Young et al., 2019; Young & Rasinski, 2009).

Reader's theatre is defined as a reading activity using few of the theatre techniques without dealing with the stage, costumes or sets (Rasinski et al., 2017). This method, which is used to improve students with poor reading skills, also helps to improve reading fluency, which is a prerequisite for reading comprehension. Reader's theatre is reading different parts of a story, a poem or a play by more than one person with dramatic expressions and gestures (Marshall, 2017). There is a special effort made during reading in reader's theatre that is considered as a group activity. The special effort here is the way the voice and gestures are used. Reader's theatre is the repeated action of reading a written script, paying attention to the meaning. Since acting, stage and costume are not used in the reader's theatre, readers should use their voices to reflect the meaning (Young & Rasinski, 2009). Students read and act out a script in reader's theatre. However, there is no memorization of lines, costumes, stages or props during this acting out part. Students who take part in reader's theatre perform their reading only by standing in front of the audience (Rasinski, Stokes, & Young, 2017).

Suggs (2019) applied reader's theater in her research and observed that students' reading fluency skills improved. She stated that students' reading aloud using the reader's theater increased their reading awareness. In addition, she also stated that students' self-confidence increased while reading aloud. Another research in which the reader's theatre practice was applied emphasized that the use of speech patterns such as voice quality, intonation, tone of voice, and language to reflect the physical and emotional state of the character improves reading fluency (Rasinski, Blachowicz, & Lems, 2012). It was seen in this research and other studies in the literature that have similar results, that the activities related to the emotions of the character improved reading fluency in a positive way. Another study that used reader's theater found that it was beneficial in improving reading comprehension (Young et al., 2019).

Reader's theater is a method for improving reading skills and has been used to improve reading skills in studies conducted abroad (Al Quannabi, Gabarre, & Mirza, 2018; Black, 2016; Carrick, 2001; Caudill-Hansen, 2009; Marshall, 2017; Young & Rasinski, 2018; Young, Stokes, & Rasinski, 2017). Reader's theater has been used in the classroom for more than 30 years, but studies investigating its effectiveness are limited (Rasinski, Blachowicz, & Lems, 2012). As a result of the researches, this method is not used for practice in Turkey according to the national literature. This study aims to investigate the effectiveness of reader's theater method, which is thought to contribute to the lack of reading fluency and reading comprehension to offer a solution for teachers, students and families. Therefore, the following questions were requested:

1)  When the reading fluency pre-test scores of the students in the control group who continued their education under the Turkish Curriculum and the ones in the experimental group who used reader's theatre activities are taken under control, is there a statistically significant difference between two groups' post-test scores?

2)  When the reading comprehension pre-test scores of the students in the control group who continued their education under the Turkish Curriculum and the ones in the experimental group who used reader's theatre activities are taken under control, is there a statistically significant difference between the two groups' post-test scores?

**Method**

**Research Design**

The research used a quasi-experimental design. The data to be examined are produced under the control of the researcher directly in order to determine the cause and effect relationships in experimental research designs (Karasar, 2017). Students are not randomly assigned for the groups, and the already existing classes are determined as groups. The experimental process is given in Table 1.

**Table 1**
*Reader's Theater Experimental Process Chart*

| Group | Pre-test | | Post-test |
|---|---|---|---|
| Experimental Group | ✓ | Reader's Theatre Implementation (12 weeks) | ✓ |
| Control Group | ✓ | - | ✓ |

**Study Group**

29 students participated the study. Before the reader's theater was implemented, a t-test analysis was undertaken to evaluate if there was a significant difference between the control and experimental groups' pre-test reading comprehension scores, and the results are shown in Table 2.

**Table 2**
*T-test Results Regarding Reading Comprehension Pre-Test Scores*

| | Group | N | $\bar{X}$ | S | Sd | t | p |
|---|---|---|---|---|---|---|---|
| Comprehension | Experimental | 15 | 8.06 | 3.35 | 27.00 | 0.787 | .438 |
| | Control | 14 | 9.00 | 3.01 | 26.96 | | |

When Table 2 is examined, no significant difference is observed between the two groups' reading comprehension pre-test scores (t (27) = 0.787, p> .05). Groups can be stated to be equivalent in terms of reading comprehension.

Table 3 presents the results of a t-test analysis carried out to demonstrate whether there was a significant difference between the two groups' reading fluency pre-test scores before the reader's theater was implemented.

**Table 3**
*T-test Results Regarding Reading Fluency Pre-Test Scores*

| | Group | N | $\bar{X}$ | S | sd | t | p |
|---|---|---|---|---|---|---|---|
| Word Recognition | Experimental | 15 | 92.0 | 5.09 | 27 | 1.36 | .186 |
| | Control | 14 | 83.28 | 24.32 | | | |
| Total Number of Errors | Experimental | 15 | 6.53 | 4.59 | 27 | 0.64 | .527 |
| | Control | 14 | 7.64 | 4.71 | | | |
| Reading Speed | Experimental | 15 | 88.60 | 22.74 | 27 | 0.71 | .481 |
| | Control | 14 | 82.50 | 23.26 | | | |
| Prosody | Experimental | 15 | 8.80 | 2.65 | 27 | 1.53 | .137 |
| | Control | 14 | 10.28 | 2.55 | | | |

In Tablo 3 there is no significant difference between pre-test scores in the sub-dimensions of reading fluency which are word recognition (t (27) = 1.36, p> .05), total number of errors (t (27) =. 641, p> .05), reading speed (t (27) =. 714, p> .05) and prosody (t (27) = 1.53, p> .05) between groups. Groups may be considered to be equivalent in terms of reading fluency.

**Data Collection Tools**

Data were collected in two parts. In the first part, studies were performed to specify the reading fluency levels of the students. Measurement results for three basic dimensions of reading fluency (word recognition percentage, reading speed and reading prosody) were obtained separately. Groups were asked to read the text "İpek Ormanda" which was prepared by Karasu, Girgin and Uzuner (2013) as a pre-test and a post-test. This text was selected based on expert opinions. The text "İpek Ormanda" was prepared in two forms as a reading fluency student form and a reading fluency researcher form.

Word Recognition Percentage: It is calculated by taking the percentage of the words properly read by a pupil during 60 seconds of reading aloud. Divide the number of the words read correctly by the total number of the words read (correctly or inaccurately) and multiply by 100 to get this percentage.

While the education level generally indicates the range in which the correct word recognition rate is 92-98%, the independent eading level indicates the range in which the accuracy rate is 99-100%. The fact that the word recognition rate is below 92% indicates that the situation is threatening (Akyol, Yıldırım, Ateş, Çetinkaya, & Rasinski, 2014, p.10).

Reading Speed: "Reading speed is closely related to the reader's automation of the word recognition process in the relevant text. The number of the misread words was subtracted from the total number of the words read in a minute to arrive at this figure.

Prosody: In this study, the Reading Prozody Rubric, created by Zutell and Rasinski (1991) and converted into Turkish by Yıldırım, Yıldız, and Ateş (2009), was applied to assess reading prosody. Prosodic reading means recording a student reading a text for 60 seconds and then making assessments on this recording using a rubric (graded scoring key) that has four different dimensions of student reading. These four dimensions consist of a) expression and voice level, b) units of meaning and intonation, c) smoothness, and d) speed.

Reading Comprehension: Test of reading comprehension prepared by Kaya, Doğan and Yıldırım (2018) was used to measure reading comprehension. The reading comprehension test consists of a fable, a narrative text, three informative texts and two forms with 32 items related to the texts. The form containing a narrative text, an informative text and 15 items belonging to the texts was used alone among the test forms. The other form was not used in this study. The KR-20 reliability value for the form used in this study was found as .75 in the pre-test implementation.

**Reader's Theater Pre-Implementation Preparation Process**

*Text Selection*

A text pool was created by scanning the literature and selecting 48 texts from the textbooks, story books and children's magazines of the Ministry of National Education. The text evaluation form was prepared by the researcher taking into account the reader's theater rules. Experts were consulted to state their opinions on the form and 12 texts were chosen by eliminating the texts. Only 8 texts out of 12 were used in the implementation process.

In addition, only narrative texts were used in the research. The reason for using narrative texts only is that this type of texts allows the use of gestures and mimics.

*Reader's Theater Implementation Process*

The research was carried out in a total of 14 weeks in 2019-2020 academic year, one week of which was for pre-tests, twelve weeks of which were for the reader's theater application, and one week of which was for the post-test. The whole 8 texts were implemented in 12 weeks. Before one text was completed and the process was finished, the other text was not passed on.

The texts were completed in 2, 3 or 5 lesson hours in some weeks depending on the curriculum availability, holidays, exam dates etc. Reader's theatre implementation was completed in a total of 48 lesson hours. Vocabulary and reading comprehension activities were carried out at all stages of the research. In the first half of the implementation, vocabulary study, vocabulary study chart, assessment chart, character map, character analysis and reading comprehension activities were used while covering the first four texts in order to make students get familiar with the reader's theatre process. More intensive activities that served the purpose of reader's theatre were performed in the following stages. The activities that took into account the role of the character and focused on reading comprehension were carried out particularly. While covering the last four texts, the activities related to vocabulary study, reading comprehension and the emotions and feelings of the character were carried out. The reading comprehension activities started with easy texts. In the following weeks, the difficulty level of the texts was increased. The study included the activities that are a vocabulary study chart, a character map, character analysis, story analysis activity, questions about the character's emotions, reading comprehension questions and reader's theatre self-assessment chart.

**Data Analysis**

### Examining the Assumptions

Pre-test scores' difference between groups was determined using t-test, and post-test scores' difference was determined using the ANCOVA (Analysis of covariance). While the assumption of normality was examined for the t-test, the assumptions of normality, homogeneity of regression curves and homogeneity of variances were examined for ANCOVA.

### Assumption of Normality

Whether the data are suitable for normal distribution can be examined by descriptive statistics, hypothesis tests and graphical methods. The statistical results of the tests conducted for the normality of the distribution for reading comprehension and reading fluency are presented in Table 4 below.

**Table 4**
*Results Regarding Tests Conducted for Normality of Distribution for Reading Comprehension and Reading Fluency*

| | | | | Mean | Median | Mode | SD | Min | Max | Skew | Sk. Se | Kurt. | Ku. Se | S-W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reading Comprehension | | Pretest | D | 8.1 | 7.0 | 5.00 | 3.31 | 3.35 | 14.00 | 1.57 | 0.58 | -0.58 | 1.12 | .964 |
| | | | K | 9.0 | 8.5 | 7.00 | 3.01 | 4.00 | 15.00 | 0.59 | 0.60 | 0.18 | 0.58 | .953 |
| | | Posttest | D | 11.60 | 11.00 | 14.00 | 2.26 | 7.00 | 15.00 | -0.24 | 0.58 | -0.49 | 1.12 | .938 |
| | | | K | 10.21 | 11 | 11.00 | 2.08 | 6.00 | 14.00 | -0.39 | 0.60 | 0.17 | 1.15 | .932 |
| Reading Fluency | Word Recognition | Pretest | D | 92.00 | 93.00 | 93.00 | 5.09 | 78.00 | 99.00 | -1.48 | 0.58 | 3.34 | .876 | .876* |
| | | | K | 83.28 | 92.00 | 96.00 | 24.31 | 3.00 | 96.00 | -3.16 | 0.60 | 10.76 | .551 | .551* |
| | | Posttest | D | 98.46 | 98.00 | 98.00 | 1.12 | 97.00 | 100.00 | .269 | .580 | -1.27 | .851 | .851* |
| | | | K | 95.35 | 95.5 | 95.00 | 2.73 | 90.00 | 100.00 | -0.46 | 0.60 | 0.08 | .966 | .966 |
| | Total Number of Errors | Pretest | D | 6.53 | 6.00 | 7.00 | 4.59 | 1.00 | 21.00 | 2.29 | 0.58 | 7.42 | 1.12 | .757* |
| | | | K | 7.64 | 6.00 | 3.00 | 4.71 | 3.00 | 16.00 | 1.01 | 0.597 | -0.29 | 1.15 | .824* |
| | | Posttest | D | 1.26 | 1.00 | 2.00 | 0.96 | 0.00 | 3.00 | -0.06 | 0.58 | -1.05 | 1.12 | .866* |
| | | | K | 4.28 | 4.00 | 4.00 | 2.30 | 0.00 | 8.00 | 0.07 | 0.60 | -0.33 | 1.15 | .950 |
| | Reading Speed | Pretest | D | 88.60 | 87.00 | 77.00 | 22.74 | 46.00 | 124.00 | -1.30 | 0.58 | -1.74 | 1.12 | .969 |
| | | | K | 82.50 | 86.50 | 35.00 | 23.26 | 35.00 | 123.00 | -0.59 | 0.59 | 0.62 | 1.15 | .951 |
| | | Posttest | D | 108.33 | 104.00 | 129.00 | 27.12 | 58.00 | 152.00 | -0.26 | 0.58 | -0.85 | 1.12 | .957 |
| | | | K | 100.07 | 96.00 | 125.00 | 22.51 | 61.00 | 125.00 | -0.32 | 0.59 | -1.18 | 1.15 | .891 |
| | Prosody | Pretest | D | 8.80 | 9.00 | 9.00 | 2.65 | 4.00 | 15.00 | 0.70 | 0.05 | 1.67 | 1.12 | .896 |
| | | | K | 10.28 | 10.50 | 11.00 | 2.55 | 6.00 | 14.00 | -0.24 | 0.60 | -0.53 | 1.15 | .948 |
| | | Posttest | D | 12.13 | 12.00 | 12.00 | 2.82 | 6.00 | 16.00 | -0.51 | 0.58 | 0.05 | 1.12 | .950 |
| | | | K | 7.57 | 7.50 | 6.00 | 1.50 | 6.00 | 10.00 | 0.39 | 0.60 | -1.24 | 1.15 | .867* |

* *p<.05*

When Table 4 is examined, it is seen that the mean, median and mode of the reading comprehension pre-test and post-test scores are close, the skewness and kurtosis coefficients are between [-1,1], the ratio of the skewness-kurtosis coefficients to their standard errors is in the range

between [-2,2] and the Shapiro-Wilk test results are not significant (p> .05). As a result, pre-test and post-test reading comprehension scores are normally distributed. On the other hand, pre-test or post-test scores are not normally distributed according to the Skewness-Kurtosis coefficients and Shapiro-Wilk test results in the control or experimental groups for the subdimensions of reading fluency.

### Homogeneity of Variances

In the framework of the research, Levene results, which were about the homogeneity of the variances in reading comprehension, reading fluency word recognition, reading fluency total error, reading fluency reading speed and reading fluency prosody steps, were obtained respectively (F=0.614, p>.05; F=5.679, p<.05; F=6.964, p<.05; F=0.488, p>.05; F=1.156, p>.05). It can be stated that the posttest scores in reading fluency word recognition and reading fluency total error levels are not homogeneously distributed in the control and experimental groups.

### Homogeneity of Regression Curves

When the results were evaluated in general, it was seen that the t-test and ANCOVA assumptions were met for the reading comprehension variable and these analyzes were carried out. Depending on the sample size, at least one of the t-test and ANCOVA assumptions was not met in the lower steps of reading fluency. In this context, the t-value with the t-test and the F value with ANCOVA were calculated using the Type I method in order to get more accurate significance values, but the significance values were obtained by the randomization test.

## Results

### Findings of Reader's Theater's Effect of on Reading Comprehension

After controlling for the students' pre-test reading comprehension levels, ANCOVA was performed to see whether the post-test scores revealed a significant difference between the two groups. The results can be found in Table 5.

**Table 5**
*Ancova Results Regarding Reading Comprehension Scores*

| Source of variance | Sum of Squares | Sd | Mean Square | F | $\eta^2$ |
|---|---|---|---|---|---|
| Pretest | 47.05 | 1 | 47.05 | 17.07 ** | .396 |
| Group | 23.14 | 1 | 23.14 | 8.39** | .244 |
| Error | 71.67 | 26 | 2.76 | | |

** p < .01

When looking at Table 5, there is a considerable difference between the pre and post-test scores (F (1, 26) = 17.07; p <.01, r = .58). Moreover, when the groups' reading comprehension pre-test scores are compared, a significant difference between the two groups is observed (F (1, 26) = 8.39; p <.01). To put it more clearly, the adjusted mean values of the experimental group for reading comprehension (X = 11.5) are higher than the adjusted mean scores (X = 9.34) of the students in the control group. When the effect size that is named as practical significance is examined, the reader's theater method has a great effect on reading comprehension according to Cohen (1988) (η2 = .244> .14). In other words, 24% of the variability in reading comprehension posttest scores can be explained by reader's theater method that is implemented.

### Findings Reader's Theater' Effect of on Reading Fluency

After controlling the students' fluent reading pre-test scores, ANCOVA was performed to demonstrate whether the post-test scores revealed a significant difference between the two groups. Tables 6, 7, 8, and 9 exhibit the relevant results.

**Table 6**
*Ancova Results for Word Recognition Scores*

| Source of variance | Sum of Squares | Sd | Mean Square | F | $\eta^2$ |
|---|---|---|---|---|---|
| Pretest | 5.26 | 1 | 5.26 | 1.19** | 0.044 |
| Group | 64.79 | 1 | 64.79 | 14.65** | 0.361 |
| Error | 114.45 | 26 | 4.42 | | |

** p < .01

When Table 6 is examined, a considerable change between the pre and post-test results for word recognition is clearly seen (F (1, 26) = 1.19; p <.01, r = .17). In addition, when the groups' word recognition pre-test scores are compared, a significant difference is observed between the post-test scores. (F (1, 26) = 64.79; p <.01). More precisely, the word recognition corrected mean scores (X = 98.29) of the experimental group students are higher than the corrected mean scores (X = 92.20) of the students in the control group. When the effect size named as practical significance is examined, the reader's theater method has a great effect on word recognition according to Cohen (1988) (η2 = .361> .14). In other words, 36% of the variability in word recognition posttest scores can be explained by the reader's theater method that is implemented.

**Table 7**
*Ancova Results for Total Number of Errors*

| Source of variance | Sum of Squares | Sd | Mean Square | F | $\eta^2$ |
|---|---|---|---|---|---|
| Pretest | 0.19 | 1 | 0.19 | 0.59** | 0.002 |
| Group | 66.14 | 1 | 66.14 | 21.10** | 0.448 |
| Error | 81.47 | 26 | 81.47 | | |

** p < .01

When Table 7 is examined, it can be noticed that the overall number of errors differs significantly between the pre-test and post-test results. (F (1, 26) = 0.19; p <.01, r = .04). Additionally, there is a significant difference between the post-test scores of the groups (F (1, 26) = 0.59; p <.01). More clearly, the total number of errors adjusted mean values of the students in the experimental group (X = 1.25) are higher than the adjusted mean values (X = 4.30) of the ones in the control group. When the effect size named as practical significance is examined, the reader's theater method owns a great effect on the total number of errors according to Cohen (1988) (η2 = .448> .14). In other words, 44% of the variability in the total number of errors in posttest scores can be explained by the reader's theater method that is implemented.

**Table 8**
*Ancova Results for Reading Speed*

| Source of variance | Sum of Squares | Sd | Mean Square | F | $\eta^2$ |
|---|---|---|---|---|---|
| Pretest | 7755.1 | 1 | 7755.1 | 21.18[a] | 0.449 |
| Group | 107.0 | 1 | 107.0 | 0.29 | 0.011 |
| Error | 9520.5 | 26 | 366.0 | | |

[a] p>.05

When the reading speed pre-test scores of the groups are taken into account, Table 8 shows that the post-test scores do not differ much between the groups (F (1, 26) = 21.17; p> .05). To state it more clearly, the students in both groups own a similar level of reading speed.

**Table 9**
*Ancova Results for Reading Prosody Scores*

| Source of variance | Sum of Squares | Sd | Mean Square | F | $\eta^2$ |
|---|---|---|---|---|---|
| Pretest | 33.77 | 1 | 33.78 | 18.54** | 0.416 |
| Group | 210.73 | 1 | 210.73 | 115.70** | 0.817 |
| Error | 47.35 | 26 | 1.82 | | |

** p < .01

In Table 9, it can bee seen that the reading prosody shows a significant difference between pre and post-test scores ($F_{(1, 26)} = 18.54$; $p < .01$, $r = .34$). In addition, there is a significant difference between the post-test scores of the two ($F_{(1, 26)} = 210.73$; $p < .01$). To express more precisely, the reading prosody adjusted mean values of the experimental group students ($X = 10.89$) are higher than the adjusted mean values ($X = 95.20$) of the ones in the control group. When the effect size named as practical significance is examined, the reader's theater method has a great effect on reading prosody according to Cohen (1988) ($\eta2 = .817 > .14$). In other words, 81% of the variability in reading prosody posttest scores can be explained by the reader's theater method that is implemented.

## Discussion, Conclusion and Recommendations

According to the results of reading studies employing the reader's theater method, reader's theater has a favorable influence on improving reading fluency skills. While the reader's theater had an effect on the improvement of word recognition and reading prosody and caused a decrease in the number of misread words, it did not affect the reading speed. The reading speed did not improve in this study, but the meaningfulness and comprehensibility increased. Due to the competitive education approach imposed by the system, it is seen that students focus only on vocalization of the lines. The researcher focused on meaningfulness and comprehensibility rather than increasing speed while performing the implementation. As a consequence, it was observed that the students balanced their understanding in accordance with their real speed.

When the researches conducted in the relevant field are examined, the results obtained in this study are in line with those of the researches within the relevant literature (Carrick, 2001; Caudill-Hansen, 2009; Jones, 2014; Lewis & Feng, 2014; Millin, 1997; Suggs, 2019; Young et al., 2017; Young and Rasinski, 2009). Young and Rasinski (2018) spared the first 15 minutes of the lesson for reader's theater, and applied a 90-minute reader theatre session daily within the scope of their research. They supported reader's theatre with vocabulary studies and writing activities. As a result, it was stated that implementing reader's theatre consistently could have a big effect on students' reading fluency. In this study, reader's theatre was supported by vocabulary studies and the activities related to the emotions of the character and consequently the study showed similar results. Caudill-Hansen (2009) conducted a 10-week practice within a research and stated that reader's theatre improved reading fluency skills at the end. Carrick (2001) stated that reading fluency skills developed as a result of a 12-week reader's theatre practice. On the other hand, Marshall (2017) implemented reader's theater with an intensive program of two-week content using all days of the week and stated that reader's theater was not effective as a result of the research. It can be thought that this result is due to the short implementation period.

Another finding of the study was that the method had a beneficial effect on enhancing reading comprehension abilities as a consequence of the reading studies conducted utilizing reader's theatre. In other words, this method increases reading comprehension skills.

Results of students' reading comprehension skills are similar to some of the studies in the literature (Jones, 2014; Millin, 1997), they differ with some of them (Black, 2016; Carrick, 2001; Caudill-Hansen, 2009; Keehn, 2008; Marshall, 2017). This difference between the studies may be due to the duration of the intervention, the characteristics of the group, the class level of the group, the involvement of family members in the reader's theatre practice, the role of the practitioner, and the activities performed after the implementation.

As a result of the research, reader's theatre increased reading comprehension skills. In a study conducted by Flemmer (1984), vocabulary studies and reading comprehension activities were included during the reader's theater practice. Reading comprehension activities consisted of the questions related to the text, and at the end, it was revealed that reader's theatre improved reading comprehension skills. In this respect, this study shows similarities with Jones' (2014) and Flemmer's (1984) researches in terms of the implementation process and the research result. Millin (1997) included word study in his 9-week intervention and found that reader's theatre increased reading comprehension skills. Based on this, it can be inferred that supporting reader's theatre with reading comprehension activities and vocabulary studies increases the effectiveness of the practice.

Considering the studies in the literature that show that reader's theatre does not affect reading comprehension, it is clearly seen that it is important to support the content with activities and use the duration of the implementation efficiently. Marshall (2017) stated that reader's theatre had no effect on reading fluency after a two-week practice. It can be thought that the reason for such a result in the study is the limited time allocated for reader's theatre. Carrick (2001) concluded this method applied 12-week intervention and not affected reading comprehension skills. The lack of activities before and after the reader's theatre practice and the failure of the practitioner to give immediate feedback can be thought to be among the reasons for this result.

As a result, reader's theater, when implemented appropriately, demonstrates a positive effect on students' skills regarding reading fluency and comprehension. The implementation of reader's theatre, supported by activities in a consistent and planned manner, increases its efficiency. Reader's theater can be defined as an interactive and interpretation-based reading activity in which almost all students are included in the reading process. Reader's theater is a technique implemented to foster students' skills regarding reading fluency and comprehension through regularly repeated reading activities in a supportive learning environment.

In accordance with the study's findings, using the reader's theatre method in reading studies increases reading fluency and reading comprehension. In this context, teachers can be encouraged to practice reader's theater technique in their lessons. While practicing this, doing vocabulary studies, including activities related to the character and the emotions of the character, including reading comprehension questions and reading comprehension activities, providing students with model readings, giving them immediate feedback, letting students work with their groups, providing them to practice at home and increasing the duration of students' engagement with texts and words can contribute to their reading fluency and reading comprehension skills. Additionally, reader's theater practices can be included in the Turkish Curriculum, course books and workbooks. Reader's theatre was implemented within a Turkish lesson. Reader theater applications can be used not only in Turkish lessons and in covering the reading texts in Turkish lessons, but also in other lessons. For example, while covering a text in a social sciences textbook, the text can be adapted to reader's theatre. Parents can be informed about reader's theatre and encouraged to participate in the process. Finally, studies on reader's theatre can be conducted not only with the 4th grade students but also with students from different grade levels.

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# The Effect of Digital Stories about Healthy Eating on Health Behaviors of Primary School Children

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## Abstract

In this study, the effects of digital stories about healthy eating developed for primary school 2nd-grade students on health perception, nutritional behavior, nutritional self-efficacy, and nutrition attitude were investigated. The study, in which the quasi-experimental design with the pre-test and post-test control group was used, was carried out with 90 students studying at a public school in Istanbul. In the control group, the primary school life science textbook was used in accordance with the program. In the experimental group of the research, the teaching of healthy and balanced eating was carried out through digital storytelling for five weeks. Children's Dietary Self- Efficacy Scale, Health Perception Form, Food Behavior Scale, and Nutrition Attitude Scale were used in the study. The obtained data were subjected to parametric analysis. At the end of the study, it was observed that there was a positive change in the health perception, nutritional behavior, nutritional self-efficacy, and nutrition attitudes of the students in the experimental group. On the other hand, it was observed that the nutritional self-efficacy and nutritional behavior scores of the control group students increased in the post-tests. The results obtained showed that the digital storytelling approach was effective. Based on this, it is suggested to examine the effect of the relevant method on different variables.

*Keywords:* Digital storytelling, healthy eating, healthy behavior, primary school children

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# Sağlıklı Beslenme Konusunda Hazırlanan Dijital Öykülerin İlkokul Çocuklarının Sağlık Davranışları Üzerindeki Etkisi

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## Öz

Bu çalışmada, ilkokul 2.sınıf öğrencileri için geliştirilen sağlıklı beslenme konulu dijital öykülerin sağlık algısı, beslenme davranışı, beslenme öz-yeterliği ve beslenme tutumu üzerindeki etkileri araştırılmıştır. Ön test son test deney-kontrol gruplu yarı deneysel desenin kullanıldığı çalışma, İstanbul ilinde bir devlet okulunda öğrenim görmekte olan 90 öğrenci ile gerçekleştirilmiştir. Kontrol grubunda ilkokul hayat bilgisi ders kitabı programına uygun biçimde öğretim gerçekleştirilmiştir. Araştırmanın deney grubunda ise sağlıklı ve dengeli beslenme konusunun öğretimi beş hafta boyunca dijital öyküleme yoluyla yapılmıştır. Çalışmada Çocuk Beslenme Öz-Yeterlik Ölçeği, Sağlık Algısı Formu, Beslenme Davranış Ölçeği ile Beslenme Tutum Ölçeği kullanılmıştır. Elde edilen veriler parametrik analizlere tabii tutulmuştur. Çalışma sonunda deney grubunda yer alan öğrencilerin sağlık algısı, beslenme davranışı, beslenme öz-yeterliği ve beslenme tutumlarında olumlu yönde değişim olduğu görülmüştür. Bununla beraber kontrol grubu öğrencilerinde son testlerde beslenme öz-yeterliği ile beslenme davranışı puanlarının arttığı görülmüştür. Elde edilen sonuçlar dijital öyküleme yaklaşımının etkili olduğunu göstermiştir. Buna dayanarak ilgili yöntemin farklı değişkenler üzerindeki etkisinin incelenmesi önerilmiştir.

*Anahtar Sözcükler:* Dijital öyküleme, ilkokul öğrencisi, sağlıklı beslenme, sağlık davranışı

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**Introduction**

It is known that inadequate and irregular nutrition and a lack of hygiene cause diseases. Inadequate or excessive nutrition that does not comply with hygiene rules triggers infectious diseases (Vilar-Compte et al., 2021) and increases the likelihood of conditions such as cardiovascular diseases, obesity, and cancer (Gupta, Bray, Kumar, & Johnson, 2017; Lee et al., 2014; Tian & Tien, 2020). In addition, unhealthy eating can lead to dangerous weakness and psychological distress (Teo, Chin, Lim, Masrom, & Shariff, 2019). In order to avoid these problems, it is necessary to gain healthy eating habits at a young age, because these habits positively affect both the school success and nutrition perceptions of children (Meydanlıoğlu, 2016).

If children and parents are made aware of healthy living, a positive attitude about healthy eating can develop (Branen & Fletcher, 1999). Especially since the habits acquired during childhood are more likely to be permanent (Manios et al., 2004), these ages are important in terms of gaining healthy eating habits. In addition, healthy eating habits gained in childhood continue throughout life (Aslan et al., 2003; Chae & Chung, 2021; Manios et al., 2004). Branen and Fletcher (1999) examined the relationship between the eating habits of university students and their childhood eating habits and revealed that there is a connection between childhood and adult eating habits. Therefore, childhood is a very important period for developing positive health behaviors.

The relevant literature indicates that there is a need for policies and programs aimed at preventing diseases caused by unhealthy and irregular eating (Rosi et al., 2016; Van Cauwenberghe et al., 2010). Policies and practices needed for healthy living can be implemented through schools. In this context, school-based practices can offer opportunities for healthy eating education (Wechsler, Devereaux, Davis, & Collins, 2000). Education is defined as ensuring the desired behaviors in individuals. Educating children about the concepts related to nutrition and increasing the level of healthy nutrition is very important in the educational process (İnalçık & Angın, 2021). It is believed that learning the principles of healthy nutrition and adopting these principles as a lifestyle during primary school prevents many diseases, especially obesity (Salas, Forhan, Caulfield, Sharma, & Raine, 2017). Thus, including food and nutrition-related topics in the curriculum of the first years of school is an important step in terms of establishing the foundations of nutrition education and nutrition literacy at an early age. In addition, the curriculum in primary school touching on issues related to food and nutrition is an important indicator that nutrition education and nutritional literacy are acquired at an early age (Aktaş, 2021). According to studies conducted in different countries of the world, the common opinion of experts is that nutritional behaviors and dietary habits are acquired and shaped in childhood, and that this also affects an individual's later life (Zembat et al., 2015). In order for primary school children to have a healthy lifestyle, good eating, and good cognitive performance and lead a quality life, there is a need for programs that encourage healthy eating and an active life (Teo et al., 2019). Moreover, it has been observed that school-based education on healthy eating is effective in changing the behavior of school-age children (Van Cauwenberghe et al., 2010). This shows that the most important period in which eating habits and health behaviors are acquired is the school-age period (Akder, Meseri, & Çakıroğlu, 2018; Tural Büyük & Topçu, 2015). Acquiring correct behaviours in early childhood is important for the child to start a quality life and to prevent or minimize problems that may occur in the future (Elliott, 2006). Malnutrition or excessive eating cause obesity, vitamin deficiencies, tooth decay, constipation or diarrhea, diabetes, heart diseases and infectious diseases. These behaviours may also cause problems such as fatigue, restlessness, irritability, attention deficit and learning disabilities (Food and Agriculture Organization of the United Nations, 2005). Thus, it is important for children to develop healthy eating habits with the help of talented teachers (Kolbe, 1993).

The school-age period covers ages between 6-12, and this period constitutes the foundation for the acquisition of healthy nutrition and lifestyle habits for children and it is the period when healthy eating awareness is established (Ministry of Health, 2016). During this period, children acquire most of the behaviors that they will maintain throughout their lives. Children's energy and nutrient requirements must be met in an adequate and balanced manner in order to achieve healthy development. Therefore, schools have an important function in raising awareness of a healthy life and preventing diseases caused by unhealthy eating (Story, 1999). It is possible to use products of children's literature and the use of these products supported with technology to help children gain the right eating habits. Children's

literature is a genre of literature that considers children's mental, emotional, social and linguistic development by aligning itself with individuals in the period of primary school, and helps children recognize themselves, guides them in achieving the right behaviour and contributes to development of a sense of aesthetics (Tüfekçi Can 2012). Therefore, this genre has a significant impact on the social development of children, and thus on social progress. Especially feelings, thoughts and actions of protagonists, and solutions that these protagonists reach in fairy tales, short stories and novels are important role models for children (Sever, 2008). Schools can benefit from technology while fulfilling these functions. It is seen that the use of digital stories as an effective educational tool in this context has become widespread recently.

Digital storytelling is seen as a powerful tool for teachers and students (Robin, 2006; Smeda, Dakich & Sharda, 2010). According to Robin (2008), using digital storytelling in the field of education enables collaborative learning by enabling both teachers and students to obtain information and use their problem-solving skills effectively. Digital stories are a student-centered method that enriches the learning environment by combining elements such as text, images, videos, and music (Chung, 2006) in the computer environment (McLellan, 2007) in order to increase 21st-century skills, visual skills, collaboration skills, and technology use. Digital storytelling tools can be used at many levels from primary education to higher education (Dakich, 2008; Smeda et al., 2010). Unlike traditional storytelling, digital storytelling studies turn learners from passive listeners into active participants (Dörner, Grimm & Abawi, 2002). When teaching processes are planned systematically, digital storytelling is a versatile teaching tool that empowers teachers, motivates students to participate in the lesson (Yang & Wu, 2012), attracts students' attention, and creates a creative learning environment (Sadik, 2008). According to Miller (2009), digital storytelling increases students' motivation by allowing them to personalize their learning experiences. Smeda et al. (2010) attribute the increased motivation to the fact that students see the information they learn through digital storytelling as useful and that they can use this information in other subjects. It has been reported that students' interest, focus, and motivation increase in lessons in which digital stories are used (Robin, 2006; 2008). In addition, it has been determined that digital stories increase cooperation between students, facilitate the understanding of difficult-to-learn subjects (Van Gils, 2005), and enable easier integration of learned information into different fields (Sadik, 2008). Digital stories are a valuable tool enabling students to actively participate in the learning process, improves their decision-making skills by increasing their life experiences, and enables them to learn cooperatively by enabling group work (Behmer, Schmidt & Schmidt, 2006). The use of these tools increases in direct proportion to the active participation of students' research and editing skills in the digital storytelling process (Paull, 2002; Salpeter, 2005), because students who actively participate in the digital storytelling process can organize their ideas in order, gain the ability to ask effective questions, express their thoughts comfortably, verbally express without difficulty, and as a result develop communication skills (Robin, 2006).

The healthy future of societies depends on the healthy development of these societies (Merdol, 2008). A balanced and nutritious diet is one of the main requirements for an individual to have a quality and healthy life (Hasbay, 2004). The primary school age is a period when certain behaviors are acquired and education about healthy nutrition is especially important for children in this period (Çetiner, 2013). According to Sabbağ and Sürücüoğlu (2011), it is beneficial to start nutrition education in the primary school period. Dietary habits acquired during childhood affect both this period of an individual's life and the future of their life (Merdol, 2008). Dietary habits acquired during childhood also have an important role in eating disorders that may arise later in an individual's life (Kaya, 1999). Therefore, the topic of healthy nutrition taught at school has an important role in helping children gain information, behaviors and habits about what can be done to prevent diseases by teaching them desired behaviors related to balanced and adequate nutrition (Sabbağ, 2009). Balanced and adequate nutrition is required to support children's cognitive and behavioral skills and increase their learning capacity (Ruel & Alderman, 2013). In studies conducted on healthy nutrition in schools, it is reported that through teaching the subject in schools, children's academic development, their active participation in education and their quality of life have increased (Yabancı, 2011). This fact shows the importance of implementing healthy nutrition education programs in all schools.

**Purpose of the Study**

Considering the importance of the childhood period, it is seen that the health education to be given in schools during these periods needs to be presented in relation to both the age and cognitive level of the child and the curriculum gains. In this context, the relevant acquisitions are clearly included in the Life Studies Curriculum of the Ministry of National Education (Ministry of National Education [MoNE], 2018). Relevant achievements can be supported by digital stories and presented to students and awareness can be raised in children about healthy eating. Therefore, the aim of the present study was to examine the effect of digital stories on the healthy eating behaviors of primary school students. In the present study, the effectiveness of digital stories presented to primary school children on the subject of healthy nutrition was investigated. In this context, the following research questions were formulated:

1) Is there a significant difference students' pretest scores obtained from the health perception, nutrition behavior, child nutrition self-efficacy, and nutrition attitude scales?

2) Is there a significant difference students' posttest scores obtained from the health perception, nutrition behavior, child nutrition self-efficacy, and nutrition attitude scales?

3) Is there a significant difference scores obtained from the experimental and control group students' health perception, nutrition behavior, child nutrition self-efficacy, and nutrition attitude scales?

4) Is there a significant difference between the final test scores of the experimental and control groups when the pre-test scores are examined?

**Method**

**Research Design**

A quasi-experimental design was used. In quasi-experimental research, assignments to groups are performed purposefully, not impartially as in experimental research (Büyüköztürk, Çokluk, & Köklü, 2020). In the pretest–posttest design with an unpaired control group, in which the research was conducted and which is frequently used in quasi-experimental studies, the experimental group and the control group are selected without random assignment, and the experimental process is applied only to the experimental group, while pretest–posttests are applied to the two groups (Sönmez & Alacapınar, 2019). Similarly, the aim of this study was to show the effect of digital stories about healthy nutrition. Experimental and control groups were created to show the effectiveness of the stories that were written. Through these groups, it will be possible to show whether the possible difference of results gained from the experimental group is caused by digital stories or not. For this reason, it was decided to use a quasi-experimental method in the present study.

**Research Sample**

The study included 2$^{nd}$-grade students studying in a public school in Turkey in the 2020-2021 academic year. A convenience sampling technique was used. In this technique, it is essential to collect data from a sample group that the researcher can easily reach (Büyüköztürk, Kılıç, Akgün, Karadeniz, & Demirel, 2018). In the present study, the researchers used this technique, which allows for the collection of data in terms of time and space. The demographic information of participants was presented in Table 1. As can be seen in Table 1, a total of 90 students participated in the study and the experimental and control groups consisted of an equal number (n=45) of students. Equality was observed in the gender distribution of experimental and control groups. Accordingly, the number of female students is 25, and the number of male students is 20 in both groups. In this context, a total of 50 female and 40 male students participated in the study.

**Table 1**
*Demographic Characteristics of the Participants*

|  |  | Gender | | |
|  |  | Female | Male | Total |
|---|---|---|---|---|
| **Groups** | Experimental | 25 | 20 | 45 |
|  | Control | 25 | 20 | 45 |
|  | Total | 50 | 40 | 90 |

**Research Instruments**

### Children's Dietary Self-Efficacy Scale (CDSS)

The CDSS was used to determine children's food preferences. The scale is one of the Child and Adolescent Trial for Cardiovascular Health Behavior Questionnaire scales that developed for the American population (Edmundson et al., 1996). The questions in the scale were used to determine the children's preferences for low-fat and low-salt food. The scale, which consists of 15 items, has a 3-point Likert type, single-factor structure. Scale items are scored in the range of -1 to +1 (-1: not sure, 0: somewhat sure, +1: very sure). The score obtained from the scale varies between -15 and +15, and as the total score increases, the level of self-efficacy also increases. The adaptation of the scale to Turkish language and culture was performed by Öztürk (2010). Accordingly, the content validity index of the scale was .90 and the Cronbach alpha value was .70. In our study, the internal consistency coefficient was .74.

### Health Perception Form (HPF)

The HPF, developed by Öztürk (2010), was also used. They were asked to answer "yes" or "no" to statements such as "I believe that I am healthy". According to this, they were asked to choose the appropriate answer from the "bad, moderate, good, excellent" answers that took a value in the range of 1-4 points.

### Food Behavior Scale (FBS)

The FBS was developed by the CATCH HBQ program (Edmundson et al., 1996). The scale consists of items in which children are presented with food options such as low salt/salty and high fat/low fat through visuals. They are asked which of the two foods shown in these items they would prefer. Scale items are scored as -1 for unhealthy food and +1 for healthy food, and the total score varies between -14 and +14. A high total score from the scale indicates healthy eating habits. The validity and reliability study of the Turkish version of the FBS was carried out by Öztürk (2010). As a result of the pre-application of the scale, the KR20 coefficient was .68 and the test–retest reliability was .74. The reliability coefficient calculated for the present study was .63.

### Nutrition Attitude Scale (NAS)

The scale, which was developed by Arvidson (1990) to reveal children's attitudes towards improving heart health and adapted into Turkish by Öztürk (2002), consists of four subtests: "*exercise, nutrition, smoking, stress control*". In the present study, the nutrition subscale was used. The nutrition subscale reveals children's attitudes towards healthy food consumption. The items in the scale are scored with 1-4 points. High scores obtained from the scale indicate that the attitude towards healthy nutrition consumption is positive. The internal consistency reliability coefficient of the nutrition subscale is .67. It was .84 in the present study.

**Procedure**

An examination of the relevant literature reveals different opinions about the stages of creating digital stories. Barrett (2009) divides the digital storytelling process into five stages: story writing, sound recording, editing, collecting images, and creating and publishing stories. The digital storytelling process consists of writing a story, creating scenes according to the story, determining the appropriate multimedia elements, and publishing the story in a video format (Jakes & Brennan, 2005).

The present study was based on Barrett's (2009) model. Firstly, the text of the story was written, the visuals were prepared, and the sound recordings were arranged for the created digital stories. In the last stage, the digital stories created were published and shared with the students. In the present study, in which the effect of digital stories on health behaviors was investigated, the primary school program was applied in the control group, while digital stories were presented in addition to the program in the experimental group. Five different topics that will affect the health behaviors of the students were chosen and a digital story was created for each week. Expert opinions were obtained during the creation and implementation of the digital stories. After obtaining expert opinions, implementation was initialized. Before implementation, CDSS, HPF, FBS and NAS scales were applied to both experimental

and control groups as a preliminary test. Then the five-week implementation process began. In this process, the students in the control group continued their education as before and used their regular textbooks. The students in the experimental group were taught through digital stories that were reviewed by expert opinion for five weeks. In this process, students were shown the stories. Then discussions were started in the classroom and students were encouraged to think about healthy nutrition. At the end of the five-week process, the aforementioned scales were applied to the students in both the experimental and control groups as the final test. In this context, digital stories were presented to the students week by week, taking into account primary school gains.

Week 1: The subject of obesity was discussed. First, a scenario about obesity was created. Then the scenario was presented to the expert and any necessary changes were made. In the digital storytelling stage, scenario scenes were created and voiceovers were recorded and presented to the expert again. After any necessary adjustments, the subject of obesity was presented to the experimental group students. In the scenario, what obesity means, its causes and effects, and what should be done to not be obese are emphasized.

Week 2: The issue of nutritional deficiency was discussed. For this, the meaning of nutritional deficiency, its effects on the human body, the consequences of nutritional deficiency, and the issues to be considered are emphasized.

Week 3: What food safety means, what needs to be done at home to ensure food safety, the importance of washing food correctly, and why hygiene should be taken into account when purchasing food were highlighted.

Week 4: An interactive scenario was presented about the importance of balanced and regular eating, the benefits of fruits and vegetables, the importance of milk and dairy products in human life, and the contents of all these nutrients.

Week 5: The subject of dental health and care was discussed; the importance of tooth brushing, toothbrush cleaning, and what the expiration date of toothpaste means were discussed with digital stories.

Each story lasted an average of 6-8 minutes. During each story, attention was paid to interaction, and students' opinions were sought by interrupting the stories.

**Data Analysis**

Before the analysis of the data obtained in the present study, it was determined whether the data showed a normal distribution or not. Due to the appropriate sample size (N=90), Kolmogorov–Smirnov test results were first examined (Büyüköztürk, 2011) and it was found that the value achieved was not significant ($p>.05$). In addition, skewness and kurtosis values for each scale were examined (Table 2) and it was seen that they met the normality assumptions for parametric data analysis (Hair, Black, Babin, Anderson, & Tatham, 2013). Thereupon, it was decided to use descriptive analyses and an independent sample t-test, paired sample t-test, and ANCOVA in the study.

**Table 2**

*Skewness and Kurtosis Coefficients of Data*

|  | S | Skewness | Kurtosis |
|---|---|---|---|
| CDSS-Pretest | .406 | -.730 | .244 |
| CDSS-Posttest | .512 | -.522 | -.209 |
| FBS-Pretest | 4.160 | .296 | -.428 |
| FBS-Posttest | 3.604 | -.818 | -.354 |
| HPF-Pretest | .824 | -.378 | -1.086 |
| HPF-Posttest | .694 | -.640 | -.720 |
| NAS-Pretest | .813 | -.770 | .001 |
| NAS-Posttest | .520 | -.927 | .172 |

## Results

The findings obtained within the scope of the study were presented according to the sub problems of the research, respectively.

***Is there a significant difference students' pretest scores obtained from the health perception, nutrition behavior, child nutrition self-efficacy, and nutrition attitude scales?***

In the present study, the effects of digital stories prepared on healthy eating self-efficacy and food behaviors of primary school students were investigated. In the study, which was carried out using a quasi-experimental application, it was first investigated whether the pretest scores of the experimental and control groups were similar (Table 3).

**Table 3**

*Equivalence Comparison of the Scores from the Scales before the Application*

| Scale | Groups | N | Mean | S | SD | t | p |
|-------|--------|---|------|---|----|----|---|
| CDSS | Experimental | 45 | -.136 | .379 | 88 | .137 | .89 |
|  | Control | 45 | -.148 | .439 |  |  |  |
| CDSS | Experimental | 45 | -3.244 | 2.772 | 88 | .101 | .92 |
|  | Control | 45 | -3.333 | 5.204 |  |  |  |

The pre application equivalence status of the experimental and control groups is summarized in Table 3. Accordingly, there is no significant difference between the pretest scores of the students in the experimental and control groups ($p <.05$). Since it was seen that the relevant assumption was met for the quasi-experimental study, the posttest data obtained from the scales were examined.

***Is there a significant difference students' posttest scores obtained from the health perception, nutrition behavior, child nutrition self-efficacy, and nutrition attitude scales?***

Table 4 presents the findings regarding the effect of the experimental application on the eating self-efficacy of primary school students.

**Table 4**

*Food Self-Efficacy Posttest Scores*

| Scale | Groups | N | Mean | S | SD | t | p |
|-------|--------|---|------|---|----|----|---|
| CDSS | Experimental | 45 | .792 | .383 | 88 | 6.195 | .00 |
|  | Control | 45 | .226 | .477 |  |  |  |

Table 4 shows the averages of the experimental and control groups after the application. Accordingly, the mean score of the experimental group (M = .792) was higher than that of the control group (M = .226) and the difference was statistically significant ($t_{(88)}$ = 6.195; $p >.05$).

***Is there a significant difference scores obtained from the experimental and control group students' health perception, nutrition behavior, child nutrition self-efficacy, and nutrition attitude scales?***

The pretest and posttest results of the experimental and control groups of the relevant application were examined separately (Table 5).

**Table 5**

*Food Self-Efficacy Pretest and Posttest Results of the Experimental and Control Groups*

| Groups | | Mean | N | S | SD | t | p | d |
|--------|--|------|---|---|----|----|---|---|
| **Experimental** | Pretest | -.136 | 45 | .379 | 44 | -13.858 | .00 | .93 |
|  | Posttest | .656 | 45 | .256 |  |  |  |  |
| **Control** | Pretest | -.148 | 45 | .439 | 44 | -2.435 | .01 | .36 |
|  | Posttest | -.117 | 45 | .548 |  |  |  |  |

The paired samples t-test was used to determine the pretest–posttest values of the experimental and control groups (Table 5). Accordingly, there was a significant difference between pre application scores (M = -.136) and post application scores (M = .656) in the experimental group (t$_{(44)}$ = 13.858; $p$>.05). The effect size calculated as a result of the test ($d$ = .93) shows that this difference is large (Cohen, 1992). There was also a significant difference between the pre application scores (M= -.148) and the post application scores (M = .117) in the control group (t$_{(44)}$ = -2.435; $p$>.05). The effect size calculated as a result of the test ($d$ =.36) shows that this difference is small (Cohen, 1992). This showed that the posttest scores increased in the control group in which the application was not used, but the posttest scores obtained from the experimental group were higher both at the average level and at the effect level.

The effect of the digital stories prepared on food behaviors of primary school students was also investigated. The posttest data obtained from the scale are presented in Table 6.

**Table 6**

*FBS Posttest Scores*

| Scale | Groups | N | Mean | S | SD | t | p |
|-------|--------|---|------|---|----|----|---|
| **FBS** | Experimental | 45 | 8.400 | 2.750 | 88 | 8.523 | .00 |
| | Control | 45 | -1.200 | 7.037 | | | |

In Table 6, the averages of the experimental and control groups after the application are presented. Accordingly, it is seen that the mean score of the experimental group (M = 8.400) is higher than that of the control group (M = -1.200) and the difference is significant (t$_{(88)}$ = 8.523; $p$> .05). Then the pretest and posttest results of the experimental and control groups of the relevant application were examined separately (Table 7).

**Table 7**

*Pretest and Posttest Results of the FBS in the Experimental and Control Groups*

| Groups | | Mean | N | S | SD | t | p | d |
|--------|--|------|---|---|----|----|---|---|
| **Experimental** | Pretest | -3.244 | 45 | 2.772 | 44 | -18.967 | .00 | .95 |
| | Posttest | 8.400 | 45 | 2.750 | | | | |
| **Control** | Pretest | -3.333 | 45 | 5.204 | 44 | -2.728 | .01 | .40 |
| | Posttest | -1.200 | 45 | 7.037 | | | | |

Table 7 shows the pretest and posttest scores of the experimental and control groups from the FBS. Accordingly, there was a significant difference between the pre application scores (M = -3.244) and the post application scores (M = 8400) in the experimental group (t$_{(44)}$= .18.967; $p$>.05). The effect size ($d$= .95) calculated as a result of the test shows that this difference is large (Cohen, 1992). There was also a significant difference between the pre application scores (M = -3.333) and the post application scores (M = -1.200) in the control group (t$_{(44)}$ = -2.728; $p$>.05). The effect size ($d$=.40) calculated as a result of the test shows that this difference is small (Cohen, 1992). This showed that the posttest scores increased in the control group in which the application was not used, but the posttest scores obtained from the experimental group were higher both at the average level and at the effect level.

The health perceptions of the students before and after the application were also measured with the HPF. Accordingly, the measurement results of the experimental and control groups are shown in Figure 1.
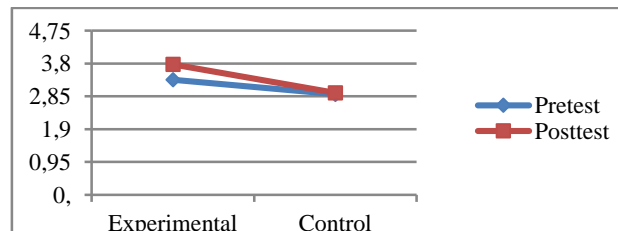


**Figure 1.** *HPF Experimental and Control Group Pretest–Posttest Values*

According to Figure 1, the scores obtained from the HPF increased in the posttest for the experimental and control groups. However, the score (M = 3.77) obtained by the experimental group in the posttest was higher than that (M = 2.95) of the control group.

### *Is there a significant difference between the final test scores of the experimental and control groups when the pre-test scores are examined?*

It was observed that the pretest scores of the experimental and control group students were not equal, and the experimental group students got higher scores in the pretest. For this reason, in the study, NAS pretest scores were determined as a covariable and covariance analysis was performed. The analyses conducted are summarized in Tables 8 and 9.

**Table 8**

*Descriptive Analysis Results of NAS Posttest Scores*

| Source | Groups | N | Mean | Corrected Mean | S |
|---|---|---|---|---|---|
| NAS-Posttest | Experimental | 45 | 3.51 | 4.001 | .058 |
| | Control | 45 | 3.39 | 3.231 | .059 |

**Table 9**

*ANCOVA Test Results*

| Source | Type III Sum of Squares | d$f$ | Mean Square | F | p |
|---|---|---|---|---|---|
| **NAS Pretest** | 12.000 | 1 | 12.000 | 88.430 | .00 |
| **Group** | 3.693 | 1 | 3.693 | 27.215 | .00 |
| **Error** | 11.806 | 87 | .136 | | |
| **Total** | 1097.063 | 90 | | | |
| **Corrected** | 24.112 | 89 | | | |

According to the findings in Tables 8 and 9, after the experimental applications, the NAS posttest mean scores of the experimental group students (M = 4.001) were significantly higher (F $_{(1, 87)}$ = 27.215, $p$<.05) than those of the control group students (M = 3.231).

### **Discussion, Conclusion and Recommendations**

In the present study, in which the effects of digital storytelling on the healthy eating behaviors of primary school students were investigated, a 5-week application was carried out. At the end of the application, a significant increase was observed in the nutritional self-efficacy, healthy eating behaviors, health perceptions, and nutrition attitudes of the experimental group students. When these levels were compared between the experimental group students and the control group students, they were found to be significantly higher in the former. This shows that the intervention applied to primary school students is positive. In the relevant literature, it has been concluded that digital stories have a positive effect on students and contribute to their learning (Yang & Wu, 2012; Robin, 2008; Wu & Yang, 2008; Hung, Hwang & Huang 2012). Burmark (2004) also revealed in his study that digital stories play an important role in students' acquiring new information. Therefore, it is seen that this application, which is carried out with digital storytelling, attracts the attention of the students and is effective in achieving healthy eating behaviors. This effect can also be associated with the fact that the students are at a young age. It is possible to conclude that this education, which is gained at a young age, can also be effective in later periods. It is accepted in the literature that the habits acquired in childhood continue throughout life (Branen & Fletcher, 1999; Manios et al., 2004). Likewise, healthy eating habits gained in childhood

become permanent and continue into adulthood. Therefore, the training given in these periods is very important (Chae & Chung, 2021). The education given in schools plays a major role in the child's life in order to develop a healthy life awareness and maintain these habits throughout life (Story, 1999; Van Cauwenberghe et al., 2010).

Digital stories, which are a technological application, have become a popular method in the digitalizing world as they enable students to actively participate in the process in education. Today, as a requirement of the digital age, web 2.0 tools have been developed and integrated into the educational environment. It has been determined that with the transfer of digital tools to the educational environment, students' active participation in the process has increased and their interest has increased (Behmer et al., 2006; Robin, 2006; 2008). In the present study, it is apparent that the attention of children was drawn during the digital storytelling process, because, with the applications, positive developments were seen in the health behaviors of the students. Digital stories are acknowledged as an effective tool for healthy nutrition (Gubrium, 2009). Brace, Finkelstein, & Sealy (2016) have reported in their studies that digital stories created mindfulness and increased awareness of healthy nutrition in individuals experiencing food insecurity. In addition, studies that examine the importance of brain development (Cueva et al., 2013), increasing awareness of cancer (Cueva, Kuhnley, Revels, Schoenberg, & Dignan, 2015) and prevention of heart attack (Anghel, Gorghiu, Buruleanu, & Gorghiu, 2017) through digital stories have shown the importance of storytelling in the field of medicine. This indicates that digital stories have an impact on the audience.

However, although no intervention was performed, there was an increase in the posttest scores obtained for nutrition self-efficacy and health perceptions in the control group students. This may have been associated with the practices used by the teacher in the classroom. MoNE (2018) mentioned active learning practices in programs and pointed out that teaching should be carried out in this way. Therefore, these results obtained from the control group may indicate that the teacher exhibits an active approach in the classroom. The high impact rate obtained from the experimental group is a reflection of the use of digital stories.

If the present study is repeated with students studying in different conditions in terms of socioeconomic level, similar results may not be obtained. This is seen as a limitation of the present study, because the findings to be obtained from a study with children who frequently use digital storytelling in the classroom environment or who are studying in private education institutions may differ. Based on this, it is recommended that the study be conducted with students in different age groups and of different socioeconomic levels. In addition, the results obtained in the present study can only be evaluated in terms of psychological variables such as behavior, self-efficacy, and attitude. However, the students' understanding and permanence of the gains that will be achieved with digital storytelling and that deal with healthy nutrition issues have not been discussed. From this point of view, the effect of teaching health issues with digital storytelling on academic achievement and permanence can be examined. In conclusion, due to their nature, digital stories involve short-term interactions (Kajder, Bull, & Albaugh, 2005). In line with this, students were presented with 6-8-minute stories. This situation should be considered as a limitation caused by the nature of digital stories.

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# Evaluation of Healthy Lifestyle Behaviors and Stress Levels of Dentistry Students during the COVID-19 Pandemic

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## Abstract

Covid-19, which threatens human health worldwide, affects people not only emotionally, but also by exposing them to necessary changes in their social behaviors and lifestyles. Psychological health and daily life habits have been transformed by the COVID-19 pandemic. Closure of universities, suspension of clinical training, and transition to online education are likely to affect students negatively. This paper focuses on the stress levels and daily lifestyle changes of students because of the pandemic. A total of 601 participants of dentistry faculty, including 402 preclinical (PC) and 199 intorn (INT) students, filled an online survey questionnaire including sociodemographic data form, "Health-promoting Lifestyle Profile-II (HPLP-II)" form, and "Perceived Stress Scale-10 (PSS-10)" form. IBM SPSS version 25.0. program was used for statistical analyses. HPLP-II and PSS-10 mean scores of PC and INT students were found as moderate. It was determined that variables as gender, educational grade, financial status, living with a relative who is at risk of contracting COVID-19 or having a relative who has the disease caused difference in HPLP-II and PSS-10 total mean score and the average score in the majority of subscales. The current study's findings reveal that COVID-19 pandemic has devastating effects on students' stress levels and lifestyle routines. It is vital to provide services to individuals in order to sustain healthy lifestyle behaviors in order to protect communal health.

*Keywords:* COVID-19, dentistry, pandemics, severe acute respiratory syndrome coronavirus 2

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# Diş Hekimliği Öğrencilerinin Sağlıklı Yaşam Biçimi Davranışlarının ve Stres Düzeylerinin COVID-19 Pandemisi Sürecinde İncelenmesi

**Didem Özkal Eminoğlu**[*]    **Tuğba Aydın**[**]

## Öz

İnsan sağlığını dünya çapında tehdit eden Covid-19 salgını sadece insanları duygusal olarak değil, sosyal davranışlarını ve yaşam stillerini de zorunlu değişikliklere maruz bırakarak etkilemektedir. Psikolojik sağlık ve günlük yaşam alışkanlıkları COVID-19 pandemisinden büyük ölçüde etkilenmiştir. Üniversitelerin kapatılması, klinik eğitimin askıya alınması ve çevrimiçi eğitime geçişin öğrencileri olumsuz yönde etkilemesi muhtemeldir. Bu araştırmanın amacı, COVID-19 salgınından etkilenen öğrencilerin stres düzeylerini ve yaşam tarzı değişikliklerini değerlendirmektir. 402 klinik öncesi (PC) ve 199 intorn (INT) dahil olmak üzere toplam 601 dişhekimliği öğrencisi, sosyodemografik özelliklerini belirlemeye yönelik soruları, "Sağlıklı Yaşam Biçimi Davranışları Ölçeği-II (HPLP-II)" ve "Algılanan Stres Ölçeği-10 (PSS-10)" formlarını içeren bir çevrimiçi anketi doldurdu. IBM SPSS 25.0. programı verilerin istatistiksel olarak anlamlılığını belirlemek üzere kullanılmıştır. PC ve INT öğrencilerinin HPLP-II ve PSS-10 puan ortalamaları orta düzeyde bulundu. Öğrencinin cinsiyeti, eğitim düzeyi, ekonomik durumu, COVID-19 hastalığına yakalanma riski taşıyan veya hastalığa yakalanmış bir bireyle birlikte yaşamanın HPLP-II ve PSS-10 toplam puan ortalamasında ve alt ölçeklerin pek çoğunun puan ortalamasında farklılığa neden olduğu belirlendi. Bu kesitsel çalışmanın sonuçları, COVID-19 salgınının öğrencilerin stres seviyeleri ve yaşam tarzı rutinleri üzerinde yıkıcı etkileri olduğunu göstermektedir. Halk sağlığının idamesi sağlamak amacıyla bireylerin sağlıklı yaşam tarzı davranışlarını sürdürebilmelerini imkan sağlayan bilgi ve hizmetlerin geliştirilmesi fayda sağlayabilir.

*Anahtar Sözcükler:* COVID-19, diş hekimliği, pandemik, şiddetli akut solunum sendromu koronavirüs 2

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**Introduction**

In December 2019, 4 people working in a market in Hubei / Wuhan, China that sells various live animals and 23 people who visited this market were diagnosed with acute respiratory failure syndrome. The World Health Organization (WHO) recognized COVID-19 to be the first pandemic caused by coronaviruses as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus was contracted by 446.360.000 people and caused more than 6.005.443 deaths worldwide in 2022. 14.332.089 cases and 95.553 deaths were reported in Turkey as of March 2022 (Dong, Du & Gardner, 2020). Despite vaccination and medical efforts, the spread of the virus is still not fully controlled, and deadly effects of COVID-19 continue to threaten public health (Arpaci, Karataş & Baloğlu, 2020).

The pandemic has brought many restrictions in daily routine life, and strict measures have been taken both in individual provinces and across the nation in order to avoid the infestation of the disease. The measures taken include the suspension of intercity travel, lockdowns for citizens over 65 and under 20, the closure of shopping centers, cinemas, theaters, sports centers, restaurants, barbers, hairdressers, cafes and the declaration of a nationwide lockdown in periods of time. The closure of schools and the transition to the distance education system were among these measures (Özdede & Sahin, 2020).

A broad variety of psychological consequences have been discovered at the individual, national, and international levels during the virus outbreak. Sudden life changes that started with the pandemic had serious psychological effects on healthcare personel, children, elderly individuals, students, and the public at large. Studies have shown that individuals in isolation and quarantine suffer severe stress-related problems. It has been recorded that individuals affected by the COVID-19 outbreak experience emotional distress, insecurity, depression, mood disorder, denial, irritability, insomnia, anger, and post-traumatic stress. The prevalence of stress caused by the pandemic was determined as 29.6 (Salari et al., 2020). The currency of major depression accounted for %7, and post-traumatic stress disorder (PTSD) ranges from %4 to %41 after the outbreak (Torales, O'Higgins, Castaldelli-Maia & Ventriglio, 2020).

Hans Selye introduced the concept of stress as the wear rate of the body against incoming stimuli. In addition, stress refers to the effort to maintain integrity and return to the original state (Tan, Yip & Hans, 2018). Stress is one of the most influential research topics in the field of health, since it is thought to be associated with psychological disorders, suicide attempts, and disorders such as cancer, diabetes, cardiovascular / respiratory system / rheumatic diseases etc. (Cohen, Janicki-Deverts, & Miller, 2007). Scientific studies indicate that stress is highly related to mental deprimention as well due to a strong causal relationship between exposure to stressful events and major depression (Salari et al., 2020). It has been found out that suicidal behaviours were more common among people who experienced stressful events. Exposure to stressful events also increases the risk of using harmful products such as tobacco, alcohol, and cannabis (Onaemo, Fawehinmi & D'Arcy, 2020; Gebo, Keruly & Moore, 2003; O'Connor, Gartland & O'Connor, 2020).

Health professionals show more attention on the psychology and social-family relationships, diet and physical health. Researchers have begun to highlight that an individual's health is affected by habits in his/her daily life (Holden, Rollins & Gonzalez, 2022). Healthy behaviour can be defined as the behaviours related to the preservation and improvement of well-being. They are the behaviours shown by the individual so as to stay in good health and to prevent disease. Healthy life behaviours are known as the choices of diet, physical activity, hygiene habits, supportive relationship with family and friends that can positively affect the personal well-being while performing daily routine activities (Hoying, Melnyk, Hutson & Tan, 2020). Stress affects physical and psychological status in addition to the daily activities of people. Healthy living habits and social interactions have a strong impact on coping with stress. It is expected that the stress conditions and healthy living habits of university students will be affected due to the continued spread of the pandemic, the postponement of the opening of universities, and the online education (Gottschalk, Domschke & Schiele,2020; Smith et al., 2020). Clinical education was suspended also in dentistry faculties given that close contact and/or aerosol- producing treatment procedures of asymptomatic COVID-19 patients (Ö zdede & Sahin, 2020).

The aims of the present survey are as follows:

1) to examine stress levels and healthy daily life routines -by a universally preferred measurement scale- of the dentistry students due to the COVID-19 pandemic *and*

2) to investigate whether variables such as gender, educational grade, economic status, etc. have an effect on students' healthy lifestyle habits and stress parameters during the COVID-19 pandemic.

## Method

### Research Design

The present research is a survey model, which is "a research model that intents to determine a past or present status as it exists". So as to carry out the study, consent was received from the ethics committee of the institution where the research would be conducted (decision/protocol number of the approval: 07.07.2020 / 21) and from the authors who developed the Turkish version of the data collection tools.

### Research Sample

In scale studies, it is suggested to take 10 people for each question included in the scale (Karasar, 2020). During the nationwide lockdown, 601 students of the Faculty of Dentistry of Atatürk University, who volunteered to participate, were employed for the study. The questionnaire with an informative text was sent to the students via the online survey portal "docs.google" (Mansor, 2012). Students were divided into two groups as preclinical period (PC) and internship period (INT). The data of the study were collected by using "Personal Information Form" and the Turkish versions of the "Health-promoting Lifestyle Profile II (HPLP-II)" and "Perceived Stress Scale-10 (PSS-10)" forms.

### Perceived Stress Scale (PSS) Research Design

"Perceived Stress Scale" is a highly popular measurement tool which that addresses the subjective stress perception of the person (Huang et al., 2020). PSS is a measurement scale to determine the degree of the emotions in a person's life perceived as stress, which was developed by Cohen et al. in 1983. Participants answer each question on a 5 point Likert scale ranging from "never (0)" to "very often (4)". Questions containing positive statements from the items are scored in reverse. In addition to the 14-item long form, PSS has two other forms, with 10 and 4 items. Although the data from all three versions contain strong psychometric meanings, researchers prefer the 10-item version. The internal consistency reliability coefficient for the Turkish versions of the PSS-10 is 0.82 (Eskin et al., 2013). PSS-10 has two subscales: Perceived Helplessness (1-2-3-6-9-10) and Perceived Self-efficacy (4-5-7-8). Scores of PSS-10 vary between 0 and 40. Higher scores indicate that the person has an excessive perception of stress (Roberti, Harrington & Storch, 2006).

### Health-promoting Lifestyle Profile (HPLP)

HPLP scale was developed in 1987 based on Pender, whose health promotion model is widely preferred in studies when measuring lifestyle habits (Walker, Sechrist & Pender, 1987). The first version of the HPLP scale was reworked and revised in 1996 and renamed "HPLP-II". The Cronbach Alpha value of the scale is 0.94 for the total scale and varies between 0.70-0.85 for the subscales. Bahar et al. (2008) tested the validity and reliability of the Turkish version of the HPLP. There are 52 items on the scale. The scale consists of six subscales, namely Interpersonal Relations (1, 7, 13, 19, 25, 31, 37, 43, 49), Nutrition (2, 8, 14, 20, 26, 32, 38, 44, 50), Health Responsibility (3, 9,15, 21, 27, 33, 39, 45, 51), Physical Activity (4, 10, 16, 22, 28, 34, 40, 46), Stress Management (5, 11, 17, 23, 29, 35, 41, 47) and Spiritual Growth (6, 12, 18, 24, 30, 36, 42, 48, 52). Each subscale can be used independently. The rating of the scale is 4-point Likert is as "never (1)", "sometimes (2)", "often (3)" or "routinely (4)". The lowest score is 52 and the maximum score for the scale is 208. Higher scores on the scale imply that the individual shows healthy lifestyle behaviors.

### Data Analysis

In the evaluation of the results, Independent Samples t-test, One-way Analysis of Variance (Tukey multiple comparison test for determining the difference between the means) were used for

statistical analyses and correlation analysis methods were used to determine the relations between the variables. These analyzes were performed using IBM SPSS version 25.0.

### Results

Cronbach alpha value of the scale was calculated as 0.929 (95% GA 0,90-0). There were 402 (66.8%) students in the PC group and 199 (33.1%) students in the INT group. Of the 601 students included in the study, 57.9% (n: 348) were female and 42.1% (n: 253) were male. According to the economic status of their families; 32.3% (n: 194) of students expressed as "financial income more than expenses"; 54.2% (n: 326) expressed "financial income equal to expenses", and 13.5% (n: 81) expressed "financial income less than expenses". 35.9% (n: 216) of the students signed the question of "Does anyone in your household belong to the COVID-19 risk group?" as "yes" and 64.1% (n: 385) as "no". 15 students had a COVID-19 positive family member in their households and 586 students din't have any relative who were Covid-19 positive (Table 1).

**Table 1**

*Distribution of students based on a variety of factors*

|  | % | n |
|---|---|---|
| Grade (n:601) |  |  |
| PC | 66.8 | 402 |
| INT | 33.1 | 199 |
|  |  |  |
| Gender (n:601) |  |  |
| Female | 57.9 | 348 |
| Male | 42.1 | 253 |
|  |  |  |
| Financial status (n:601) |  |  |
| Income < expenditure | 32.3 | 194 |
| Income = expenditure | 54.2 | 326 |
| Income > expenditure | 13.5 | 81 |
|  |  |  |
| Is there anyone in the covid-19 risk group in your household? (n:601) |  |  |
| Yes | 35.9 | 216 |
| No | 64.1 | 385 |
|  |  |  |
| Anyone in household who are Covid-19 positive? (n:601) |  |  |
| Yes | 02.5 | 15 |
| No | 97.5 | 586 |

*PC: Pre-clinic, INT: Intorn*

### Findings Related to PSS-10

The mean PSS-10 score of 402 students in the PC group was found to be $21.55 \pm 0.33$. The mean of 199 INT students according to the PSS-10 score was determined as $23.14 \pm 0.47$. The difference between PC and INT students' perceived stress values was statistically significant ($p<0.05$). "Perceived Helpnessness" score of PC group was statistically lower compared to INT group ($p<0.05$). However, there was no significant difference between the "perceived self-efficacy" scores according to students' level of education ($p>0.05$) (Table 2).

**Table 2**

*Average score of PSS-10 and subsacles according to students' level of education*

| Grade | PSS-10 | Perceived Helplessness | Perceived Self-efficacy |
|---|---|---|---|
| PC | **21.55±0.33[a]** | **13.89±0.24[a]** | 7.66±0.15 |
| INT | **23.14±0.47[b]** | **15.13±0.37[b]** | 8.01±0.20 |

Values are presented mean±standart deviation.
[a,b] *values means; different letter statistically different from each other (p<0.05).*
*PC: Pre-clinic, INT: Intorn*

It was observed that the PSS-10 and "Perceived Helplessness" values of the female students participating in the study were relatively higher than the values of male students, and this was statistically significant ($p<0.05$). There wasn't statistically significant difference between scores of "Perceived Self-efficacy" according to students' gender ($p>0.05$). It was determined that students' financial situation did not make a significant difference on perceived stress values ($p>0.05$). It was also found out that the PSS-10, "Perceived Helplessness" and "Perceived Self-efficacy" values of the students who had a family member in the COVID-19 risk group in their household were statistically significantly higher than the students who did not have a risky individual in their household ($p<0.05$). It was observed that the presence of a family member with a positive diagnosis of COVID-19 in household did not make a significant difference on values related to stress ($p>0.05$) (Table 3).

**Table 3**

*Average score of perceived stress according to students' descriptive features*

|  |  | PSS-10 | Perceived Helplessness | Perceived Self-efficacy |
|---|---|---|---|---|
| Gender | Female | 23.28±0.36[a] | 15.32±0.26[a] | 7.96±0.16 |
|  | Male | 20.40±0.39[b] | 12.88±0.30[b] | 7.52±0.19 |
|  |  |  |  |  |
| Financial Status | I < E | 21.42±0.49 | 13.80±0.38 | 7.62±0.21 |
|  | I = E | 22.44±0.35 | 14.57±0.27 | 7.86±0.16 |
|  | I > E | 22.17±0.82 | 14.37±0.56 | 7.80±0.36 |
|  |  |  |  |  |
| Risk for | Yes | 23,50±0.46[a] | 15.25±0.33[a] | 8.25±0.20[a] |
| Covid-19 | No | 21.27±0.33[b] | 13.76±0.25[b] | 7.51±0.15[b] |
|  |  |  |  |  |
| Covid-19 | Yes | 24.47±1.40 | 16.00±1.05 | 8.46±0.57 |
| Diagnosed İndividual | No | 22.01±0.27 | 14.25±0.21 | 7.75±0.12 |

Values are presented mean±standart deviation.
[a,b] *values means; different letter statistically different from each other ($p<0.05$).*
*PSS-10: Perceived Strss Scale-10, I: Income, E: Expenditure*

**Findings Related to HPLP-II**

Among PC and INT groups for HPLP-II and subscale scores, it was seen that statistically significant increase was only in the "interpersonal relationships" subscale. "Interpersonal relationships" subscale score for PC was significantly higher from INT group ($p<0.05$). Despite the higher score of HPLP-II in PC group, this difference was not found as statistically significant ($p>0.05$) (Table 4).

**Table 4**

*Average score of HPLP-II and subsacles according to students' level of education*

|  | PC | INT |
|---|---|---|
| HPLP-II | 126.48±0.93 | 123.51±1.31 |
| Spiritual Growth | 25.20±0.23 | 24.47±0.33 |
| Health Responsibility | 19.77±0.21 | 19.31±0.30 |
| Physical Activity | 17.76±0.24 | 16.96±0.34 |
| Nutrition | 20.20±0.18 | 20.27±0.27 |
| Interpersonal Relations | 24.43±2.21[a] | 23.41±0.31[b] |
| Stress Management | 19.12±0.16 | 19.10±0.27 |

Values are presented mean±standart deviation.
[a,b] *values means; different letter statistically different from each other ($p<0.05$).*
*PC: Pre-clinic, INT: Intorn, HPLP-II: Health Promoting Lifestyle Profile-II*

Scores of the "physical activity" subscale of male students were relatively higher than the values of female students, and this was statistically significant ($p<0.05$). HPLP-II and subscales except "physical activity" didn't show any significant difference according to gender ($p>0.05$). Financial situation caused a statistically significant difference in the HPLP-II, "physical activity", "nutrition"

and "stress management" scores of the students ($p<0.05$). As the financial situation improved, the scores increased (Table 5).

HPLP-II values of the students with family members in the covid risk group in their households were found to be statistically significantly lower than the students who did not have a risky family member ($p<0.05$). Risk of Covid-19 for family members didn't make any significant difference for subscales of HPLP-II ($p>0.05$). "Spiritual growth" and "interpersonal relations" subscale values were found to be statistically significantly lower in the students who had family members diagnosed with covid-positive in their households ($p<0.05$). HPLP-II score and other subscale scores were higher for answer "no" category, but these differences weren't significant ($p>0.05$) (Table 5).

**Table 5**

*Average score of healthy lifestyle behaviours according to students' descriptive features*

| | Gender | | Financial Status | | |
|---|---|---|---|---|---|
| | Female | Male | I < E | I= E | I > E |
| HPLP-II | 125.25 ±1.01 | 125.83±1.29 | **127.50±1.46$^a$** | **125.16±1.08$^{ab}$** | **122.03±1.96$^b$** |
| SG | 24.82 ±0.24 | 25.13 ±0.30 | 25.12±0.32 | 24.87±0.26 | 24.89±0.48 |
| HR | 19.67 ±0.23 | 19.54 ±0.27 | 19.61±0.34 | 19.67±0.22 | 19.42±0.47 |
| PA | **16.84 ±0.25$^a$** | **18.40 ±0.31$^b$** | **17.88±0.35$^a$** | **17.57±0.28$^{ab}$** | **16.27±0.50$^b$** |
| N | 20.45 ±0.20 | 19.93 ±0.25 | **20.80±0.27$^a$** | **20.15±0.22$^{ab}$** | **19.20±0.41$^b$** |
| IR | 24.25 ±0.22 | 23.88 ±0.29 | 24.35±0.35 | 23.98±0.23 | 23.91±0.41 |
| SM | 19.22 ±0.17 | 18.95 ±0.23 | **19.73±0.26$^a$** | **18.93±0.18$^{ab}$** | **18.34±0.37$^b$** |

| | Risk for Covid-19 | | Covid-Diagnosed Individual | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| HPLP-II | **123.22±1.35$^a$** | **126.77±0,99$^b$** | 117.20±5,14 | 125.70±0.80 |
| SG | 24.31±0.33 | 25.31±0.23 | **22.01±0.96$^a$** | **25.03±0.19$^b$** |
| HR | 19.13±0.29 | 19.89±0.22 | 19.20±1.25 | 19.63±0.17 |
| PA | 17.31±0.35 | 17.60±0.24 | 16.87±1.13 | 17.51±0.20 |
| N | 19.77±0.26 | 20.49±0.19 | 19.93±0.88 | 20.24±0.16 |
| IR | 23.90±0.30 | 24.21±0.22 | **21.20±0.87$^a$** | **24.16±0.18$^b$** |
| SM | 18.80±0.23 | 19.28±0.18 | 18.00±1.15 | 19.14±0.14 |

Values are presented mean±standart deviation.
$^{a,b}$ values means; different letter statistically different from each other ($p<0.05$).
*HPLP-II: Health Promoting Lifestyle Profile-II, I: Income, E: Expenditure, SG: Spiritual Growth, HR: Health Responsibility, PA: Physical Activity, N: Nutrition, IR: Interpersonal Relations, SM: Stress Management*

The correlation between PPS-10 with HPLP-II mean scores was found as -0.375. This correlation was statistically significant ($p<0.01$). Statistically significant correlations between PPS-10 and all subscales of HPLP-II was shown in "Table 6" ($p<0.01$).

**Table 6**

*Correlation between PPS-10 and subscales of HPLP-II (tüm değerlere ** konulacak)*

| | PSS-10 | HR | PA | N | SG | IR | SM |
|---|---|---|---|---|---|---|---|
| PSS-10 | - | -0.244** | -0.301** | -0.163** | -0.437** | -0.212** | -0.342** |
| HR | | - | 0.482** | 0.527** | 0.502** | 0.534** | 0.539** |
| PA | | | - | 0.525** | 0.419** | 0.351** | 0.482** |
| N | | | | - | 0.409** | 0.371** | 0.493** |
| SG | | | | | - | 0.659** | 0.605** |
| IR | | | | | | - | 0.546** |
| SM | | | | | | | - |

*PSS-10: Perceived Stress Scale-10, SG: Spiritual Growth, HR: Health Responsibility, PA: Physical Activity, N: Nutrition, IR: Interpersonal Relations, SM: Stress Management*
*\* means that $p<0.05$, \*\* means that $p<0.01$*

**Discussion**

Dental education is considered to be an extremely stressful process in many respects. Because it depends of a broad spectrum of theoretical knowledge in addition to communication and clinical skills, education life is also demanding (Mocny-Pachońska, 2020). This study is based on evaluating the stress perceptions and differentiating healthy lifestyle behaviors of the dental faculty students who are isolated due to the pandemic and receive online education.

**Discussion of Sociodemographic Variables**

Findings of the recent study according to sociodemographic variables showed that the majority of the students participating in the study are in the PC group. The PC group includes 1st, 2nd and 3rd year students, and INT group includes 4th and 5th grade students. This may be due to the higher number of students studying in the first 3 grades. The majority of students participating in the recent study were females. According to Council of Higher Education input indicators, the number of female students placed in the Faculty of Dentistry at Atatürk University is higher than the number of male students (yok.atlas, 2022). Most of the students stated that they had a moderate economic status. Turkey was among the low-middle-income group countries in 1955-2005, and it has been in the high-middle-income group countries since 2005. Among the countries in the middle income group, Turkey is one of the three countries that have stayed in this income group for the longest time (Alçın & Güner, 2015). Although the number of family members at risk of contracting Covid-19 was relatively high, only 15 students' family members were diagnosed with Covid.

**Discussion of Stress-Related Findings**

In the recent study, students from INT group, female students, and those who have a household member in the COVID-19 risk group showed higher PSS-10 scale and "Perceived Helplessness" subscale scores. The "Perceived Self-efficacy" value was significantly higher only if there were family members in the risk group for COVID. The fact that COVID-19 is a newly discovered virus, its rapid transference, high mortality rate, and distress about what might happen in the future can be causes of stress. Similarly, several authors have shown that COVID-19 leads to negative psychological disturbances such as anxiety symptoms, acmes, or post-traumatic stress disorder (Wang, Di, Ye & Wei, 2020). Despite various adjustements made to suppress the infectiousness of the virus during the pandemic, such as social distancing and self-isolation, number of cases and mortality rate continues to increase. According to the reported cases in April 20, 2020, Turkey was the country with the seventh highest number of cases reported, and as of March 07, 2022, Turkey ranked eighth (Dong, Du & Gardner, 2020). Faculties including dentistry were either postponing opening until October 2020 or were using online education methods. The inability to practice clinical practices, which form the basis of dental education, is responsible for the deterioration of students' psychological status. A survey showed that 24.9% of college students suffer from stress due to the outbreak (Özdin & Bayrak Özdin, 2020). White (2022) stated that college students experienced high anxiety and stress during COVID-19 pandemic. Younger adults struggling with Covid-19 were in the high risk group associated with mental health breakdown (Breslau et al., 2021). As expected, our stress-related findings revealed a strong detrimental effect of the pandemic on students' perception of stress.

Özdede and Şahin (2020) stated that education level does not affect students' **stress** levels. In our study, INT students showed higher stress levels in contrast with the study of Loh et al. (2005). INT students' anxiety about pandemic might have been related to the influence of the self-isolation on their lacking dental education and future employment. Also, increased level of stress in INT group was thought to be related to the high-risk of contamination doe to dental procedures with a close contact to the patients when face-to-face education starts. Otherwise, students' increased susceptibility to stress may have been caused by weakened relationships between people resulting from social isolation. Lack of interpersonal communication leads to the emergence and worsening of anxiety disorders (Boon & Yoshimura, 2020).

Studies showed that women are more susceptible to emotional disorders than men. According to previous researches, post-traumatic stress disorder symptoms are more likely to be seen among females after pandemics, and during the COVID-19 outbreak, women had three times higher levels of

anxiety disorder than men (Wang, Di, Ye & Wei, 2020; Adams et al., 2014). Bakioğlu et al. (2020) found that anxiety of COVID-19 was significantly higher among females in a study conducted on 960 adults. Recent studies have shown that the prevalence of depression and stress experienced during the outbreak is higher in females (Moghanibashi-Mansourieh, 2020; Zhou et al., 2020). In the light of our current knowledge, it is not an unexpected finding that women had higher PSS-10 scores in this study.

Chronic diseases such as advanced age, obesity, cardiovascular diseases, respiratory system diseases, and hypertension have been defined as the risk factors to be considered the most for 2019 novel coronavirus (2019-nCoV)-related mortality. Bakioğlu, Korkmaz and Ercan (2020) found that the level of COVID-19 fear did not differ according to the risk of a relative contracting the disease. In other studies, individuals with a family member, relative or friend infected with COVID-19 have a significant level of anxiety and fear (Moghanibashi-Mansourieh, 2020; Wang et al., 2020). Cao et al. (2020) stated that college students' concerns about the pandemic were connected to their parents or a relative infected with COVID-19 they lived with. Due to the high contagiousness of the coronavirus, it may be suggested that the infection of family members or close relatives with COVID-19 is an effective risk factor in college students' relevance of the pandemic. Parallel to all these findings, we found statistically significant difference in terms of PSS-10 and subscale scores between individuals living with a person who has increased risk level of COVID-19. However, no significant difference was found among students living with a family member contracted COVID-19. This may be because the number of students living with family members contracted COVID-19 is very low.

Studies have shown that the pandemic has significant effects on the economic status of the nation and individuals in addition to the national health status. Family members and students who have seen their income flow stopped due to the pandemic can worry for paying for nutrition, care and tuition fees (Manjula, 2020; McKee & Stuckler, 2020). In contrast to these studies, we found no significant difference between students according to their economic situations. The reason for this may be the low level (13.5%) of students in our study who stated that their financial income was insufficient. Paralel to our survey, as a result of a study aiming to determine the reasons that cause stress in students and to determine the relationship between stress and the variables of gender, age, income level, success level, place of residence, there was no significant difference at perceived stress scores in terms of family income variable (Özgan, Balkar & Eskil, 2008).

### Discussion of Findings associated with Healty Life-Style Routine

When the HPLP-II total score of the participants was evaluated, the mean score for PC is 126.48 ± 0.93, and the mean score for INT is 123.51 ± 1.31. HPLP-II total score was affected by students' grade, financial status, and existence of risky family member. Financial status created difference in PA, N, and SM subscales. Male gender only increased scores of PA subscale. IR subscale scores showed an increase in PC group who did not have a family member who contracted COVİD-19.

In a survey that included dentistry students, the mean score of all grades was found to be 125.84 (Arpağ, Adigüzel & Öztürk, 2020). In a study conducted with nursing students, the total score was 128.16 (Al-Kandari & Vidal, 2007). The highest score that can be obtained for HPLP-II is 208, so we can interpret that the healthy lifestyle behaviors of our study group is at a medium level. The subscales of the scale showed a positive correlation with total HPLP-II scores.

It is impressive that the participants achieved the lowest score in the physical activity subscale and the highest score in the spiritual growth subscale. In previous studies conducted in Turkey, the highest scores were witnessed in the areas of spiritual development, and the lowest scores were detected in physical activity subscales. The mean scores of spiritual growth in our study are consistent with the findings of studies conducted in Japan and Turkey (Nacar et al., 2014; Wei et al., 2012). Similar to our results, studies have reported that the lowest scores were obtained in the exercise subscale (Gore et al., 2020). The COVID-19 pandemic, on the one hand, increases the stress levels of individuals, causing a wide range of psychological problems; on the other hand, it affects people's healthy lifestyle habits. It has been shown that obeying social isolation rules decreases the level of physical activity. WHO periodically states that a healthy lifestyle should be adopted to protect mental and physical health during COVID-19 restrictions (World Health Organization, 2019). Male students obtained a statistically significantly higher score in the "physical activity" subscale among students

participating in our survey. The findings of our research are similar to some studies in the literature. The distinction between the physical activities of male and female students can be explained by biological and sociocultural behaviors (Gore et al., 2020). It was stated that men and women spend their free time differently. Men have relatively more free time for exercise, while women mostly have routine house chores in their free time (World Health Organization, 2019).

In our study, the "interpersonal relationship" subscale values were found to be statistically significantly higher (24.43 ± 2.21) in PC group students. Studies have reported that the increase in the grade level of students and the average score of interpersonal relations was directly proportional and this increase was significant (Alpar, Şenturan, Karabacak & Sabuncu, 2008). This situation may be related to the inability of the students who are left behind from their internship training, concerned about their future vocational inadequacy and prospects of not being able to find a job, and not having enough interpersonal support. While education level was effective in "interpersonal relationships" subscale, it did not cause any difference in total HPLP-II and other subscale scores.

As the students' financial situation improved, their HPLP-II scores and the "stress management" subscale scores increased statistically. Our findings also indicated that students with better economic status were more likely to assess their physiological activities and nutrition. Obtained data are consistent with studies conducted in other countries (Nacar et al., 2014). Arpağ et al. (2020) found that students with a higher income received higher scores in the physical activity subscale than those with lower income. Recent studies determined that HPLP-II total and subscale mean scores of students statistically significantly increased with their level of economic status (Çalışkan, Arberk & Üner, 2017).

The total HPLP-II score of participants living with individuals at risk of developing COVID-19 was significantly lower. This could be due to fear for a family member who appears to be in danger. The insufficiency of effective treatment for COVID-19 has made non-pharmacological interventions (NPIs) necessary for individuals and relatives seen at risk. NPIs include mandatory home isolation. Isolation at home increases unhealthy diet, screen time, and sedentary activities, and reduces the time spent outdoors (Balanzá–Martínez, Atienza–Carbonell, Kapczinski &De Boni, 2020). Significantly higher stress scores of the same group support these findings. The significantly low "spiritual growth" and "interpersonal relations" scores of students living with a family relative diagnosed with COVID-19 in their household is evidence of the negative impact of COVID-19 on anxiety, fear, stress and healthy life behaviors. Significant correlation between PPS-10 with HPLP-II and correlation between PPS-10 with HPLP-II subscales shows that as the stress level of students increase, they move away from healthy living habits.

**Conclusion**

The results of present study affirmed that during the COVID-19 pandemic, the stress levels of students increased and their daily healthy living habits were affected as a result of the precautions and restrictions imposed. It has been showed that there is a concrete interconnection between students' stress perception and healthy living habits.

For the maintenance of public health, it is a necessary to provide information and services to individuals on maintaining healthy lifestyle behaviours during COVID-19 pandemic. In terms of limitations, as in other cross-sectional studies, our study contains detailed information about a particular period of the pandemic. However, further studies with participants from different countries and various groups at different stages of the pandemic are necessary.

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# Science and Classroom Teachers' Views on Sustainable Environment-Life during Covid-19 Epidemic

**Dila Leylak***        **Feride Ercan Yalman****

## Abstract

This study, conducted with phenomenological design, a qualitative research approach, aimed to determine science and classroom teachers' views on sustainable environment and life during Covid-19 pandemic. For this purpose, data were collected from six science teachers and six classroom teachers working in Mersin city center through semi-structured interview questions. The first section of the interview attempted to identify teachers' views on sustainable environment and life. The second section examined participants' views on Covid-19 outbreak and their experiences during the epidemic. The last section focused on views about the effects of Covid-19 epidemic on sustainable environment and life. The findings were analyzed with content analysis. It was found that the participants defined sustainability as continuity, did not find the state follow-up sufficient in sustainable environmental practices and believed that citizens lacked awareness about sustainability. Some participants reported experiencing a process of returning back to basics and enlightenment during the epidemic. The majority of the participants believed that the epidemic would have a negative impact on sustainability. On the other hand, some participants stated that the epidemic would have positive effects or no effect on sustainability. Participants suggested various solutions for a sustainable environment based on the epidemic experience.

*Keywords:* Covid-19, sustainability, science teachers, classroom teachers

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# Covid-19 Sürecinde Fen ve Sınıf Öğretmenlerinin Sürdürülebilir Çevre ve Yaşam Üzerine Görüşleri

**Dila Leylak**[*]  **Feride Ercan Yalman**[**]

## Öz

Bu çalışmanın amacı, fen bilimleri öğretmenlerinin ve sınıf öğretmenlerinin Covid-19 pandemi sürecinde sürdürülebilir çevre ve yaşama ilişkin görüşlerini tespit etmektir. Nitel araştırma yaklaşımlarından fenomenolojik desene göre tasarlanan çalışmada veriler, yarı yapılandırılmış görüşme soruları aracılığı ile toplanmıştır. Bu amaçla Mersin il merkezinde görev yapmakta olan altı fen bilimleri ve altı sınıf öğretmeni araştırmaya dâhil edilmiştir. Görüşmenin ilk kısmında öğretmenlerin sürdürülebilir çevre ve yaşam ile ilgili düşünceleri tespit edilmeye çalışılmıştır. Görüşmenin ikinci kısmında ise katılımcıların Covid-19 salgını ile ilgili görüşleri, salgın sürecindeki deneyimleri incelenmiştir. Görüşmenin son kısmında ise Covid-19 salgın sürecinin sürdürülebilir çevre ve yaşam üzerinde ne gibi etkileri olacağına dair düşünceleri tespit edilmeye çalışılmıştır. Elde edilen bulgular içerik analizine göre analiz edilmiştir. Katılımcıların sürdürülebilirliği devam etmek olarak tanımladığı, sürdürülebilir çevre uygulamalarında devlet takibini yeterli bulmadığı tespit edilmiştir. Bazı katılımcılar tarafından salgın sürecinde kişisel olarak öze dönme ve aydınlanma dönemi yaşandığı dile getirilmiştir. Araştırmada ortaya çıkan çarpıcı bir sonuç ise salgının sürdürülebilir çevre ve yaşam üzerine etkileridir. Çoğu katılımcı tarafından sürdürülebilirliğe salgının olumsuz etkisi olacağı düşünülmektedir. Buna karşın salgının sürdürülebilirliğe olumlu etkisinin olacağını ya da etki olmayacağını düşünen katılımcılar da mevcuttur. Katılımcıların salgın deneyiminden yola çıkarak sürdürülebilir çevre için çeşitli çözüm önerileri dile getirdiği görülmektedir.

*Anahtar Sözcükler:* Covid-19, sürdürülebilirlik, fen bilimleri öğretmenleri, sınıf öğretmenleri

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**Introduction**

The Native American saying "*We do not inherit the Earth from our ancestors, we borrow it from our children*" expresses that the Earth is the home of humanity for thousands of years. However, while using the resources of the earth, people do not act with the belief that they are conserving what is entrusted to them, but use this inheritance without thinking of the future. In other words, the world has been subjected to various human interventions for generations (Wamsler, 2020). From this bitter truth, emerges the concept of sustainability (Nousheen et al., 2020) which was first defined in the Brundtland Report prepared by the World Environment and Development Commission in 1987 as "development" that meets today's requirements without compromising the ability to meet the needs of future generations (Brundtland Commission, 1987). Sustainability is defined by Gilman (1992) as the ability of a society and ecosystem to continue functioning in the future without hardship caused by overloading the key resources it depends on. These definitions emphasize that policies on society, economy and environment should be developed together for sustainability (Mahat et al., 2020). Some dilemmas and crises may emerge from time to time while making decisions centered on these three key concepts (society, economy and environment) depending on how economic balance, ecological balance and social well-being are prioritized.

Global problems in sustainability threaten humanity due to increases in fossil fuel use, intensive energy consumption and increased carbon footprint, and most importantly, the unaccounted use of resources. In other words, human beings will be affected the most by the problems caused by the hand of human beings (Aytar & Özsevgeç, 2019). The United Nations has included qualified sustainability education among the 17 global goals by 2030 (United Nations, 2015) because the concept of sustainability is related to education and education is related to the future (Wolff, 2020). For this reason, it is necessary to address sustainability at all levels of the education system, from pre-school to higher education (Göçen, 2021).  Many studies in literature state that education plays a key role in ensuring sustainable environment and life (Holfelder, 2019; Wolff, 2020).

In this context, the science course program has great importance for students to gain awareness in sustainability. The specific objectives of the 2018 Science Curriculum include the following: "*To ensure that students grasp the mutual interaction between the individual, the environment and the society; to raise awareness about sustainable development regarding society, economy and natural resources*" (MoNE, 2018). In addition, the science lesson program taught by classroom teachers in primary school 3$^{rd}$ and 4$^{th}$ grades contain acquisitions in regards to sustainable living. For example, the 3$^{rd}$ and 4$^{th}$ grade Science Program includes the following acquisitions respectively: "*offers solutions to protect the natural environment by doing research*" and "*takes special care about using resources*" (MoNE, 2018). As the grades progress, the number of acquisitions in this regard increases and the relevant content is expanded. There are acquisitions related to sustainable environment and life in "Human and Environment Relationship" topic in the 5$^{th}$ grade program, "The Health of Systems" in the 6$^{th}$ grade program and "Domestic Waste and Recycling" in the 7$^{th}$ grade program. At the 8$^{th}$ grade level, "Material Cycles and Environmental Problems" unit includes relevant acquisitions and there is a separate unit titled Sustainable Development (MoNE, 2018). Sustainability education, which is addressed over more than one acquisition each year in the curriculum, is critical. Sustainability education is important in teaching programs and it is predominantly explored in academic studies at all levels, from pre-school to teacher education. In the literature Borg and Prambling-Samuelsson (2019) studied sustainability education in the preschool period, Eames and others (2018) with secondary school students, Yiğitkaya (2019) with prospective teachers, and Güngör (2018) with adults, including administrators and teachers.

Sustainability, which is very important in human life, can be addressed in relation to the Covid-19 outbreak (pandemic), which is on the agenda of the whole world. During this pandemic, the virus spreads rapidly, causing mass deaths in a short time, also affecting different dimensions of life such as social, economic, political, etc. (Budak & Korkmaz, 2020). Experts emphasize the use of masks and hand washing to protect people from the epidemic. Therefore, mask consumption and waste as well as water consumption increases. Hence, it is possible to talk about a multidimensional effect by collecting the environmental effects of the epidemic under the headings of air pollution, $CO_2$ emissions, wastes, chemicals and social environment. The amount of various chemical substances and the amount of medical waste for the treatment process are increasing day by day with the increase in the use of

disinfectants, the production of disinfectants and vaccine studies undertaken by many countries for the treatment of the disease. On the other hand, consumption has decreased at some areas (fossil fuels etc.) due to the slowdown in social life and tourism. Muhammed, Long and Salman (2020) stated that the environment breathed a sigh of relief caused by reduced consumption during the Covid-19 epidemic, albeit temporarily. At this point, it is important to consider how these events, which developed with the Covid-19 outbreak, will affect development approaches in terms of sustainability.

Sustainability and Covid-19 epidemic are the key concepts in this study. Relevant studies on sustainability in literature are often conducted with teacher candidates to examine their knowledge, attitudes and views on sustainable environment (Andersson, 2017; Becker, 2018; Nousheen et al., 2020). Studies in literature examining the issues related to education during the Covid-19 epidemic are generally associated with distance learning (Akbulut, et al., 2020; Onyema et al., 2020; Reiss, 2020; Uşak et al., 2020). However, the number of studies that address Covid-19 and sustainability together is rather limited (Muhammed et al., 2020; Wolff, 2020). Hence, the present study is believed to contribute to the literature. Teachers have an important role in raising awareness about sustainability (Huckle & Wals, 2015). Teachers' views on sustainable environment during and after the Covid-19 process are believed to have an effect on their students. For this reason, science and classroom teachers, with important roles in sustainability education, were included in this research which examined their views on sustainable environment and life during the Covid-19 epidemic. The significance of the training, curricula and teachers is mentioned above. However, when we consider the specific impact of classroom teachers on children and the fact that the first seeds are planted in primary school years in raising environmental awareness, it becomes crucial to work with classroom teachers and to identify their views on sustainability. While sustainability is a multidisciplinary concept, it can be argued that science teachers address the issue of sustainability in their classes most extensively. From this point of view, it is believed that identifying science teachers' views about sustainability is important. Hence, classroom teachers and science teachers were included in this research, and the research questions were developed in this direction.

In this context, the following research questions were sought in the research:

1) What are the views of science and classroom teachers on sustainable environment and life?
2) What are the views of science and classroom teachers about the Covid-19 process?
3) What are the opinions of science and classroom teachers about the effects of the Covid-19 process on sustainable life?

## Method

This research was designed with a phenomenological design, one of the qualitative research methods, used to determine how participants attribute a meaning to the concept examined and how orientations are formed according to perceptions and experiences (Miller, 2003). This study attempted to discover science and classroom teachers' views on sustainable environment and life, their experiences during the Covid-19 epidemic and the effects of this process on sustainability. For this reason, phenomenological design was preferred in this study.

### Study Group

The study group of this research consisted of science and classroom teachers. Convenience sampling, a purposeful sampling method, was used for the interviews conducted within the scope of the research. A total of 12 teachers (6 science, 6 classroom) were involved in the research process. The interviews continued until the codes and patterns obtained from participants began to repeat themselves (saturation point). As new data were not obtained after the 12th participant, it was decided by the researchers not to increase the number of participants and therefore the number of participants was limited with 12. Table 1 presents participants' information.

**Table 1**

*Participant Information*

| Participant No | Field of Study/Branch | Gender | Seniority |
|---|---|---|---|
| 1 | Science teacher | Male | 1 year |
| 2 | Science teacher | Female | 5 years |
| 3 | Science teacher | Female | 15 years |
| 4 | Science teacher | Male | 7 years |
| 5 | Science teacher | Female | 12 years |
| 6 | Science teacher | Male | 6 years |
| 7 | Classroom Teacher | Male | 19 years |
| 8 | Classroom Teacher | Female | 2 years |
| 9 | Classroom Teacher | Female | 9 years |
| 10 | Classroom Teacher | Male | 7 years |
| 11 | Classroom Teacher | Male | 4 years |
| 12 | Classroom Teacher | Female | 20 years |

According to Table 1, the number of science and classroom teachers was equal (6). There were six female and six male teachers in the study group. The professional seniority of teachers (years in the profession) varied between 1 and 20 years. Considering all demographic information, it can be argued that the study group had a heterogeneous structure.

**Instrument**

A semi-structured interview form with eight questions was prepared to collect research data. It was ensured that the questions were clear and understandable, and they served the purpose. The order and type of questions were carefully selected to ensure eliciting elicit various responses, without limiting teachers. To provide these qualities, the draft interview form was checked by two experts in the field of science education and primary education. Then a pilot implementation was performed with a classroom teacher to check the functionality of the questions. Later, the form was finalized. Interview questions are presented below:

1) In your opinion, what does the concept of sustainability mean?
2) Do you keep track of the current state practices regarding sustainable environment? Can you provide some examples?
3) How do you evaluate state practices regarding sustainable environment?
4) What kind of practices can be implemented to positively contribute to citizens' sustainability awareness?
5) How do you evaluate the Covid 19 process for yourself?
6) How do you evaluate the Covid 19 process for the world?
7) In your opinion, what effect does Covid 19 have on sustainable life?
8) If you were the Minister of Environment in Turkey, what kind of practices would you implement for a sustainable life after the Covid 19 process?

**Implementation Process**

Research data were collected from the participating teachers working in Mersin city center in the spring term of 2021 (during the epidemic). Appointments were made with the 12 teachers participating in the study and online video interviews were conducted to abide by the social distancing criteria during the epidemic process. The interviews were conducted over Zoom and Google Meet according to preference; videos were not recorded. The interviews, lasting between 15-20 minutes on average, were recorded using an audio recorder with participants' consent. According to Yıldırım and Şimşek (2016), the duration, depth and participant characteristics affect the interview process. A suitable interview climate was tried to be created by paying attention to these factors, and the participants were given sufficient time to express themselves freely.

**Data Analysis**

Participants' recorded interviews were transcribed. Qualitative data were analyzed by content analysis, performed by classifying similar data obtained from the research under codes and themes (Yıldırım & Şimşek, 2016). During the analysis process, the consistency of the coding obtained by the researchers was examined. Concept maps obtained from codes and themes are provided in the findings section.

**Validity, Reliability and Research Ethics**

First of all, expert opinion was sought in the preparation and analysis of the questions to ensure validity and reliability While preparing the interview questions, two faculty members (one from the science teaching department and one from the classroom teaching department) who are experts in the field of qualitative research were involved in the process and contributed to the process by sharing their views. As the second step, a pilot implementation was conducted to test the functionality of the questions. As the third step, participants' statements in the interview were not changed or interpreted in the analysis phase and no statements were used except for the data obtained from participants. In order to avoid possible misunderstandings, participants were contacted once again for confirmation. As the fourth step, two researchers took part in the analysis process. The reliability formula suggested by Miles and Huberman (1994) (Reliability = Consensus / (Agreement + Disagreement) was used to test agreement which was calculated as .80 during data analysis. The literature considers it sufficient when the percentage of agreement between coders is 70% or more (Miles & Huberman, 1994). In this context, reliability was provided in data analysis. In order to ensure transferability in the research, attention was paid to describe both the implementation phase and the reporting phase as clearly as possible. In order to ensure credibility, sections from participant views were presented in the findings section as quotations.

Ethical approval was obtained from Mersin University Social Sciences Ethics Committee for this research to ensure ethical conditions were met. Before the interviews, participants were informed about confidentiality and privacy. The research was carried out by voluntary participation. In order to ensure privacy and confidentiality, codes were used rather than the names of the participants based on teachers' branches such as Science Teacher 1 (ST1), Classroom Teacher 1 (CT1) etc.

## Results

First of all, participants' definitions on sustainability were examined. Figure 1 presents teachers' responses.



**Figure 1.** *Teachers' Definitions for the Concept of Sustainability*

According to Figure 1, six participansts used the verb "to continue" while defining sustainability. Three participants defined the concept of sustainability as "thinking of future generations". Some participant statements are presented below.

> *We call it sustainable life when it is ensured that people can continue their lives without reducing the quality of their lives and can meet their needs by taking the future generations into account. (ST3)*

The participants were asked whether they followed state practices regarding sustainable environment, and if so, how they evaluated these practices. Figure 2 presents the results.
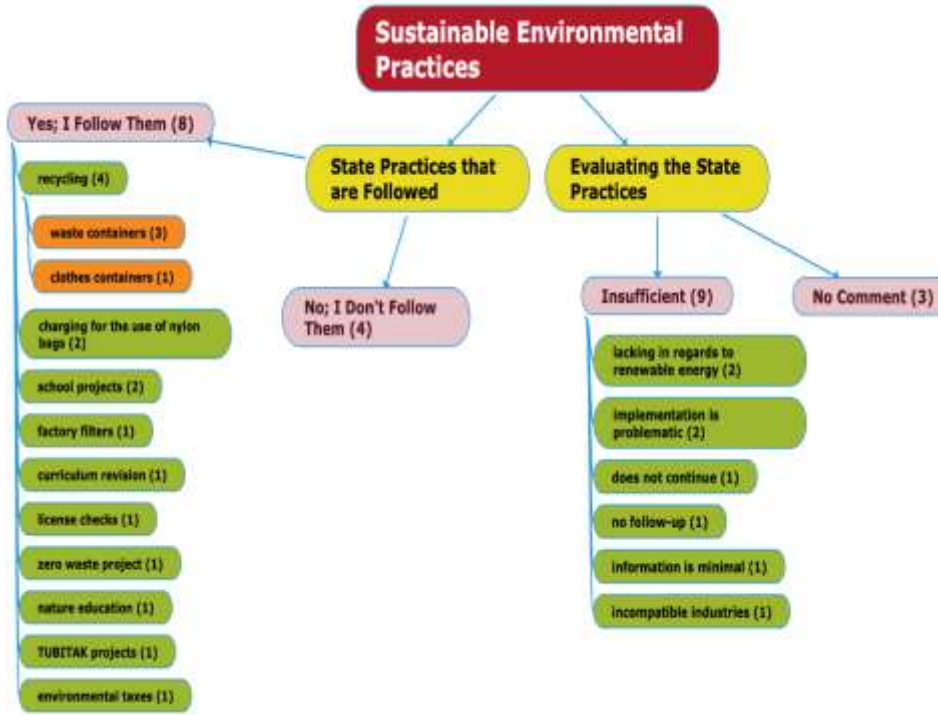
**Figure 2.** *Following and Evaluating State's Sustainable Environmental Practices*

In Figure 2, four participants stated that they did not follow state's sustainable environmental practices while the other eight participants stated that they followed some of these practices. The practices given as examples often included the themes of "environmental projects in schools, recycling bins provided by the state and charging for the use of plastic bags". The views of S2 are presented below.

> Since I'm a teacher, I can give examples of the practices at school. Recycling is more emphasized at schools. Battery recycle boxes, separate battery and plastic recycle boxes are sent to schools by municipalities. (ST2)

As Figure 2 shows, three participants did not comment on this issue and nine participants found these practices insufficient. They found the implementation processes problematic and stated that renewable energy sources could be used more. They thought that the implementations should be followed up and their continuity needed to be ensured. Some participant views are presented below.

> It is not enough when we look at the society. Because, at this point, it is important to raise awareness in the society. I do not find it sufficient. I also think there is a lack of control in regards to recycling. (CT3)

Teachers were asked about the kind of practices the state can implement to contribute to citizens' awareness. Table 2 presents the findings.

**Table 2**

*State Practices for Sustainability*

| Themes | Codes |
|---|---|
| Practices That Can Be Implemented By State To Contribute To Citizens' Awareness of Sustainability | Informative family trainings (6) |
| | Practices to save/to economize (1) |
| | Increasing the bans (1) |
| | Establishing citizenship awareness (1) |
| | Initiating financial incentives (1) |
| | Facilitating access to recycling facilities (1) |

Based on the findings presented in Table 2, the participants believed that, in general, citizens lacked knowledge on this subject and trainings should be provided to give information and raise awareness. Teachers' responses focused on the students and their parents, stating the need for informative training for families. Other responses emphasized increasing bans, the practices on saving and increasing renewable energy use. Excerpts from the interview are presented below.

> *First of all, the state should implement practices to be economical in order for citizens to understand. The state must take drastic measures to use renewable energy. (ST2)*

> *It is very important to raise students' awareness; we can ask them to raise awareness of their families and to do activities with them. For example, they can watch a documentary with their families and then comment on it. (CT3)*

The first four questions of the interview focused on participants' perceptions on sustainability, knowledge level about state's sustainable environment practices and suggestions about raising awareness for sustainability. These questions were followed by questions on Covid-19.

The participants were asked how they evaluated the epidemic process for their personal lives and for the world. Then, they were probed about the state practices on the pandemic. Figure 3 provides the results



**Figure 3.** *Evaluation of Covid-19 Epidemic*

According to the results in Figure 3, participants expressed both positive and negative personal effects of the epidemic. In general, five sub-themes were identified under the positive effects theme and three sub-themes were found under the negative effects theme. The sub-themes of "returning to self, global perspective, awareness, personal development and commitment within families" were included as positive effects. "Uncertainty, becoming isolated and technology fatigue" were included as negative effects. Some of the participant views are presented below.

> *During this period, I watched the movies and read the books I wanted to watch and read. I tried to improve myself. I can say that I turned to my inner self, back to my core" (CT1)*

> *It affected me, my children and my family negatively. We have been negatively affected in regards to social life, education and health. (ST4)*

According to participants, the epidemic affected the world both positively and negatively. Three sub-themes were identified under the positive effects theme and six sub-themes were found under the negative effects theme. Participants cited "appreciation, acquiring awareness and cleansing of the nature" as positive effects. The appreciation sub-theme was expressed with the following codes: "appreciating education, environment, people, professions, natural life". The negative effects were expressed with "education problems, causing the process of collapse, leading to consumption, causing economic depression, becoming selfish and the process being the world's reaction to human beings". Some of the quotes from teacher interviews are below.

> *There was a perception in the world that we can treat nature as we want and consume unlimitedly. We thought that we could control the nature but we saw that this would not be the case. (ST6)*

The participants were asked the impact the Covid-19 epidemic on sustainability. Figure 4 presents the results.
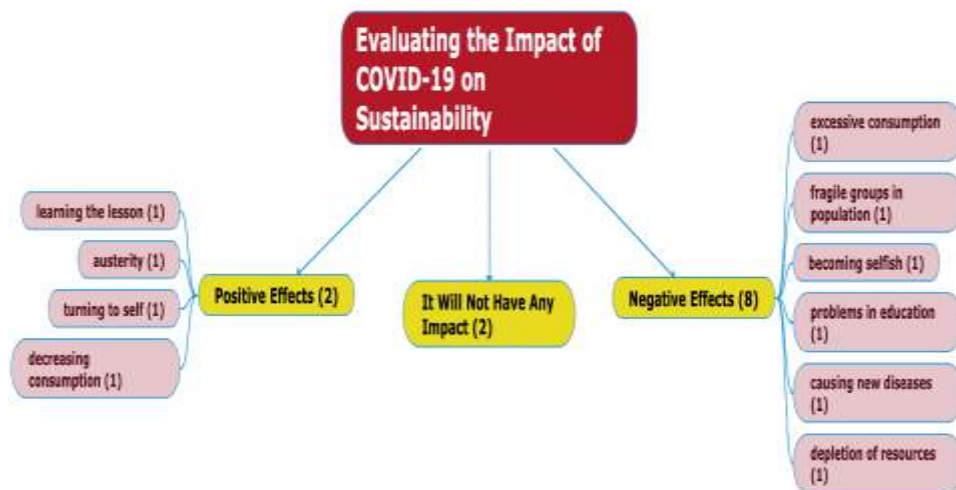


**Figure 4.** *The Impact of Covid-19 on Sustainability*

Examination of the results in Figure 4 points that eight participants reported that sustainable life was negatively affected by this process. Some participants cited "depletion of resources, causing excessive consumption, becoming selfish, causing new diseases, causing problems in education, creating fragile groups in population". Two participants reported positive effects on sustainable life because people returned to their inner selves by learning their lessons and reduced consumption. The other two participants stated that the process would not have any impact on sustainability, either positively or negatively.

> *I think it will negatively affect sustainable life because people are focused on consumption. I have friends who are shopping like crazy thinking that it is not clear when they will die. Some of them suffer from germophobe and use an incredible amount of water and cleaning materials. (CT5)*

> *I think it will cause us to give up the consumption frenzy. For this reason, I think it will make a difference in terms of sustainability. (ST2)*

*The epidemic will not have a huge impact on sustainability. People do not care about nature and the environment, but think about their own interests. (ST5)*

Participants were asked what they could do for a sustainable life after the Covid-19 outbreak if they were the Minister of Environment. Figure 5 presents teachers' responses.



**Figure 5.** *Projects That They Can Implement as the Minister of Environment After Covid-19*

According to the findings in Figure 5, seven participants stated that they could implement afforestation. Other ideas included "education projects in schools in cooperation with MoNE, family training, public service announcements, cooperation with the scientific board, informative seminars, increasing recycling practices, realizing urbanization projects in accord with nature by changing the urban structure, water resources conservation projects, projects to provide air cleaning and encourage the use of bicycles".

*I would prioritize children's education. If I were the Minister of Environment, I would hold seminars on landscaping. I would cooperate with the Ministry of Education. (ST4)*

*I would draw attention to the damage caused by the increased water consumption and the use of chemical-containing disinfectants after Covid-19 regarding environmental protection. I would implement school projects that give importance to the ecosystem and support these projects with family trainings. (CT3)*

### Discussion, Conclusion and Recommendations

This study investigated the views of science and classroom teachers on sustainable environment and life during the Covid-19 epidemic.

The general overview of the research results suggests the participants were generally aware of the concept of sustainability. Participants who partially followed the state practices within the scope of sustainability were found to be familiar with the projects and practices carried out in schools. The research results regarding the Covid-19 epidemic process show that the participants believed that the epidemic had both positive and negative effects, both in personal terms and in regards to the world community. The participants listed *increasing people's awareness, returning to one's self, appreciating life and natural resources, and cleansing the nature* among the positive effects of the epidemic. Also, *individualization, consumption frenzy, problems in education and economy* were expressed as negative aspects of the epidemic. The participants, who discussed the impact of the epidemic process on sustainability, generally expressed negative opinions. Some participants believed that the epidemic process negatively affected sustainable life by causing reduction of resources due to excessive consumption and selfishness. Following the general summary of the research results, the findings are discussed below by providing analyzes according to the sub-dimensions.

The first dimension of the research focused on perceptions of and definitions for sustainable environment. The participants defined sustainability with expressions such as continuity, thinking about future generations, improving opportunities and environmental awareness. In Bulut and Çakmak' (2018) studies, sustainability was also defined with expressions such as the conscious use of resources, possibility of leaving a better world to future generations and the opportunity to improve the living conditions of people living in difficult conditions. Similar key concepts were also used in Gilman's

(1992) definitions. In this context, it was concluded that participants' definitions were compatible with the definitions in literature. This finding may be related to the fact that participants were teachers and had relevant domain knowledge. That the participants partially followed the state practices regarding sustainable environment was one of the striking results. Participants were found to have information mostly about recycling and in-school projects. The participants who followed the state practices criticized the sustainability practices and found them insufficient. At this point, the lack of interest on the part of teachers to follow sustainability practices may need to be examined before criticizing state practices. It can be emphasized that teachers should be trained before the masses can be trained. Gkargkavouzi, Halkos and Matsiori (2018) found that the teachers had a positive attitude towards environmental issues, but their level of knowledge was partial. Andersson (2017) stated that sustainability trainings given to teachers were effective and served the purpose, recommending this type of training for teachers instead of studying their knowledge and competencies. Raising public awareness is as important as teacher training for a sustainable environment.

The second dimension of the research attempted to examine the effects of the Covid-19 process in its entirety. Both positive and negative statements were encountered in the participants' evaluation of the epidemic for their personal lives. Positive responses included making an effort to improve themselves, going through a process of turning to their inner selves and developing the bonds with their families in the quarantines. Öztürk and others (2020) also stated that individuals were affected both positively and negatively from the epidemic, supporting the outcome of this study. They reported that as a result of the measures, people turned to their inner worlds and the time they spent with their families increased compared to the past, citing the positive effects of the epidemic in personal and affective terms.

Striking results were obtained in the third dimension of the study which associated participants' sustainability perceptions with the Covid-19 epidemic. The participants stated that the epidemic could have positive effects for the world. They interpreted the epidemic as the Earth's reaction and message and reported beliefs that humanity would receive this message and experience awareness. Parallel views were also included in study of Çobanoğlu's (2020) who stated that Covid-19 is a warning for people to re-evaluate their priorities in today's world where resources are rapidly depleted. Aydın and Dogan (2020) also predicted that the epidemic would cause permanent changes in individuals' consumption behavior. However, some participants argued that the epidemic process triggered selfishness and consumption frenzy. This finding was also identified in the research conducted by Erişen and Yılmaz (2020) for the expenditures of individuals during the Covid-19 epidemic, concluding that the epidemic caused an increase in expenditures. The participants often used positive expressions regarding the effects of the epidemic on themselves but used more negative expressions about the effects of the epidemic on the world. This finding parallels the statement of Yıldırım (2020) that the social anxiety caused by the epidemic was much more than personal concerns. Participants believed that the Covid-19 outbreak would affect sustainable life both positively and negatively. Some studies in literature examining the effects of the epidemic on sustainable living (El Zowalaty et al., 2020; Eroğlu, 2020) also mentioned both positive and negative effects. However, the view that the epidemic process would not have an impact on sustainable living also came up in the interviews in the present research. This finding was also identified in the studies of Kumar and Tyagi (2021) and Saadat and others (2020) which support the statements that the effects of the Covid-19 epidemic would not last very long in the world and that people's behavior patterns would be like before. Participants recommended some projects for sustainable life after the epidemic, mostly focusing on afforestation, informative trainings and family trainings in their project proposals. Changing the urban structure and encouraging the use of bicycles were among the project proposals. Teachers' suggestions for the state to develop citizens' sustainable environment awareness and participants' project proposals for sustainable life after Covid-19 were parallel. In the light of these results, some suggestions are provided.

1) The participants were competent in their definitions of sustainability but they partially followed the practices related to sustainability. Considering that even the teachers, the pioneers of education, do not fully follow the sustainability practices, it can be argued that the state should take remarkable and striking actions as much as possible. It may be recommended to implement campaigns, public announcements, etc. or to enact relevant laws and regulations to raise awareness. Based on the reality that "*Only what is loved is protected and what is known is loved*", various affective practices can be

organized for both adults and children as an alternative so that improvements can be ensured regarding the concept of sustainability.

2)   It can be recommended to carry out studies after the epidemic to explore sustainability from different angles.

3)   Program developers may be advised by MoNE to add acquisitions that address Covid-19 and sustainable environment in conjunction in the Science course curriculum.

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