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Address: Nesibe Aydın Okulları Yerleşkesi
Haymana Yolu 5. km
Gölbaşı, Ankara/Turkey

Tel: +(90) 312 498 25 25

Tel: +(90) 312 498 25 25

Belgegeçer: +(90) 312 498 24 46

Fax: +(90) 312 498 24 46

E-posta: jef.editor@gmail.com

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Nesibe Aydın Eğitim Kurumları tarafından yayımlanan *Eğitim ve Gelecek Dergisi* on yedinci sayısında sizinle buluşuyor. Dergimizin on yedinci sayısında yer alan çalışmalarını siz değerli okurlarımıza sunuyoruz.

Özlem Baş, Okan Kuzu ve Bilge Gök tarafından hazırlanan *“Özel Yetenekli Öğrencilerle Oynanan Zekâ Oyunlarının Üst Düzey Düşünme Becerilerine Etkisi”* başlıklı çalışmanın amacı, ilkokul çağındaki tanınmış özel yetenekli öğrencilerle oynanan çeşitli zekâ oyunlarının analitik düşünme, eleştirel düşünme ve karar verme becerilerine olan etkisini ortaya koymaktır. Tek grup ön test-son test deneysel desen kullanılarak gerçekleştirilen araştırmanın çalışma grubunu özel bir okulda öğrenim gören 22 özel yetenekli öğrenci oluşturmaktadır. Araştırma sonucunda özel yetenekli öğrencilerle oynanan zeka oyunlarının özel yetenekli öğrencilerin analitik düşünme, eleştirel düşünme ve karar verme becerilerini geliştirdiği görülmüştür.

Ayşe Berna Sarı Arasıl, Fatma Turan, Barış Metin, Hande Sinirlioğlu Ertaş ve Nevzat Tarhan tarafından hazırlanan *“Pozitif Psikoloji Dersi: İyi Oluşu Arttırmaya Yönelik Bir Yol”* başlıklı çalışmanın amacı, Pozitif Psikoloji dersinin, yakın ilişkiler kurma, öznel iyi-oluş, mutluluk, duyguları ifade, yaşam doyumu, duygusal zeka ve sosyal zeka gibi farklı değişkenler üzerine faydalarının değerlendirilmesidir. Çalışmaya pozitif psikoloji dersini alan 308 üniversite lisans öğrencisi gönüllü olarak katılmıştır. Araştırma bulguları; pozitif psikoloji içerikli bir dersin bilgilendirici eğitimin ötesinde; öğrencilerin duygularını daha iyi ifade etmelerini ve daha mutlu olmalarını sağlayan etkin bir eğitim içeriği olduğunu göstermiştir.

İshak Kozikoğlu ve Bedirhan Ahmet Küçük tarafından hazırlanan *“Öğretmenlerin Yaratıcı Düşünme Eğilimleri ile Bireysel Yenilikçilik Özellikleri Arasındaki İlişkinin İncelenmesi”* başlıklı çalışmada ilişki tarama deseni kullanılmıştır. Sonuçlar, öğretmenlerin yaratıcı düşünme eğilimlerinin yüksek, bireysel yenilikçilik özelliklerinin ise çoğunlukla “öncü” ve “sorgulayıcı” olduğunu ortaya koymuştur. Öğretmenlerin yaratıcı düşünme eğilimleri ile bireysel yenilikçilik özellikleri arasında orta düzeyde, pozitif ve anlamlı bir ilişkinin olduğu sonucuna ulaşılmıştır.

Ata Pesen, Behçet Oral ve Uğur Epçaçan tarafından hazırlanan *“Fen Lisesi Öğrencilerinin Fen Liselerine İlişkin Görüşleri”* başlıklı çalışmanın amacı, fen lisesi 10, 11 ve 12. sınıf öğrencilerinin öğrenim gördükleri fen liselerine ilişkin görüşlerinin incelenmesidir. Nitel araştırma yönteminin kullanıldığı çalışmada durum çalışması deseni esas alınmıştır. Araştırmanın çalışma grubunu fen lisesinin 10. 11 ve 12. sınıflarında öğrenim gören 69 öğrenci oluşturmaktadır. Öğrencilerin görüşlerine göre; fen liselerinin başarı düzeyi, kaliteli eğitim ve iyi bir gelecek açısından avantajlı, yüksek beklenti ve psikolojik baskı gibi açılardan da dezavantajlı olduğu bulguları elde edilmiştir.

Cengiz Aslan tarafından hazırlanan *“Öğretmen Adaylarının Değer Önceliklerinin Sıralama Yargularına Dayalı Ölçekleme Tekniği Kullanılarak Belirlenmesi”* başlıklı çalışma, öğretmen adaylarının değer önceliklerini ortaya koymaya çalışan betimsel tarama modelinde bir araştırmadır. Araştırma sonunda öğretmen adayları tarafından en çok öncelikli tercih edilen amaçsal değer “aile güvenliği” değeri, en az tercih edilen amaçsal değer ise “zevk” değeri olduğu saptanmıştır. Envanterde yer alan amaçsal değerlerden öncelikli tercih edilen amaçsal değer “dürüstlük” değeri, en az tercih edilen amaçsal değer ise “itaatkârlık” değeri olduğu tespit edilmiştir.

Fatma Kybaşı Őemin tarafından hazırlanan “*Srdrlebilir Eđitim Eđilimi leđi GeliŐtirme ve Srdrlebilir Eđitim Eđilimine İliŐkin đretmen GrŐleri*” baŐlıklı alıŐma; đretmenlerin srdrlebilir eđitim eđilimine ynelik grŐlerinin okul trne ve cinsiyetine gre incelenmesinin amalandığı betimsel bir alıŐmadır. AraŐtırmada elde edilen verilere gre, đretmenlerin srdrlebilir eđitime karŐı yksek dzeyde ilgilerinin olduđu sonucuna varılmıŐtır. đretmenlerin srdrlebilir eđitim konusundaki grŐlerinin cinsiyetler arasında erkeklerin lehine farklılık gsterdiđi tespit edilmiŐtir.

Meltem kdem tarafından hazırlanan “*đretmenlerin Ceza Mahkemelerine İntikal Eden Fiillerinin Deđerlendirilmesi*” baŐlıklı alıŐma dokman analizi modeline dayalı bir araŐtırmadır. Bu alıŐmada 2004-2018 yılları arasında đretmenlerin ceza mahkemelerine intikal eden fiillerini tespit etmek zere, www.kazancı.com ve www.LegalBank.com veri tabanlarından đretmenler hakkında aılan davalara ulaŐılmıŐtır. Sonu olarak đretmenler hakkındaki ceza mahkemelerinde grlen davalar kapsamında en fazla kiŐiye karŐı sularla ilgili davaların yer aldıđı saptanmıŐtır. Bunu millete ve devlete karŐı sular ve topluma karŐı sular izlemektedir.

Eđitim ve Gelecek Dergisi olarak gsterdiđiniz ilgi ve deđerli katkılarınız iin teŐekkr ediyorum.

Gelecek sayıda buluŐmak zere...

Prof. Dr. Erten GKE

Eđitim ve Gelecek Dergisi BaŐ Editr

Editorial

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

The article titled *“The Effects of Mind Games on Higher Level Thinking Skills in Gifted Students”*, which is prepared by **Özlem Baş, Okan Kuzu and Bilge Gök**, aims to demonstrate the effect of various mind games, played by students identified as gifted in the elementary school age, on their analytical thinking, critical thinking and decision making skills. The study group of the research consists of 22 students in a private school. Research outcomes demonstrated improvement in the analytical thinking, critical thinking and decision-making skills of the gifted students as a result of the various mind games they played.

The article titled *“Positive Psychology Course: A Way to Improve Well-Being”*, which is prepared by **Ayşe Berna Sarı Arasil, Fatma Turan, Barış Metin, Hande Sinirlioğlu Ertaş and Nevzat Tarhan**, assess the beneficial effect of a compulsory positive psychology course on well-being, happiness, emotional expressiveness, life satisfaction, emotional intelligence and social intelligence in addition to experiences in close relationships. In total 308 undergraduate students who took the positive psychology course volunteered to participate. The results of the study showed that positive psychology course is not only instructive, but it may also serve to increase happiness and emotional abilities of students.

In the article titled *“The Investigation of the Relationship between Teachers’ Creative Thinking Tendencies and Individual Innovativeness Characteristics”*, which is prepared by **İshak Kozikoğlu and Bedirhan Ahmet Küçük**, correlational survey model was used and was carried out with 283 teachers from different branches working in Turkey. The results show that teachers' creative thinking tendencies are at high level and individual innovativeness characteristics are in the "early adopters" and "early majority" categories. A moderate, positive and significant relationship was found to be between teachers' creative thinking tendencies and individual innovativeness characteristics.

The article titled *“Science High School Students’ Perceptions of Science High Schools in Turkey”*, which is prepared by **Ata Pesen, Behçet Oral and Uğur Epçaçan**, aims to investigate the 10th, 11th and 12th grade science high school students’ perceptions of science high schools where they are educated. The study, which is carried out by using qualitative research methods, is based on multiple case study model. The study group of the study consisted of 69 students studying at 10th, 11th and 12th grades. With the students’ opinions, it has emerged that science high schools are advantageous in terms of their level of achievement, qualified education, and good prospects; and disadvantageous in terms of high expectation and psychological pressure resulting from some other factors.

The article titled *“Value Priorities of Teacher Candidates: Using a Scaling Technique for Value Ranking”*, which is prepared by **Cengiz Aslan**, aims to determine the value priorities of teacher candidates in Turkey. When the terminal values in RVS are analyzed using the scaling technique based on ranking judgments, the most commonly preferred value by teacher candidates is “family security”, while the least commonly preferred terminal value is “pleasure”. Among the instrumental values in the RVS, the most commonly (predominantly) preferred value is the “honesty”, while the least commonly preferred one is the “obedience”.

The article titled *“Developing Sustainable Education Disposition Scale and Teacher Views regarding the Education Disposition”*, which is prepared by **Fatma Köybaşı Şemin**, aims to examine teachers' views on sustainable education disposition against school type or gender. This study is a descriptive survey. According to the results, it can be inferred that the teachers have a high level of disposition to sustainable education. It was found out that teachers' views on sustainable education disposition differ between genders in favor of males.

In the article titled *“Assessment of Criminal Charges Brought Against Teachers”*, which is prepared by **Meltem Ökdem**, the document analysis method was used because it involved the study of legal documents. In order to determine what cases against teachers were brought to trial between 2004 and 2018, charges filed against teachers were obtained via www.kazancl.com and www.LegalBank.com databases. It was found that most charges brought against teachers in the criminal courts were cases related to crimes against the person. This was followed by crimes against the nation and state and crimes against society.

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
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The Effects of Mind Games on Higher Level Thinking Skills in Gifted Students*

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Özlem Baş**

Okan Kuzu***

Bilge Gök****

Abstract

The aim of this research is to demonstrate the effect of various mind games, played by students identified as gifted in the elementary school age, on their analytical thinking, critical thinking and decision making skills. To fulfill this aim, the research made use of experimental research pattern and used single group, pre/post-test experimental pattern, which counts among weak experimental patterns. The study group of the research consists of 22 students in a private school located in Çankaya, Ankara in the academic year of 2016-2017. While the inclusion of the private school to the research involved the usage of the convenience sampling method, the inclusion of the gifted students to the research was done through purposive sampling methodology. In this research, various tests: "ACD test" and "Kakuro test" for gifted students were prepared by researchers and used in the research to measure high-level thinking skills of gifted students. In the process, various games: "Rat a Tat Cat" and "Sleeping Queens" were played and effects of these games on students' analytical thinking, critical thinking and decision-making skills were examined. Research outcomes demonstrated improvement in the analytical thinking, critical thinking and decision-making skills of the gifted students as a result of the various mind games they played.

Keywords: Mind games, gifted students, analytical thinking, critical thinking, decision-making.

*The study was presented in "International Conference on Mathematics and Mathematics Education (ICMME-2017)", Şanlıurfa, Turkey, May 11-13, 2017. Moreover, the study was supported by the Scientific Research Projects Coordination Unit of Hacettepe University. Project Code: SDS-2015-8831. *We would like to thank Nesibe Aydın Schools for providing environment.*

** *Corresponding Author:* Associate Professor, Hacettepe University, Education Faculty, Elementary Education Department, Ankara, Turkey. ozlembas@hacettepe.edu.tr <https://orcid.org/0000-0002-0716-103X>

*** Assistant Professor, Kirsehir Ahi Evran University, Education Faculty, Mathematic and Science Education Department, Kirsehir, Turkey. okan.kuzu@ahievran.edu.tr <https://orcid.org/0000-0003-2466-4701>

**** Associate Professor, Hacettepe University, Education Faculty, Elementary Education Department, Ankara, Turkey, bilgeb@hacettepe.edu.tr <https://orcid.org/0000-0002-1548-164>

Özel Yetenekli Öğrencilerle Oynanan Zekâ Oyunlarının Üst Düzey Düşünme Becerilerine Etkisi*

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Özlem Baş**

Okan Kuzu***

Bilge Gök****

Öz

Bu araştırmanın amacı ilkokul çağındaki tanılanmış özel yetenekli öğrencilerle oynanan çeşitli zekâ oyunlarının analitik düşünme, eleştirel düşünme ve karar verme becerilerine olan etkisini ortaya koymaktır. Bu amaç doğrultusunda deneysel araştırma deseni kullanılan çalışmada zayıf deneysel desenlerden tek grup ön test-son test deneysel desen kullanılmıştır. Araştırmanın çalışma grubunu 2016-2017 eğitim öğretim yılında Ankara ilinin Çankaya ilçesindeki özel bir okulda öğrenim gören 22 özel yetenekli öğrenci oluşturmaktadır. Özel okulun araştırmaya dâhil edilmesinde uygun örnekleme yöntemi, bu okuldaki özel yetenekli öğrencilerin araştırmaya dâhil edilmesinde ise amaçsal örnekleme yöntemi kullanılmıştır. Araştırmacılar tarafından özel yetenekli öğrencilerin üst düzey düşünme becerilerini ölçmek amacıyla ön ve son test olarak “AKE” testi ve “Kakuro testi” hazırlanmıştır. Uygulama sürecinde ise “Rat A Tat Cat” ve “Sleeping Queens” oyunları oynatılmış ve bu oyunların öğrencilerdeki analitik düşünme, eleştirel düşünme ve karar verme becerilerine olan etkisi incelenmiştir. Araştırma sonucunda özel yetenekli öğrencilerle oynanan zeka oyunlarının özel yetenekli öğrencilerin analitik düşünme, eleştirel düşünme ve karar verme becerilerini geliştirdiği görülmüştür.

Anahtar Sözcükler: Zekâ oyunları, özel yetenekli öğrenciler, analitik düşünme, eleştirel düşünme, karar verme.

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** *Sorumlu Yazar:* Doç. Dr., Hacettepe Üniversitesi, Eğitim Fakültesi, Temel Eğitim Bölümü, Sınıf Eğitimi Ana Bilim Dalı, ozlembas@hacettepe.edu.tr <https://orcid.org/0000-0002-0716-103X>

*** Dr. Öğretim Üyesi, Kırşehir Ahi Evran Üniversitesi, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi, okan.kuzu@ahievran.edu.tr <https://orcid.org/0000-0003-2466-4701>

**** Doç. Dr., Hacettepe Üniversitesi, Eğitim Fakültesi, Temel Eğitim Bölümü, Sınıf Eğitimi Ana Bilim Dalı, bilgeb@hacettepe.edu.tr <https://orcid.org/0000-0002-1548-164>

Introduction

The most basic need of childhood, play, is in fact the most effective educational medium for the child's intellectual needs when presented in a well-planned and efficacious format. Play passes through progressive stages in the child's learning basic life skills and communicating with his/her environment. Oğurlu and Yaman (2010, p.215) mention that the child learns the duties and responsibilities in the social environment as s/he experiences them during play. They also point out that the roles between mother, father and siblings as well as their behavior towards the elderly and their peers become apparent, as they play. During play, the child reinforces, embraces, acknowledges the notions of human relations, helping, acquiring knowledge, habits and experiences, roles in life. In addition, young gifted students often learn to play by the rules earlier than other students.

When we look at the studies in which play is used in education, it can be observed that games help develop a lot of skills in order for students to use high-level thinking skills. According to Erhan, Hazar and Tekin (2009, p.2-8), one of the problems related to students is that they could not get the students to concentrate on a certain subject. In Conelly's (2002) study of the motivational role of collaborative games in the classroom environment, it has been shown that students are much more motivated and more active in academic work when they play collaborative games. In addition, Carpenter (2010) created a sportive experience for students based on the Tactical Gaming Model in his PhD dissertation on game performance and student motivation with a Frisbee game unit. On the other hand, Polat in his work (2013, p. 23) has discovered that, because students perceive origami activities as a game, this turns mathematics education into fun.

Mind games are used as an effective tool in the development of various mental capacities and skills of the students and turning real problems into fun activities by making them game-like (MoNE, 2013). In addition, it has been emphasized by some researchers that mind games are important in the development of skills such as strategic thinking, logical reasoning, decision-making and data processing (Bottino and Ott, 2006; Kirriemur and McFarlane, 2004). The types of games included in the program and that represent the learning areas of the program are; reasoning and processing games, verbal games, geometric-mechanical games, strategy games, memory games and mind games (MoNE, 2013, p.9-11).

Played by students, these games' contribution to the development of their intellectual skills is immense. These games, when played regularly even for a short period of time, cause the child to start using several strategies and means, and this begs the following question: Which games develop which intellectual skills? In this context, the basic intellectual skills of gifted students are generally divided into two fields, intellectual and academic (Parks, 2009, 261). Intellectual skills include skills such as creative thinking, reasoning, problem solving, analytical thinking, critical thinking, etc. These skills and their fields of development are summarized below. The Parks (2009) Intellectual Domain Map shows that skills are directly or indirectly related to each other. Based on this, it can be said that play improves multiple skills.

The finding that intelligent games improve the 2nd graders' levels of mental skills obtained by Marangoz and Demirtaş (2017) demonstrates the importance of intelligent games for primary school students. Baki (2018) states that intelligent games improve students' socialization, self-expression, multiple-thinking, directing attention and focusing and problem-solving and recommends that the class of intelligent games should be available at all grade levels. Genç and Dağlıoğlu (2018, p. 184), on the other hand, point out that the importance of games should also be taken into consideration in the case of gifted students- one of the neglected groups in Turkey- and highlight the importance of games to assure that those students' potentials can be maximized and that they can communicate effectively with other students by also taking into account their developmental differences from other students. Some studies concerning games and gifted students were found as a result of literature review (Altun, 2017; Baki, 2018; Bulut, 2018; Cameron, 2007; Demirel and Karakuş Yılmaz, 2019; Genç and Dağlıoğlu, 2018; Marangoz and Demirtaş, 2017). Moreover, there was not much studies related to use mind games for the gifted students in the literature. It is believed that considering mind games-one of the practices

to motivate improve gifted students and thus to improve their mental skills will contribute to the literature and that it will be important to educators and teachers in that it gives examples to them.

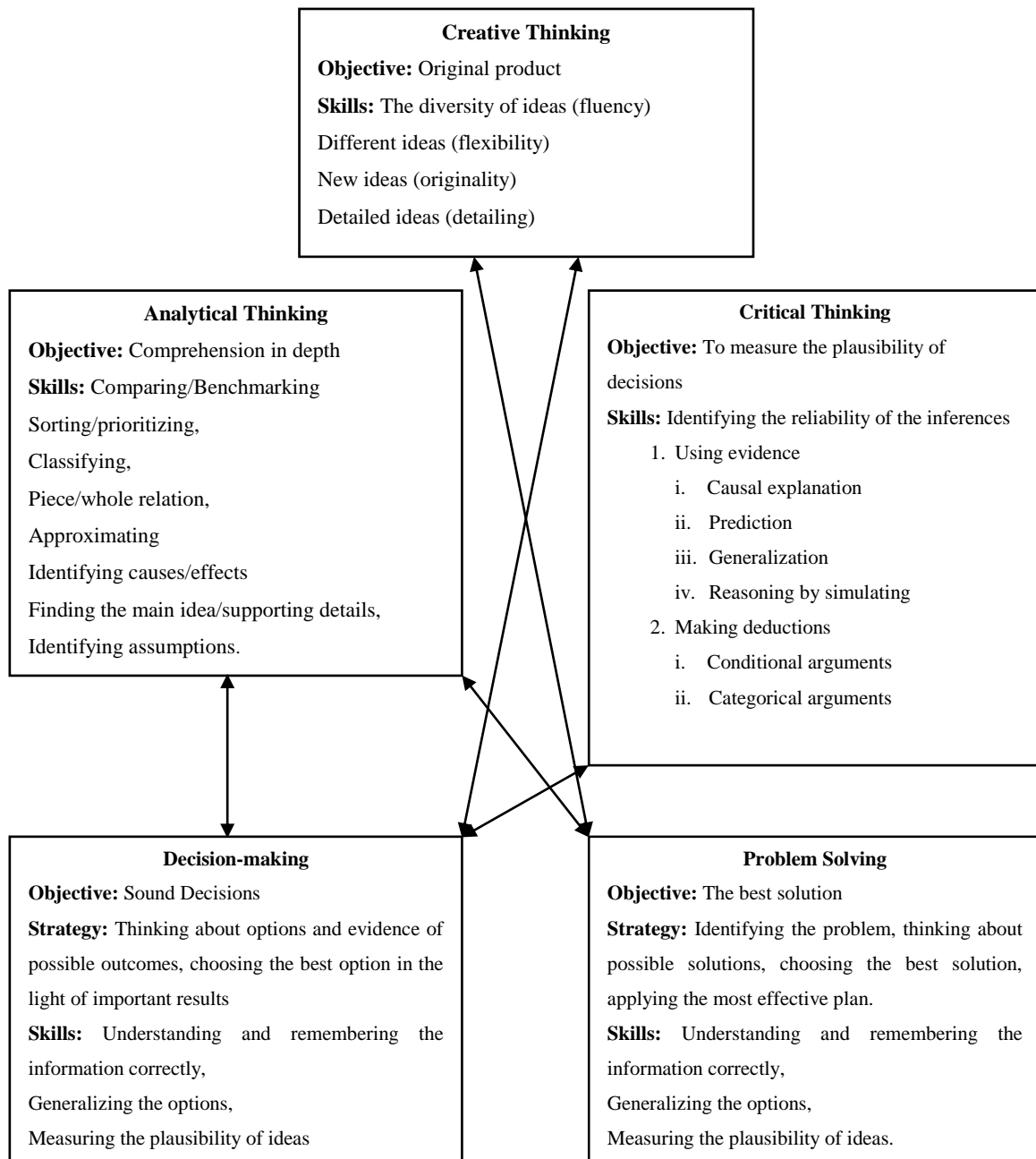


Figure 1. *Intellectual Domain Map (Parks, 2009, p.263)*

And also, it is thought that this research will allow for the merging of education and game lessons of gifted students, introduce the popular card games abroad which are used in the education of gifted students, show the correlation between these games and the students' intellectual skills and in doing so contribute to the field. In this context, the aim of the research is to demonstrate the influence of various intelligence games played with the identified gifted students in the elementary school age on analytical thinking, critical thinking and decision making skills.

1. Is there a meaningful difference between pre-test and post-test scores of analytical thinking skills of identified gifted students of primary school age when they play various mind games?
2. Is there a meaningful difference between pre-test and post-test scores of critical thinking skills of identified gifted students of primary school age when they play various mind games?
3. Is there a meaningful difference between pre-test and post-test scores of decision-making skills of identified gifted students of primary school age when they play various mind games?

Method

Research Design

In this study, one-group pretest-posttest experimental design which is one of weak designs was used to investigate the effect of various intelligence games on gifted elementary school students' development of analytical thinking, critical thinking and decision-making skills. In this pattern, the experimental process is tested with a study on a single group. Measurements of dependent variables of the subjects were obtained by using the same subjects and same measurement tools first as pre-test and later as post-test (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz and Demirel, 2012). In the pattern, dependent variables are analytical thinking, critical thinking and decision making skills of gifted elementary school students, and independent variables are intelligence games of various genres whose influence on the analytical thinking, critical thinking and decision making skills of the gifted elementary school students are examined. The symbolic representation of the design is presented in Table 1.

Table 1

Single group pretest-posttest pattern example

Group	Pre-test	Process	Post-test
G	O1 ACD test and kakuro test (dependant variable)	X Mind games (Intervention)	O1 ACD test and kakuro test (dependant variable)

Research Sample

The study group of the research consists of 22 students (6 females, 16 males) schooling in a private school located in Çankaya, Ankara in the academic year of 2016-2017. They are the 3rd and 4th grade students who have been selected for the weekend school of gifted students by experts through WISC-R and Stanford-Binet intelligence tests. While the inclusion of the private school to the research involved the usage of the convenience/accidental sampling method, the inclusion of the gifted students to the research was done through purposive sampling method.

Research Instruments and Procedures

In the research, the effects of various mind games: "Rat a Tat Cat" and "Sleeping Queens" on the analytical thinking, critical thinking and decision-making ability of gifted students on students were examined. In this context, reasoning and calculation games, memory games and mind games and their difficulty levels were investigated in the curriculum of *MoNE (2013)* to measure the high-level thinking skills of gifted students. Within the scope of the game types, various tests: "Analytical thinking, Critical thinking and Decision making skills test (ACD test)", "Kakuro Test" and "Memory Game Test" were prepared according to D1 (Beginner level), D2 (Intermediate level) and D3 (Advanced level) difficulty levels.

Analytical Thinking, Critical Thinking and Decision Making Skills Test (ACD test)

Firstly, six types of questions were identified by scanning the concerning field and taking expert opinions into account. Five items were prepared with different levels of difficulty from each question type. Mathematics, Turkish language experts and gifted education experts were consulted on the suitability of the content of the 30 items which were prepared, the conformity of the materials with the

rules of writing, whether there was a scientific error or not, the conformity of the materials with the students' level. Considering these expert opinions, necessary corrections were made and five students in the second level of primary education were asked to read the test item. According to the feedback of the students about the materials, the expressions which were not understood or misunderstood were corrected and the expert opinions were applied once again before the application. In line with the common opinion of the experts, a test consisting of a total of 18 items was prepared in line with the D1 (items 1-6), D2 (items 7-12) and D3 (items 13-18) difficulty levels of each question type. D1 level included items that involve an easy-to-predict solution with a single stage. D2 level included items that involve a hard-to-predict solution with a single stage or games that involve multiple easy stages. D3 level included items that require experience or items which are hard-to-predict with multiple stages. The test was applied to a group of 132 students with similar characteristics to the study group. The obtained data were analyzed in two categories as "right" and "wrong" and analyzed with the "Test Analysis Program" [TAP]. As a result of the analysis, the reliability coefficient of Kuder-Richardson 20 (KR-20) was found to be .828. In addition, the item difficulty index of the test ranged from .07 to .93 and the average difficulty index was calculated as .501. The item difficulty index indicates the correct answer rate for each item and, usually, a value of 0.50 on the item difficulty index is preferred (Çepni et. al, 2008). On the other hand, the item discrimination index of the test ranged from .26 to 1 and the average discrimination index was found to be .525. The item discrimination index is the level of discernment an item can make between students with a high level of achievement and those with a low achievement level. The item discrimination index takes a value between "-1" and "+1". Items with a discrimination index of zero or negative cannot be included in the test. If the discrimination index is .40 or higher, the item is very good; between the values of .30 to .40, the substance is good; if between .20 and .30, the item can be used as it is or modified if need be. If the value is less than .20, the substance should not be used or should be reformulated. Accordingly, an item with the value of 0.26 was included in the test by making necessary corrections. Within the framework of these results, the "ACD Test" with 18 items was obtained, which has very good indices of validity, reliability, item difficulty and discrimination.

Memory Game Test and Kakuro Test

Three Memory Tests with the difficulty levels D1, D2 and D3 were prepared. The numbers and numbers in these memory tests, consisting of 3x2, 3x3 and 4x3 matrices, respectively, have been chosen carefully according to their difficulty of memorization. At this stage, an interview of the French mathematician and psychologist Nicolas Gauvrit on the impact process was taken into consideration. Gauvrit noted that a multiplication consisting of small numbers such as 2x3, 3x4 and a multiplication process consisting of the same numbers like 5x5, 6x6 can be remembered more easily. In addition, Gauvrit emphasized that multiplication using numbers 5 and 10 would be easier to remember comparatively. Multiplications involving the numbers 6, 7 and 8 are harder to keep in memory (Gauvrit, 2014). In this case, the numbers 0,1,2,3,4,5 are be remembered easily and 6,7,8,9 are harder to remember. Also, the fact that there are repeating numerals in the number result in the number being easier to remember. At the same time, particular care was given so that the memory test at level D1 is not too easy, and the memory test at level D3 not too difficult. The numbers in the 3x2 matrix consisted of 389 and 647; the numbers in the 3x3 matrix consisted of 582, 316, 745; the numbers in the 4x3 matrix consisted of 1435, 2518 and 6397. These tests were applied to a group of 10 students with similar characteristics to the study group, and the significance of the test was verified. During this process, the students were asked to look at the cards for 10 seconds, after which the cards were flipped facedown. The students were then asked to write the corresponding numbers in the blanks next to the cards. After each correct answer, the student advanced to next level question. Students were given three tries for each level. Upon failing to find the correct answer, no more questions were asked to the student. In addition, the kakuro tests in the field have been examined and a total of three kakuro tests with the difficulty levels of D1, D2 and D3 respectively, have been used.

Experts were consulted in order to determine the connection of these tests, which were prepared according to the MoNE game types of 2013, and which were judged to be a good measure of reasoning ability, with Parks' (2009) skills in the Map of Intellectual Domains. Five instructors in the field of mathematics education and gifted education were given detailed information about the preparation as

well as application of these tests and asked to score them from 1 to 5 for each skill. As in Parks' (2009) Intellectual Domain Map skills are interconnected; a game improving one skill will result in the improvement of other skills as well. Therefore, it has been deemed appropriate to use 1 as the lowest score instead of 0. The content validity ratio of the testes was calculated by the technique developed by Lawshe (1975) and the values obtained are presented in Table 2.

Table 2

The content validity of the tests used in the research

Content validity ratio	Skills				
	Creative Thinking	Analytical Thinking	Critical Thinking	Decision-making	Problem Solving
ACD Test	0.6	1	1	1	0.2
Kakuro Test	0.6	1	1	1	1
Memory Game Test	-0.6	-0.2	-0.2	0.6	-1

According to Lawshe technique, it was emphasized that the minimum content validity value of .99 was found to be appropriate at the 0.05 significance level for five experts (Veneziano & Hooper, 1997). Therefore, it has been observed that the content validity ratio of ACD test and Kakuro test were very high for analytical thinking, critical thinking and decision-making skills. In line with the opinions of the experts, it was decided to remove the Memory Game Test from application and to use ACD Test and Kakuro Test to measure analytical, critical, decision-making skills of gifted students. On the other hand, in line with Parks (2009)'s Intellectual Domain Map, it is said that thinking skills interrelated and it is not possible to separate them completely from each other. Therefore, it is said that ACD Test and Kakuro Test used in the research measure the skills of creative thinking and problem solving, albeit to a lower level than the others.

After the preparation of the tests, the research proceeded with the application of the tests on gifted students. At first, the students were handed out the ACD Test (appendix 1) and were asked to complete it within 30 minutes. After the completion of the test, students could have a 15-minute break so that they do not get bored and lose motivation. After the break, these students, who were highly ready for the Kakuro test, were briefly informed about the game. After that, it was assumed that the kakuro test was understood and the students asked to do the Kakuro test within 20 minutes. After the tests were applied, the students were asked to play "Rat a Tat Cat" and "Sleeping Queens" 16 hours for 4 weeks, 4 hours per week. Rat-a-Tat Cat is a memory game developed by Monty and Ann Stambler and released by Gamewright. The game was awarded Mensa Select in 1996. Sleeping Queens is a students' card game developed by Gamewright. The idea of this game first came into Miranda Evarts' mind, when she was having trouble falling asleep. Her parents helped her develop the game and find a publisher. Sleeping Queens (SQ), was awarded "Best Wager Awards 2006" by the Canadian Toy Testing Council (Wikipedia, 2017).

These games, which are believed to improve intellectual thinking, critical thinking and decision-making skills, were played with students first with the participation of a researcher and followed by the students playing by themselves under the guidance of the said researcher. After the 4-week activity period, the implementation stage of the last test began. The students were subjected to the same tests as in the pre-test and the results were recorded. Furthermore, the data of students who did not participate in at least four hours of the course were not taken into consideration. During the evaluation of the data, various scoring systems were used. For the ACD test which consists of 18 items, a scoring of 1 for a correct answer and 0 for an incorrect answer was used. For the scoring of the Kakuro test, on the other hand, an analytical rubric prepared by the researchers was used. In the developed rubric, three evaluation

scales for questions in each stage were used: Unsatisfactory (0), Needs Improvement (1), Satisfactory (2).

Data Analysis

Since "single group pre-test - post-test experimental pattern" was used in the research, the study was conducted with single group (study group). During the stage of data analysis, it was primarily investigated whether the data received from the students within the study group corresponded to the parametric test assumptions. The normal distribution of the data, which is the parametric assumption of the data received from the students of this group, and the homogeneity of the variances were tested statistically. Whether or not the data acquired from the groups varied normally was verified through the "coefficients of kurtosis and skewness" and "Kolmogorov-Smirnov test"; and the homogeneity of the variances verified through "Levene's Test of Equality of Error Variances". The graphics were also examined for normality testing. Since the Shapiro-Wilk test and Levene test showed that the p values were lower than 0.05, it can be said that the distribution of data is not normal and the variances are not homogenous. Since it was observed after the analyses that the data did not meet the parametric test conditions, non-parametric statistics were used. "Wilcoxon Signed-Rank Test" was used to determine whether there was a significant difference between the pre-test and post-test scores of the students in the study group, who took the ACD Test and Kakuro Test. Although the significance level was taken as 0.01 in the research, the effect size was calculated to test the significance of the changes emerged after the application for the variables used. Significant differences between the averages of the scores do not guarantee actual difference in practice. For this reason, it is necessary to use effect size statistics in interpreting the results of the tests based on the comparison of average scores. Effect size calculation varies depending on the test applied. Regardless of the sign, the Cohen d value used to calculate the effect size is interpreted as small, medium and large effect sizes of 0.2, 0.5 and 0.8, respectively (Cohen, 1988). Analysis of the data in the study was conducted in the SPSS 16.0 package program.

Findings

In this section, findings obtained from analysis of research data are presented in tables. The Wilcoxon signed rank test results as to whether students' analytical thinking, critical thinking and decision-making skills differ significantly before and after the experiment was shown in Table 3.

Table 3

Wilcoxon Signed-rank Test results of ACD Test scores before and after experiment

ACD Test (Levels)	Pretest-Posttest	n	Rank average	Rank total	z	p	r (effect size)
1st level	Negative rank	1	5.50	5.50	3.47*	0.00**	0.74
	Positive rank	15	8.70	130.50			
	Equal	6					
2nd level	Negative rank	0	0.00	0.00	3.77*	0.00**	0.80
	Positive rank	18	9.50	171.00			
	Equal	4					
3rd level	Negative rank	2	4.00	8.00	2.97*	0.00**	0.63
	Positive rank	13	8.62	112.00			
	Equal	7					
Total	Negative rank	0	0.00	0.00	4.04*	0.00**	0.86
	Positive rank	21	11.00	231.00			
	Equal	1					

*Based on negative ranks ** p<0.01

The results of the analysis showed that the pre-test and post-test scores of ACD test by level, which were respectively ($z_{3.düzey} = 3,47$, $z_{1.düzey} = 3,77$, $z_{2.düzey} = 2,97$; $p < 0,01$) and the total test scores ($z = 4,04$; $p < 0,01$) differed quite significantly. When the rank averages and sums of the difference scores are taken into consideration, it is seen that this difference is in favor of the positive rank, that is, the

final test score. However, when the effect size (r) values are examined, it can be said that the effect is generally high at all levels and in terms of total test scores, in other words, it can be concluded that the difference between pre-test post-test scores is great. According to these results obtained by the ACD test, it can be said that mind games played with students play an important role in improving students' analytical thinking, critical thinking and decision-making skills.

The Wilcoxon signed rank test results as to whether students' analytical thinking, critical thinking and decision-making skills differ significantly before and after the experiment is shown in Table 4.

Table 4
Wilcoxon Signed-ranks Test results of Kakuro Test scores before and after experiment

Kakuro Test (Levels)	Pretest-Posttest	n	Rank average	Rank total	z	p	R
1st level (Small)	Negative rank	0	0.00	0.00	2.88*	0.00**	0.61
	Positive rank	10	5.50	55.00			
	Equal	12					
2nd level (Medium)	Negative rank	0	0.00	0.00	3.62*	0.00**	0.77
	Positive rank	16	8.50	136.00			
	Equal	6					
3rd level (Large)	Negative rank	0	0.00	0.00	2.76*	0.00**	0.59
	Positive rank	9	5.00	45.00			
	Equal	13					
Total	Negative rank	0	0.00	0.00	4.04*	0.00**	0.86
	Positive rank	21	11.00	231.00			
	Equal	1					

*Based on negative ranks ** p<0.01

The results of the analysis showed that the pre-test and post-test scores of the Kakuro Test by level, which were respectively ($z_{1.düzey} = 2,88$, $z_{2.düzey} = 3,62$, $z_{3.düzey} = 2,76$; $p < 0,01$) and the total test scores ($z = 4,04$; $p < 0,01$) differed quite significantly. When the rank averages and sums of the difference scores are taken into consideration, it is seen that this difference is in favor of the positive rank, that is, the final test score. However, when the effect size (r) values are examined, it can be said that the effect is moderate to high at all levels and in terms of total test scores, in other words, it can be concluded that the difference between pre-test post-test scores is great. According to these results obtained by the Kakuro Test, it can be said that mind games played with students play an important role in improving students' analytical thinking, critical thinking and decision-making skills.

Discussion, Conclusion and Recommendations

The data obtained in the research reveal that various mind games played with the identified gifted students in the elementary school age increase their analytical thinking, critical thinking and decision making skills. As a result of the analysis made in this direction, it was seen that there was a significant difference between the pre-test and post-test scores of ACD Test and Kakuro Test as well as the total test scores. What's more, it can be said that the effect is high in the general sense, in other words, the difference between pre-test and post-test scores is large. Fun and motivating games that people of all ages love, give students the opportunity to explore basic notions such as number concepts, one to one matching and calculation strategies. Furthermore, mathematical games allow students to deepen their reasoning skills, which are closely related to mathematical understanding and skills in the Parks (2009) Map of the Intellectual Domain (Rutherford, 2015). Procedural fluency and conceptual understanding can be improved through problem-solving, reasoning, and discussion skills (National Council of Teachers of Mathematics [NCTM], 2000). Games can create an environment in which students develop mathematical reasoning skills (Rutherford, 2015). Devocioğlu and Karadağ (2014)'s studies on lessons about mind games show that mind games not only include games affecting the development of mathematics but also games that develop calculative and strategic strength improving skills such as verbal and visual intelligence, problem-solving, finding solutions, three-dimensional thinking,

designing, forming shapes, tactical development, critical thinking and creativity. In Kurbal's work (2015), it was found that mind games improved students' problem solving and reasoning skills. Strom and Barolo (2011) examined the effect of the game they used in the study (mastermind) on reasoning skills and observed that it had a positive effect. Reiter, Thornton and Vennebush (2014) mentioned in their study that the 'kendoku' game improved the reasoning skills. They point out that the reasoning skills important in mathematics and other lessons as well as everyday life, are improved through playing this game. McFarlane, Sparrowhawk, & Heald (2002) found that games used in education helped students gain autonomy. They have also concluded that educational games improved the students' memory, as well as help them gain problem-solving and reasoning skills. They also reported that they were more accustomed to group work. What's more, Kafai (2006) stated that educational games contributed to the interpretation skills of the students. Bottino and Ott (2006) and Bottino, Ott, Tavella & Benigno (2010) and Bottino, Ott & Benigno (2009) and Bottino, Ott & Tavella (2013) have shown that mind games increase students' academic success in their courses and contribute to their reasoning skills. As noted above, the idea that games improve the students' reasoning ability as well as analytical thinking, critical thinking and decision-making skills closely connected in the Parks (2009) Intellectual Domain Map, is supported by relevant studies in the field as well.

It is seen that gifted students use more strategies than those who are not to solve the problem and have a flexible mindset in implementing these strategies (Yıldız, 2012). In addition, it is suggested that gifted students first express problems with their own words during the problem-solving process, and then put forward new ideas by offering the necessary conditions for the solution (Baltacı, 2016). With this explanation made, the importance of these skills in our daily lives has been stressed. In this respect, it has been emphasized that these skills, which are expressed through games played with elementary school students in the research, can be developed and their development is of utmost importance.

In the field, it is known that mind development may be easier and faster at early ages (Senemoğlu, 2011). In line with this, teaching mind games in public schools or private schools as elective courses in primary schools is recommended. The importance of shifting mind games that are being taught in public middle schools as elective courses to a younger age group has been supported by various studies in the field as mentioned above. This research focused on analytical thinking, critical thinking and decision-making skills. Future studies may also examine the effect of mind games on different intellectual skills/daily life skills of student groups at different levels or focus on the effects of mind games on affective properties. In this study, students were asked to play "Rat a Tat Cat" and "Sleeping Queens," which are the most used mind games in the US. The effects of different mind games and mind game types on these skills can also be further researched. Also, this research was conducted on gifted students. Future studies may involve students with normal IQ levels and the effects of mind games on both groups can be examined comparatively.

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ACD Test (Appendix 1)

11) Match each word and number since each letter represents a number.

KAR	323
OTU	415
ATA	121
TOK	143
AKO	264

12) The numbers in each line are obtained from the numbers in a bottom line according to a certain rule. Which number should be replaced by a question mark?

42	21	22			
	10	?	11		
	6	8	7	6	
2	4	3	6	6	1

13) Which number should be replaced by a question mark?

3	6	13	28	?	122
---	---	----	----	---	-----

14) Which letter should be replaced by a question mark?

15) Which number should be replaced by a question mark?

16) Which number should be replaced by a question mark?

17) Match each word and number since each letter represents a number.

PI	48
İİ	12
Aİ	13
AT	46
İP	21

18) The numbers in each line are obtained from the numbers in a bottom line according to a certain rule. Which number should be replaced by a question mark?

?					
				7	
	6		4	6	
3	6	6	4	4	3

6) Since the number in each box is equal to the sum of the number in the two boxes directly below, what is the number in the top box?

?		
39		
15		12
8		2

7) Which number should be replaced by a question mark?

1	4	10	22	46	?
---	---	----	----	----	---

8) Which letter should be replaced by a question mark?

9) Which number should be replaced by a question mark?

10) Which number should be replaced by a question mark?

1) Which number should be replaced by a question mark?

3	5	8	12	17	?
---	---	---	----	----	---

2) Which letter should be replaced by a question mark?

3) Which number should be replaced by a question mark?

4) Which number should be replaced by a question mark?

5) Match each word and number since each letter represents a number.

TAKA	2143
AKIT	1436
KATI	4121
ATIP	1234
TIPA	4361

Positive Psychology Course: A Way to Improve Well-Being

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Ayşe Berna Sarı Arasil*

Fatma Turan**

Bariş Metin***

Hande Sinirliođlu Ertas****

Nevzat Tarhan*****

Abstract

Today many universities provide courses on positive psychology. Previous studies have showed that the positive psychology course may serve to improve well-being of students. However, previous studies had limitations in sample size and sample characteristics. In the current study, we aimed to assess the beneficial effect of a compulsory positive psychology course on well-being, happiness, emotional expressiveness, life satisfaction, emotional intelligence and social intelligence in addition to experiences in close relationships. In total 308 undergraduate students (Mean age = 20, SD = 3; 237 female, 71 male) who took the positive psychology course volunteered to participate and filled in self-report questionnaires before and after the course (14 weeks later). The results showed that the participants' overall happiness and emotional expressiveness increased after taking the positive psychology course. We conclude that positive psychology course is not only instructive, but it may also serve to increase happiness and emotional abilities of students.

Keywords: Positive psychology, positive psychology course, well-being, happiness.

* Assist. Prof., Dr., Yeditepe University, Faculty of Arts and Sciences, Department of Psychology, İstanbul, Turkey. E-mail: abernasari@gmail.com, <https://orcid.org/0000-0001-6870-4758>.

** Faculty Member, Vocational School of Health Services, Electroneurophysiology Program, Uskudar University, İstanbul, Turkey. E-mail: fatma.turan@uskudar.edu.tr, <https://orcid.org/0000-0002-9982-4792>.

*** Assoc. Prof. Dr., MD, School of Humanities and Social Sciences, Department of Psychology, Uskudar University, İstanbul, Turkey. E-mail: baris.metin@uskudar.edu.tr <https://orcid.org/0000-0003-1626-058X>.

**** Faculty Member, School of Humanities and Social Sciences, Department of Psychology, Uskudar University, İstanbul, Turkey. E-mail: hande.ertas@uskudar.edu.tr, <https://orcid.org/0000-0003-2995-920X>.

***** Prof. Dr., MD, Department of Psychology, Uskudar University, NPI İstanbul Neuropsychiatry Hospital, İstanbul, Turkey. E-mail: nevzat.tarhan@uskudar.edu.tr. <https://orcid.org/0000-0002-6810-7096>.

Pozitif Psikoloji Dersi: İyi Oluşu Arttırmaya Yönelik Bir Yol

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	14.07.2019	17.12.2019

Ayşe Berna Sarı Arasil* Fatma Turan** Barış Metin***
 Hande Sinirlioğlu Ertas**** Nevzat Tarhan*****

Öz

Pozitif psikoloji akımı, güncel alanyazına önemli katkıları ile etkinliğini giderek arttırmaktadır. Pozitif psikolojinin etkinliği, farklı alanlara yansımaları ile yaygınlaşmaya devam etmektedir. Bugün birçok üniversitede pozitif psikoloji verilen dersler arasında yer almaktadır. İlgili alanyazın bulguları, Pozitif psikoloji dersinin öğrencilerin öznel iyi-oluş düzeylerini arttırabileceğini göstermektedir. Ancak, önceki çalışmalar incelendiğinde, katılımcı sayıları sayısı ve katılımcıların özellikleri bakımından kısıtlılıklar olduğu da görülmüştür. Bu çalışmada (zorunlu ders olan) Pozitif Psikoloji dersinin, yakın ilişkiler kurma, öznel iyi-oluş, mutluluk, duyguları ifade, yaşam doyumu, duygusal zeka ve sosyal zeka gibi farklı değişkenler üzerine faydalarının değerlendirilmesi amaçlanmıştır. Çalışmaya pozitif psikoloji dersini alan 308 üniversite lisans öğrencisi (Ortalama yaş = 20; 237 kadın) gönüllü olarak katılmıştır. Çalışma grubunda yer alan öğrenciler, öz-bildirim tarzı değerlendirme anketlerini ilk ders öncesinde ve son ders ardından (14 hafta sonra) yanıtlamışlardır. Verilerin analizinden elde edilen bulgular, öğrencilerin mutluluk düzeyi ve duygu ifadelerinde pozitif psikoloji dersleri sonunda artış olduğu yönündedir. Sonuç olarak araştırma bulguları; pozitif psikoloji içerikli bir dersin bilgilendirici eğitimin ötesinde; öğrencilerin duygularını daha iyi ifade etmelerini ve daha mutlu olmalarını sağlayan etkin bir eğitim içeriği olduğunu göstermiştir.

Anahtar Sözcükler: Pozitif psikoloji, pozitif psikoloji dersi, öznel iyi oluş, mutluluk.

*Dr. Öğr. Üyesi, Yeditepe Üniversitesi, Fen Edebiyat Fakültesi, Psikoloji Bölümü, İstanbul, Türkiye. E-posta: abernasari@gmail.com, <https://orcid.org/0000-0001-6870-4758>

** Öğretim Görevlisi, Sağlık Hizmetleri Meslek Yüksek Okulu, Elektronörofizyoloji Programı, Üsküdar Üniversitesi, İstanbul, Türkiye. E-posta: fatma.turan@uskudar.edu.tr, <https://orcid.org/0000-0002-9982-4792>.

*** Doç. Dr., İnsan ve Toplum Bilimleri Fakültesi, Psikoloji Bölümü, Üsküdar Üniversitesi, İstanbul, Türkiye. E-posta: baris.metin@uskudar.edu.tr <https://orcid.org/0000-0003-1626-058X>.

**** Öğretim Görevlisi, İnsan ve Toplum Bilimleri Fakültesi, Psikoloji Bölümü, Üsküdar Üniversitesi, İstanbul, Türkiye. E-posta: hande.ertas@uskudar.edu.tr, <https://orcid.org/0000-0003-2995-920X>.

*****Prof. Dr., Psikoloji Bölümü, Üsküdar Üniversitesi, NPIstanbul Nöropsikiyatri Hastanesi, İstanbul, Türkiye. E-posta: nevzat.tarhan@uskudar.edu.tr. <https://orcid.org/0000-0002-6810-7096>.

Introduction

Positive psychology is a branch of psychology which emphasizes positive experiences and individual traits promoting subjective wellbeing and the quality of life while preventing pathologies derived from an unfruitful and meaningless life (Seligman & Csikszentmihalyi, 2000). This emerging field of psychology received increased attention in the last decades (Seligman, Steen, Park, & Peterson, 2005; Warren, Donaldson, & Donaldson, 2017). Positive Psychology attracted the scientific interest as it showed a new perspective to look at human beings' mental health. The mental health practitioners and the scholars had been putting efforts on the descriptions and the ways to deal with mental illnesses. This new approach, contributed to field by shifting the perspective from 'abnormal' to 'strengths to stay normal' (Tarhan, 2016). Furthermost the scientific interest was to build up the thriving society to prevent psychopathologies. Accordingly, several universities offer positive psychology course in their curriculum and great number of students are interested in subscribing for positive psychology course (Russo-Netzer & Ben-Shahar, 2011).

In line with the APA guidelines for Psychology Major (Halonen et al., 2007), positive psychology course does not only offer theoretical knowledge to the students, it also provides them with an opportunity for self-improvement. However, how positive psychology course contribute to the wellbeing of university students has been addressed only by few studies. In a study by Maybury (2012) students filled in self-report questionnaires of wellbeing before and after taking the positive psychology course. Results of the study showed that after taking the positive psychology course students reported improvements in several aspects of wellbeing including; mindfulness, self-actualization, hope and subjective happiness. Another study assessing the potential benefits of positive psychology course on students was conducted by Goodmon et al. (2016). In that study, authors compared students who took positive psychology course to the students who took social psychology course. Similar to the Maybury (2012) study, Goodmon et al. (2016) asked students to fill in self-report questionnaires of wellbeing before and after the course. Their results showed that students who enrolled in the positive psychology course reported elevated life satisfaction, greater happiness, and lower scores in depression and perceived stress. Similar gains were not observed in the group of students who were enrolled in the social psychology course.

Previous studies provide us valuable evidence about the potential benefits of learning about positive psychology. However, these studies had important limitations worthy of discussing. Firstly, in the previous studies positive psychology course was offered as an elective course. Hence, the sample selection of these studies could be biased since the students who prefer enrolling in positive psychology course can be those who are already interested in the topics of positive psychology and willing to improve themselves. Secondly, both Maybury (2012) and Goodmon et al. (2016) reported that the sample size was small.

In this study, we built on the methodology, results and the limitations of previous studies to test the benefits of taking the positive psychology course on well-being and social-emotional abilities. For this purpose, bachelor students who took positive psychology course were invited to fill in self-report questionnaires in happiness, emotional intelligence, mental wellbeing, expressing emotions, life satisfaction, attachment and social intelligence before (beginning of the semester) and after the course (end of the semester). Participation in the study was voluntary, yet positive psychology course was a part of regular curriculum for all the students at the university where the participants were recruited. This approach allowed us to recruit a large number of participants who enroll in the positive psychology course with no specific interest in the positive psychology topics in advance. In this study, we expected that the students will report improvement in the self-report questionnaires mentioned above at the end of the course as compared to their previous scores.

Method

Participants

The participants consisted of 308 students of Uskudar University aged between 18 to 47 (Mean age = 20, SD = 3; 237 female) in Academic year 2017-2018. Although taking the course was compulsory, participation in the study was completely on voluntary basis. Participants were students of the following undergraduate programs: Emergency and Disaster Management, Oral and Dental Health, Nutrition and Dietetics, Biomedical Equipment Technology, Child Development, Child Protective and Nursing Services, Dental Prosthesis Technology, Electroneurophysiology,

Occupational Therapy, Food Technology, Nursing, First and Emergency Aid, Social Work. The study protocol was approved by the ethics committee.

The Course Content

Positive psychology and communication skills course are taught by psychologists (MsC) with expertise or training in the field of positive psychology. The course content consists of the following topics: Definition of positive psychology and basic concepts, Theoretical foundations of positive psychology, Introduction to social cognitive neuroscience, Behavior-brain relationship, Happiness science, Positive psychology applications, Emotional intelligence, Recognizing self and awareness, Recognizing others and empathy, Communication skills and relationship management, Motivation and planning, Problem solving skills, Healthy decision making, Resilience and agreeableness.

Procedure

The questionnaires were given to the participants during the first lecture of Positive Psychology course in the following order: Life Evaluation Question, Emotional Intelligence Rating Scale (Schutte et al., 1998; Ergin, 2000), Warwick-Edinburgh Mental Well-Being Scale (Tennant et al., 2007; Keldal, 2015), Oxford Happiness Questionnaire (Argyle, 1989; Dogan & Sapmaz, 2012), Emotional Expressiveness Questionnaire (King and Emmons, 1990; Kuzucu, 2011), Satisfaction with Life Scale (Diener et al., 1985; Durak et al., 2010), Personal Wellbeing Index (Wellbeing, 2006; Meral, 2015), Experiences in Close Relationships Questionnaire (Fraley et al., 2000; Selçuk et al., 2005) and Tromso Social Intelligence Scale (Silvera et al., 2001; Doğan & Çetin, 2009). At the end of the semester (14 weeks later), students filled in the above mentioned questionnaires once again. They were thanked for their contribution and provided a contact address for their further questions.

Data Collection Tools

Life Evaluation Question

Life quality question is a single question assessing the level of happiness via 5 point Likert type scale. (How do you rate yourself when you think about your whole life in general? (1) very unhappy (2) unhappy (3) moderately happy (4) pretty happy and (5) very happy.)

Emotional Intelligence Rating Scale

The Emotional Intelligence Rating Scale was designed to measure emotional intelligence based on Schutte et al., (1998). The validity and reliability study in Turkish was conducted by Ergin (2000; Cronbach alpha coefficient of the scale was 0.94). The scale consists of five sub-scales (social skills, empathy, being aware of their feelings, controlling their emotions, self-motivation), yet a total score of emotional intelligence can also be obtained. The test consists 30 Likert type items with the following response options: 1: Totally disagree, 2: Mostly disagree, 3: I some agree, 4: I agree, 5: Mostly agree, 6: Totally agree. In scale scores 129 and below indicate low, scores between 130-154 indicate normal and scores above 155 indicate high emotional intelligence (Ergin, 2000).

Warwick-Edinburgh Mental Well-Being Scale

Tennant et al. (2007) developed the Warwick-Edinburg Mental Well-Being Scale (WEMWS) and the validity and reliability study of the Turkish form was performed by Keldal (2015). WEMWS is a self-report style scale consisting of 14 items constructed to measure mental well-being. The scale focuses on both hedonic and eudaimonic dimensions of mental well-being (Keldal, 2015). The Cronbach Alpha coefficient of the scale was found .89.

Oxford Happiness Questionnaire

Oxford Happiness Questionnaire was developed by Hills and Argyle (2002) for measuring happiness. The validity and reliability study of the Turkish form was conducted by Dogan and Sapmaz (2012). According to the reliability analysis, Cronbach alpha internal consistency coefficient is 0.91;

reliability coefficient assessed via test half-life method is 0.86 and composite reliability is 0.91. This scale contains 6-Likert-type (1-never disagree, 6-fully agree) questions and includes 29 items. High scores on the scale indicate greater happiness.

Emotional Expressiveness Questionnaire

The Emotional Expressiveness Questionnaire was developed by King and Emmons (1990). The scale was adapted to Turkish by Kuzucu (2011). The Cronbach Alpha ($\alpha = .85$) and test-retest values ($r = .85$) were sufficient. The scale consists of 16 items assessing to what extent “positive”, and “negative” emotions are expressed. It is a 7 point Likert type scale: (1) strongly disagree, (2) disagree, (3) not very disagree, (4) I'm undecided, (5) I agree a little, (6) I agree and (7) completely agree. Higher scores show the greater comfort while expressing emotions.

Satisfaction with Life Scale

Satisfaction with Life Scale was developed by Diener et al. (1985) and Turkish version was adapted by Durak et al., (2010). Originally reported internal consistency was .87 and the test-retest reliability was .82. In the Turkish version, internal consistency coefficient was .81 and the corrected item total correlations range varied from .55 to .63 (Durak et al., 2010). It is a 5-item scale which mainly focuses on the global life satisfaction using a 7 point Likert-type items ((1) strongly agree to (7) strongly agree). The total scores of participants on the scale ranges from 5 to 35. Greater scores in this scale indicate increased life satisfaction.

Personal Wellbeing Index

The Personal Well-Being Index-Adult (KIO-H) form is a thematic scale that aims to measure the subjective well-being. It was developed by International Wellbeing Group (2006, Turkish version; Meral, 2014). The internal consistency coefficient was reported as 0.81. The scale primarily focuses on eight domains of wellbeing (standard of living, personal health, success in life, personal relationships, personal security, social trust/belonging, future trust and spirituality/religion). It consists of 8 Likert type items ((1) I am not satisfied at all, (5) I am undecided, (10) completely satisfied). The increase in the total score indicates the increase in the perception of personal well-being.

Experiences in Close Relationships Questionnaire

The Experiences in Close Relationships Questionnaire (Fralley, Heffernan, Vicary, & Brumbaugh, 2000). The reliability and validity study of the Turkish version was conducted by Selçuk, Günaydın, Sümer and Uysal (2005). The test has a high level of internal consistency for avoidance and anxiety dimensions. The Cronbach Alpha coefficients for these dimensions are .90 and .86 respectively. The test-retest reliability is .82 for anxiety dimension and .81 for avoidance. The inventory has two dimensions: 36 items in anxiety and 18 items in avoidance. In the questionnaire, participants are asked to evaluate their feelings toward romantic relationships in a 7 point Likert-type (1-none, 4-undecided /no idea, 7-totally agree). High score from the scale indicates insecure attachment.

Tromso Social Intelligence Scale

The Tromso Social Intelligence Scale was developed by Silvera, Martinussen and Dahl (2001). The reliability and validity study of Turkish version was calculated by Doğan and Çetin (2009). Cronbach alpha was .83; test-retest reliability was .80 and split half reliability coefficients was reported as .75. On this scale, there are 21 Likert type questions (1-not suitable at all, 5-fully suitable).

Results

Series of paired-sample t-tests were performed to assess pre to post course differences on the scores of the questionnaires stated in the method section (Table 1). For multiple comparisons, Benjamini-Hochberg correction was performed on the p-values. Our results revealed that participants showed increased scores in life evaluation question and Emotional Expressiveness Questionnaire after the course. Marginally significant pre-post increase was observed in Satisfaction with Life Scale ($p = .07$). Pre to post differences were not observed in the Emotional Intelligence Rating Scale, Warwick-Edinburgh Mental Wellbeing Scale, Oxford Happiness Questionnaire, and Personal Wellbeing Index. Lastly, there was a decline in the scores of Tromso Social Intelligence Scale and an increase in the scores of Experiences in Close Relationships Questionnaire which reflects an increment in attachment-related anxiety and avoidance.

Table 1

Paired T test results for pre-post course comparison of questionnaire scores.

Measurement Tool	Pre-Course <i>M (SD)</i>	Post-Course <i>M (SD)</i>	<i>t</i> value	<i>df</i>
Life Evaluation Question	3.05 (0.61)	3.26 (0.61)	5.24**	257
Emotional Intelligence Rating Scale	4.11 (0.66)	4.12 (0.73)	0.12	307
Warwick-Edinburgh Mental Wellbeing Scale	3.80 (0.68)	3.78 (0.70)	0.49	307
Oxford Happiness Questionnaire	4.02 (0.75)	3.98 (0.69)	1.00	305
Emotional Expressiveness Questionnaire	4.71 (0.73)	4.80 (0.73)	2.32*	306
Satisfaction with Life Scale	4.26 (1.26)	4.40 (1.40)	2.06	299
Personal Wellbeing Index	7.11 (1.65)	7.05 (1.76)	0.71	300
Experiences in Close Relationships Questionnaire	3.58 (0.76)	3.69 (0.78)	2.63*	299
Tromso Social Intelligence Scale	3.59 (0.52)	3.44 (0.53)	4.99**	293

Discussion, Conclusion and Recommendations

In this study, we aimed to assess the impact of taking the Positive Psychology course on well-being and social-emotional abilities of a large group of students. The results indicate that after the Positive Psychology course the participants rated themselves as happier in general. In addition, their level of emotional expressiveness increased significantly. A near significant increase in life satisfaction was also observed after the course. These results indicate that the course might have resulted in an increase in general happiness and emotional expression.

We observed several advantages of taking positive psychology course on happiness and emotional expressiveness, yet our results also showed a decline in participants' self-evaluation of their social intelligence and an increase in anxiety and avoidance for attachment development in close (romantic) relationships. Although the decrease in Tromso Social Intelligence scale appears to be paradoxical, it must also be acknowledged that this is a self-evaluation scale and is not an objective

measure of social intelligence. One of the primary aims of positive psychology course was to provide knowledge on social skills and abilities. Hence, a decrease in social intelligence scores might have occurred due to an increased insight in development of such abilities. In other words, it can be argued that after taking the course students might have a greater knowledge to evaluate their social intelligence and became more critical of themselves. However, a further study should evaluate the change in social intelligence after the course using a relatively more objective measure.

Secondly, we observed an increase in the anxious and avoidant attachment style in romantic relationships, which was also an unexpected finding. The age for having the first serious relationship is typically during the first year of university (age of 18-19; Regan, Durvasula, Howell, Ureno, & Rea, 2004) and majority of our participants (N = 244) aged between 18 and 19. Hence, many of our participants might be having their first serious romantic relationship while they were taking the positive psychology course. This might possibly have influenced their evaluation of attachment during a romantic relationship and while evaluating a real serious romantic relationship, they might possibly report greater anxiety as compared to a hypothetical one. Furthermore, attachment related issues in romantic relationship might appear for the first time during their first serious relationship. However, future studies need to assess the relationship status of course-takers before reaching to a firm conclusion about the association between taking positive psychology course and attachment styles in romantic relationships. In addition, although being in a serious relationship for the first time may increase anxiety and avoidance, it is possible that students of positive psychology course might have experienced a lesser degree of these adverse experiences. However, there was not a control group in this study for comparison. Because positive psychology course was a must course at Uskudar University, all students took the course and we did not have the chance to include a control group. Hence, future studies employing a control group is highly recommended, in order to better clarify positive psychology course related improvements.

Lastly, we could not observe any course-related improvements in self-report questionnaires assessing wellbeing. This finding is incompatible with the study of Maybury (2013) where improvement in wellbeing was observed. However, as mentioned earlier, in Maybury's study, positive psychology course was elective. Hence, participants might be the students who were already eager to improve themselves in wellbeing unlike the current study. In the current study, we could not find an improvement in emotional intelligence either. However, observing an improvement in such a trait measure might be too ambitious in fourteen weeks. Future studies are recommended to have follow-up assessments.

The main strength of the current study is the large sample size as compared to the previous studies. For instance, Maybury (2012) conducted a study with 23 undergraduate students and Goodmon et al. (2006) recruited 38 undergraduate students. In addition, in our case, the course was compulsory, and unlike previous studies any effect due to high motivation is thus minimized. However, we still cannot eliminate the expectancy effect, as students might believe that taking the course would increase their well-being. Despite of the limitations, our results suggest taking positive psychology course has a potential to increase students' wellbeing and help them to gain greater insight in their social-emotional abilities.

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The Investigation of the Relationship between Teachers' Creative Thinking Tendencies and Individual Innovativeness Characteristics

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İshak Kozikoğlu**

Bedirhan Ahmet Küçük**

Abstract

This study aims to investigate the relationship between teachers' creative thinking tendencies and individual innovativeness characteristics. This study used correlational survey model and was carried out with 283 teachers from different branches working in Turkey. "Critical Thinking Dispositions Scale" developed by Özgenel and Çetin (2017), "Individual Innovativeness Scale" adapted into Turkish by Kılıçer and Odabaşı (2010) were used as data collection tools. In data analysis; descriptive statistics (arithmetic mean and standard deviation), differential statistics (t test and ANOVA), Pearson Product Moments Correlation Coefficient and simple linear regression analysis were used. The results show that teachers' creative thinking tendencies are at high level and individual innovativeness characteristics are in the "early adopters" and "early majority" categories. While teachers' creative thinking tendencies and individual innovativeness characteristics did not change significantly according to gender, it was determined that teachers who had 16 years and more experience had a higher level of creative thinking tendencies and individual innovative scores than teachers who had between 1-5 years. A moderate, positive and significant relationship was found to be between teachers' creative thinking tendencies and individual innovativeness characteristics.

Keywords: Creativity, creative thinking, innovation, individual innovativeness.

** *Corresponding Author:* Assoc. Prof. Dr., Van Yüzüncü Yıl University, Department of Educational Sciences, Division of Curriculum and Instruction, Van, Turkey. E-mail: ishakkozikoglu@yyu.edu.tr, <https://orcid.org/0000-0003-3772-4179>

** Master Student, Van Yüzüncü Yıl University, Institute of Educational Sciences, Department of Computer Education and Instructional Technology, Van, Turkey. E-mail: bedirhankucuk@gmail.com, <https://orcid.org/0000-0002-7802-7380>

Öğretmenlerin Yaratıcı Düşünme Eğilimleri ile Bireysel Yenilikçilik Özellikleri Arasındaki İlişkinin İncelenmesi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
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İshak Kozikoğlu**

Bedirhan Ahmet Küçük**

Öz

Bu çalışma, öğretmenlerin yaratıcı düşünme eğilimleri ile bireysel yenilikçilik özellikleri arasındaki ilişkiyi incelemeyi amaçlamaktadır. Çalışmada ilişkisel tarama deseni kullanılmıştır. Araştırma, Türkiye’de farklı branşlarda görev yapan 283 öğretmen ile gerçekleştirilmiştir. Araştırmada, Özgenel ve Çetin (2017) tarafından geliştirilen “Yaratıcı Düşünme Eğilimleri Ölçeği”, Kılıçer ve Odabaşı (2010) tarafından Türkçe’ye uyarlanan “Bireysel Yenilikçilik Ölçeği” kullanılmıştır. Verilerin analizinde; betimsel istatistikler (aritmetik ortalama ve standart sapma), fark analizleri (t testi ve ANOVA), Pearson Çarpım Momentler Korelasyon Katsayısı ve basit doğrusal regresyon analizi kullanılmıştır. Sonuçlar, öğretmenlerin yaratıcı düşünme eğilimlerinin yüksek, bireysel yenilikçilik özelliklerinin ise çoğunlukla “öncü” ve “sorgulayıcı” olduğunu ortaya koymuştur. Öğretmenlerin yaratıcı düşünme eğilimleri ve bireysel yenilikçilik özellikleri cinsiyete göre anlamlı farklılık göstermezken, 16 yıl ve üzeri deneyimi olan öğretmenlerin 1-5 yıl arasında deneyime sahip olan öğretmenlere göre yaratıcı düşünme eğilimlerinin ve bireysel yenilikçi puanlarının daha yüksek düzeyde olduğu belirlenmiştir. Öğretmenlerin yaratıcı düşünme eğilimleri ile bireysel yenilikçilik özellikleri arasında orta düzeyde, pozitif ve anlamlı bir ilişkinin olduğu sonucuna varılmıştır.

Anahtar Sözcükler: Yaratıcılık, yaratıcı düşünme, yenilik, bireysel yenilikçilik.

** Sorumlu Yazar: Doç. Dr., Van Yüzüncü Yıl Üniversitesi, Eğitim Bilimleri Bölümü, Eğitim Programları ve Öğretim Anabilim Dalı, Van, Türkiye. E-posta: ishakkozikoğlu@yyu.edu.tr, <https://orcid.org/0000-0003-3772-4179>

** Yüksek Lisans Öğrencisi, Van Yüzüncü Yıl Üniversitesi, Eğitim Fakültesi, Bilgisayar ve Öğretim Teknolojileri Bölümü, Van, Türkiye. E-posta: bedirhankucuk@gmail.com, <https://orcid.org/0000-0002-7802-7380>

Introduction

In this era, we are experiencing new developments every day, especially with the progress of science and technology, and new ideas are being put forward. People can follow the developments that happen in everywhere in the world thanks to these developments. States, on the other hand, expect the individuals in the society to think and implement their ideas with respect to the requirements of era. In order to produce something new, it is necessary to be prepared to be different, to oppose traditional ideas, which means people need to have special courage for it (Emir, Erdoğan and Kuyumcu, 2007). People are productive. The main way to produce something unique is to think creatively and to be innovative. In this respect, Doğan (2016) stated that the education system itself should be reorganized in order to get the students develop their potentials and to have an active responsibility in the development of the country by acquiring the skills of creative thinking, relational thinking, scientific thinking and reasoning. It should not be forgotten that the teachers should have these features as well as the rearrangement of the education system and teaching. The reason for this is the fact that it is the school in which students need to acquire higher order thinking skills such as critical thinking, problem solving and creative thinking in order to develop their individual innovative features and to able to keep up with the changes and the people who will provide this should be the teachers.

Creative Thinking

Although the concept of creativity has been defined by many researchers, there is no single certain definition of creativity. Young (1985) defines creativity as the paradoxical integration of doing and existence. According to Karataş and Özcan (2010) creativity is not just to create an original product, but also to synthesize new knowledge from existing information, creating different solutions to problems, adapting easily to new situations, and thinking the functions of objects extraordinarily. While Kiesswetter (1983) describes creativity as the development of flexible thinking skills (Meissner, 1999; Cited in Gür and Kandemir, 2006), Doğan (2016) describes it as the skill, attitude or behavior of thinking differently from everyone else. In this case, it is seen that the concepts such as originality, synthesis, development of solutions, flexible thinking, and difference come into prominence in the concept of creativity.

On the other hand, creative thinking is defined by Yenilmez and Yolcu (2007) as a method of thinking that enables the emergence of original ideas, which are inventors, seeking for innovation or bringing new solutions to old problems and as a phenomenon that must be found and developed in the information era. Similarly, creative thinking is expressed by Korucu and Olpak (2015) as the skills of complexity management, curiosity, self-management, creativity, risk taking, higher-order thinking and logical reasoning skills. Therefore, creative thinking can be defined as the ability to examine the events extraordinarily and to express original opinions.

According to the literature, it is concluded that characteristics of creative individuals are listed as the individuals who can produce different and diverse ideas, are no afraid of making mistakes, can take risks, are curious, can look at the events from different points of view (Doğan, 2016), can give original responses instead of ordinary answers (Yaman and Yalçın, 2005), are open to new ideas, whose energy is high and natural, are capable of producing solutions to unexpected situations (Emir and Bahar, 2003), are not inclined to get the approval of others and are fond of freedom (Birişçi ve Karal, 2015).

The potential of creativity is present in all human beings and this potential can be developed with education (Aslan, 2002; Taylor and Sacks, 1981; Ülger, 2016). Accordingly, regardless of whether the level of intelligence is too high, it is accepted that creativity is an existing feature of anyone. Several factors influence not to come out or not developing creativity in the individuals. These factors can stem from the environment, from oneself, family or the teacher. According to Doğan (2016), teacher-based factors can be listed as not giving importance to the critical thinking in the classroom, discouraging the students, insecurity, excessive criticism, inconsistency in behavior, lack of enthusiasm, being dogmatic, harsh and inadequate, not supporting out of class discussion and giving opportunity to speak, deficiencies of the knowledge and skills in implementation of teaching

techniques or methods. Then, it can be stated that the teachers play a critical role in acquiring the creative thinking skills of the students.

Özerbaş (2011) points out that in order to be a creative model in class, teachers should primarily know what creative thinking is, its definition, its, examples, the elements of creativity which are originality, flexibility, fluency, interpretation, multidimensional thinking and unification. When we think of today's societies, we can understand that it is required to organize learning environments which are interactive, contemporary and enable the students to think, produce and be creative. It is not aimed to educate students who only "know" as they are in traditional education understanding. It is one of the most crucial objectives of today's educational systems to train multifaceted, creative individuals having ability to easily adapt to new situations, comment on the events from different points of view, and offer various solutions to the problems encountered. Therefore, there is a need for teachers who are able to organize teaching-learning environments that enable them to grow up to be innovative, productive, creative, and accountable for the use of higher order thinking skills effectively. When it is considered that first of all, teachers should be creative and innovative in order for these to happen, it clearly shows up the importance of determining the teachers' creative thinking tendencies and innovativeness characteristics.

Individual Innovativeness

Currently, as in the past, a new one is added to the innovations every day, and people continue to adapt to it. The effort that individuals have made in response to these innovations is the inevitable reality of our day in order that life can continue. According to Akçöltekin (2017), individual innovativeness refers to the situations such as risk taking, adaptation, acceptance, tolerance and openness to new experiences. Kılıçer (2011) defines individual innovativeness as an individual's willingness to be innovative, adopt it and have a favorable outlook on innovation, its use and utilization. Işık and Türkmenbaş (2016), on the other hand, express the concept of individual innovativeness as "the sense of being perceived as new for any product, service or opinion by a person, and interpret it as a discipline, ability of learning and implementation. In this case, individual innovativeness can be seen as positive reactions of individuals towards innovation. Also, as expressed in the literature, people with individual innovative characteristics can be treated into five different groups. According to Rogers (2003) these groups can be classified as follows:

- **Innovators:** They are the individuals who can cope with various uncertainties, are willing to try new ideas and possess role of transmitting new concepts and innovations to the social system.
- **Early Adopters:** They are the ones who are consulted about innovations by other individuals in the society. They are technology-oriented individuals who guide and reduce uncertainty on innovations.
- **Early Majority:** They are the ones who are cautious towards innovations and do not seem very willing to take risks.
- **Late Majority:** They are the ones who are skeptical and reserved about innovation. Accepting an innovation for them is a requirement after the acceptance of the majority in the society.
- **Laggards:** They are the last individuals who accept the innovations.

Innovative teacher is expressed as the individuals who can improve their own skills in their area, increase the activities that students can participate with respect to the needs of developing teaching and learning strategies, apply various methods/techniques to enhance student involvement, try new methods and approaches in presenting information, develop innovative skills by changing their habits (Ritchhart, 2004; Cited in Korucu ve Olpak, 2015). Akçöltekin (2017) notes that learners, employees and citizens' innovative skills and their positive attitudes towards innovativeness can be improved through education, and new and more influential educational approaches, methods and technologies can be created through innovativeness. Çuhadar, Bülbül and Ilgaz (2013) state that it is necessary to train innovator prospective teachers who can adapt to innovations and utilise technological opportunities in combination with pedagogical approaches. Thus, teacher competencies should be updated within the context of information society's needs. It may be said that teachers need to employ various methods, techniques and practices with an innovative spirit in order to create an effective

teaching process. In this respect, it seems that it is necessary to determine the innovative characteristics of the teachers being one of the most crucial actors of the education system.

The Aim and Importance of the Study

This study aims to determine the relationship between teachers' creative thinking tendencies and individual innovativeness characteristics. Based on this general purpose, the following questions are addressed:

1. At what level are teachers' creative thinking tendencies?
2. What are teachers' individual innovativeness characteristics?
3. Do teachers' creative thinking tendencies and individual innovativeness characteristics differ significantly according to gender and professional experience?
4. Is there a significant relationship between teachers' creative thinking tendencies and individual innovativeness characteristics?
5. Do teachers' individual innovativeness characteristics predict their creative thinking tendencies significantly?

There are many studies in the literature on creative thinking (Emir, Erdoğan and Kuyumcu, 2007; Karataş and Özcan, 2010; Özerbaş, 2011; Tok and Sevinç, 2012; Yaman and Yalçın, 2005; Yenilmez and Yolcu, 2007) and individual innovativeness (Akçöltekin, 2017; Çuhadar, Bülbül and Ilgaz, 2013; Işık and Türkmendağ, 2016; Kılıç, 2015; Kılıçer and Odabaşı, 2010; Korucu and Olpak, 2015; Örün, Orhan, Dönmez and Kurt, 2015; Özgür, 2013; Yılmaz Öztürk and Summak, 2014). In these studies, these concepts were examined separately, and no studies examining the relationship between these two concepts were found. This study has importance in terms of being the first study in the literature associating these two concepts by determining the relationship between teachers' creative thinking tendencies and individual innovativeness characteristics. In addition, having an idea about current teachers' individual innovativeness characteristics and creative thinking tendencies, with the intention of creating a contemporary, productive and thinking society, will shed light on the future studies. It is considered that this study will contribute to the target literature in terms of reflecting the effect of innovativeness characteristics on creative thinking by determining the degree to which teachers' individual innovativeness characteristics predict their creative thinking tendencies.

Method

Research Model

This study used correlational survey model. In correlational survey model, it is aimed to determine the level and existence of change among two or more variables (Karasar, 2015). As the relationship between teachers' creative thinking tendencies and individual innovativeness characteristics is examined in this study, it is thought that the use of correlational survey model is suitable for the purpose of this study.

Study Group

The study group of this study comprises 283 teachers working in different cities of Turkey. Research data were collected through Google Forms being one of the most widely used tools today. The scales on the Google Form were posted via social networks, forum sites, e-mail, WhatsApp by using an online link and the data were collected online. Therefore, in order to determine the study group, convenience sampling method was used on the basis of volunteerism and easy accessibility. In convenience sampling, the researcher works on the group that is easy to access, so this method gives practicality to the study (Yıldırım and Şimşek, 2013).

In this study, 83 participants (29.3%) are male and 200 (70.7%) are female. 122 teachers (%43.1) have between 1-5 years, 47 teachers (16.6%) have between 6-10 years, 52 teachers (18.4%) have between 11-15 years and 62 teachers (21.9%) have 16 years and over professional experience.

Data Collection Tools

Creative Thinking Tendency Scale: 5-point Likert-type scale, developed by Özgenel and Çetin (2017), comprise 25 items and six sub-dimensions that are "searching for innovation", "courage", "self-discipline", "curiosity", "doubting" and "flexibility". The Cronbach Alpha coefficient of the scale was calculated as .87, which was found as .89 in this study. These values indicate that the data obtained from the scale is reliable.

Individual Innovativeness Scale: 5-point Likert-type scale, developed by Hurt, Joseph and Cook (1977) and adapted into Turkish by Kılıçer and Odabaşı (2010), comprise 20 items that are 12 positive, 8 negative. The Cronbach Alpha coefficient of the scale was calculated as .89, which was found as .71 in this study. These values indicate that the data obtained from the scale is reliable.

Data Analysis

The arithmetic mean and standard deviation values were examined to determine teachers' creative thinking tendencies. These values were evaluated as 'very low' between 1-1.79, 'low' between 1.80-2.59, 'moderate' between 2.60-3.39, 'high' between 3.40-4.19, 'very high' between 4.20-5.00. In order to determine teachers' individual innovative characteristics; those whose score is above 80 were considered as *innovators*, those whose score is between 69-80 were considered as *early adopters*, those whose score is between 57-68 were considered as *early majority*, those whose score is between 46-56 were considered as *late majority* and those whose score is below 46 were considered as *laggards*. In general, those whose score is above 68 were considered as highly innovative, those whose score is below 64 were considered as low in innovativeness (Kılıçer and Odabaşı, 2010).

The normality test was conducted to determine whether the scale scores varied according to teachers' gender and professional experience. Histogram graphs of dependent variables were examined for univariate normality. Furthermore, skewness and kurtosis values were also examined. As a result, skewness values of dependent variables in creative thinking tendencies scale ranged from 0.325 to 0.970, and kurtosis values ranged from 0.154 to 0.780; while skewness values of dependent variables in individual innovativeness scale ranged from -0.214 to 0.650, and kurtosis values ranged from -0.055 to 0.680. In this case, it was assumed that the data show normal distribution as the skewness and kurtosis coefficients for the scores of the dependent variables were within ± 1 range and histogram graphs display normality (Büyüköztürk, 2016). As normal distribution of the data was ensured, t-test was used for the gender and ANOVA was used for professional experience. In case of significant difference in ANOVA test, Scheffe test was used as one of the post-hoc tests. Also, effect size (eta squared) values were examined to determine how effective independent variable is on the dependent variable and these values were interpreted as low level effect between " $0.01 \leq \eta^2 < 0.06$ ", moderate level effect between " $0.06 \leq \eta^2 < 0.14$ " and high level effect " $\eta^2 \geq 0.14$ " (Büyüköztürk, 2016). Pearson Product Moment Correlation Coefficients were examined to determine the relationship between two variables. In addition, simple linear regression analysis was used to determine the extent to which teachers' individual innovativeness characteristics predict their creative thinking tendencies.

Results

Arithmetic mean and standard deviation values concerning the first sub-problem are presented in Table 1:

Table 1

The Arithmetic Mean and Standard Deviation Values Concerning CreativeThinking Scale

<i>Scale and sub-dimensions</i>	\bar{X}	<i>s</i>
Creative thinking (Total)	4.13	0.38
Self-discipline	4.00	0.51
Searching for innovation	4.12	0.44
Courage	3.91	0.59
Curiosity	4.39	0.48
Doubting	4.27	0.52
Flexibility	4.31	0.45

Table 1 shows that creative thinking tendencies of teachers in total scale ($\bar{X}=4.13$) and in the sub-dimensions of self-discipline ($\bar{X}=4.00$), searching for innovation ($\bar{X}=4.12$), and courage ($\bar{X}=3.91$) are at high level, in the sub-dimensions of curiosity ($\bar{X}=4.39$), doubting ($\bar{X}=4.27$) and flexibility ($\bar{X}=4.31$) are at very high level. In other words, teachers were found to have creative thinking skills to a great extent.

The individual innovativeness characteristics of the teachers concerning the second sub-problem are presented in Table 2:

Table 2

The Individual Innovativeness Characteristics of the Teachers

<i>Individual innovativeness characteristics</i>	Number (N)	Percentage (%)
Innovator	54	19.1
Early Adopter	131	46.3
Early Majority	88	31.1
Late Majority	9	3.2
Laggard	1	0.3

Table 2 shows that 54 teachers (%19.1) are innovator, 131 (46.3%) are early adopter, 88 (31.1%) are early majority, 9 (3.2%) are late majority, and 1 (%0.3) is laggard. In other words, it turns out that 185 of the teachers can be considered as innovator and 98 of them can be regarded as low in innovativeness.

The t-test results on whether teachers' creative thinking tendencies and individual innovativeness characteristics differ according to gender concerning the third sub-problem are presented in Table 3.

Table 3

The t-test Results of Teachers' Creative Thinking Tendencies and Individual Innovativeness Characteristics According To Gender

Scales	Gender	N	\bar{X} /Score	s	sd	t	p	Eta-squared
Creativity	Female	200	4.16	0.38	281	1.80	.074	.011
	Male	83	4.07	0.38				
Individual Innovativeness	Female	200	72.18	9.14	281	0.89	.376	.003
	Male	83	71.12	9.05				

As seen in Table 3, it was found that the teachers' creative thinking tendencies ($t_{(281)}=1.80$, $p>.05$) and individual innovativeness characteristics ($t_{(281)}=0.89$, $p>.05$) did not differ significantly according to gender. The results of the ANOVA test on whether teachers' creative thinking tendencies and individual innovativeness characteristics differ according to professional experience are presented in Table 4.

Table 4

ANOVA Results of Teachers' Creative Thinking Tendencies and Individual Innovativeness According to Professional Experience

<i>Descriptive Statistics</i>					<i>ANOVA Results</i>							
<i>Scales</i>	<i>Experience</i>	<i>N</i>	\bar{X}	<i>S</i>	<i>Source of variance</i>	<i>Sum of squares</i>	<i>sd</i>	<i>Mean of squares</i>	<i>F</i>	<i>p</i>	Eta-squ.	<i>Diff.</i>
Creativity	1-5 years	122	4.03	0.38	Between groups	3.404	3	1.135	8.399	.003	.083	4>1
	6-10 years	47	4.11	0.39								
	11-15 years	52	4.17	0.32	Within groups	37.695	279	.135				
	16 years/over	62	4.31	0.36								
					Total	41.099	282					
Individual	1-5 years	122	70.27	8.86	Between	1001.975	3	333.39	4.157	.007	.043	4>1

Innovativeness	6-10 years	47	70.77	10.31	groups			2
	11-15 years	52	73.04	7.99	Within	22414.92	279	
	16 years/over	62	74.88	8.85	groups			80.340
					Total	23416.89	282	

$p < .05$, **Note:** 1- "1-5 years", 2- "6-10 years", 3- "11-15 years", 4- "16 years and over"

According to Table 4, a significant difference was determined in teachers' creative thinking tendencies ($F_{(3,279)} = 8,399$, $p < .05$) and individual innovativeness characteristics ($F_{(3, 279)} = 4,157$, $p < .05$) according to professional experience between the teachers who have professional experience over 16 years and 1-5 years professional experience in favor of the teachers who have professional experience over 16 years. When examined by effect size, it is seen that professional experience has moderate level of effect on creative thinking tendencies of teachers ($0.06 \leq \eta^2 < 0.14$), while it has low level of effect on individual innovativeness of teachers ($\eta^2 < 0.06$).

Pearson Product Moments Correlation Coefficients concerning the fourth sub-problem are presented in Table 5.

Table 5

Pearson Product Moments Correlation Coefficients Concerning the Variables Included in the Study

<i>Variables</i>	<i>Individual Innovativeness</i>	<i>Creativity</i>
Individual Innovativeness	1.00	
Creativity	.622**	1.00

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

According to Table 5; a moderate, positive and significant relationship was determined between teachers' creative thinking tendencies and individual innovativeness characteristics ($r = .622$; $p < .01$). In other words, as teachers' individual innovativeness increases, their creative thinking tendencies increase, as well.

The results of simple linear regression analysis concerning the fifth sub-problem are presented in Table 6.

Table 6

The Results of Simple Linear Regression Analysis for Prediction of Teachers' Creative Thinking Tendencies

<i>Regression Results</i>				<i>ANOVA Results</i>					
<i>Predictive Variable</i>	<i>B</i>	<i>Predictive Power (R)</i>	<i>Explained Variance (R²)</i>	<i>Source of variance</i>	<i>Sum of squares</i>	<i>sd</i>	<i>Mean of squares</i>	<i>F</i>	<i>p</i>
Individual Innovativeness	.622	.622	.387	Regression	15.915	1	15.915	117.579	.000
				Residual	25.184	281	.090		

Table 6 shows that teachers' individual innovativeness account for 38.7% ($R = .622$; $R^2 = .387$) of the variance in teachers' creative thinking tendencies and the predictive power is significant ($F_{(1, 281)} = 117.579$, $p < .000$). The results show that teachers' individual innovativeness scores are a significant predictor of their creative thinking tendencies.

Discussion, Conclusion and Recommendations

In this research, teachers' creative thinking tendencies and individual innovativeness characteristics were examined. One of the personal qualities and professional competencies that teachers should have is creativity (Çalışkan, Negiş-Işık ve Saygın 2013; Tunca, Şahin, Oğuz ve Güner, 2015). In addition, teachers' creative thinking tendencies are crucial for students to develop creative thinking skills (Tok and Sevinç, 2012; Torrance, 1965). The results of this study concluded that teachers' creative thinking tendencies are at high level. These study results support similar study results in the literature. Parallel to this study results, Yıldız et al (2011) conducted a study on

prospective teachers of physical education department and concluded that the perceptions of prospective teachers concerning creativity is at high level. Similarly, Aydoğdu and Yüksel (2013) found that creativity of prospective teachers are at moderate level and over. Runco and Johnson (2002) concluded that parents and teachers viewed creative traits desirably. These results can be evaluated as a positive situation in terms of competences and qualifications of teachers in the 21st century.

Creativity and innovation within the skills of the 21st century are the skills that should be possessed by the students. For this reason, it is expected that teachers should have competences related to these skills (Trilling and Fadel, 2009; Örün, Orhan, Dönmez and Kurt, 2015). The results of this study showed that the individual innovativeness characteristics of the teachers are mostly early adopters ($f= 131$; %46.3) and early majority ($f= 88$; %19.1). These results overlap with similar studies' results in the literature. In the studies conducted by Korucu and Olpak (2015), Çuhadar, Bülbül and Ilgaz (2013), Loogma, Kruusvall and Ümarik (2012) and Özgür (2013), the teachers were in the "early majority" category; it was concluded in the thesis of Koroğlu (2014) that pre-school teachers are "early adopters" and preschool prospective teachers are in the "early majority" category; Yılmaz Öztürk and Summak (2015) concluded that the teachers are mostly in the category of "early adopters" and "early majority". In the studies conducted with prospective teachers (Adıgüzel et al, 2014; Deniz, 2016; Örün et al, 2015), it was defined that the majority of prospective teachers are in the category of "early majority". Therefore, it can be inferred that in the studies concerning individual innovativeness characteristics of teachers and prospective teachers, the characteristics of "early adopter" and "early majority" came to the forefront.

Considering similar research results in the literature and this study results, it can be said that teachers have the tendency to guide the individuals in society and use the technology but are not very willing to take risk. Similarly, in their study on ideal teacher qualifications, Özabacı and Acat (2005) emphasized teacher qualifications such as guiding, stimulating learners and being modern that a teacher should have. Similarly, in the study conducted by Kozikoğlu (2017) regarding ideal teacher qualifications with prospective teachers, two of the prominent categories concerning ideal teacher qualifications were found to be innovativeness and being guide. Lee (2011) concluded that innovativeness in teaching and integrating information technology into teaching has a positive effect on students' learning. Thus, in this study, it can be considered as a positive result because of the fact that even if approximately one in five (19.1%) of the teachers seem not to be very willing to be innovative and take risks (early majority), about half (46.3%) of the teachers have the tendency of guiding the individuals in the society on innovativeness and being prone to technology (early adopters). In addition, as those whose score is 68 and over in individual innovativeness scale are considered as innovator, those whose score is less than 64 are seen as low in innovativeness (Kılıçer and Odabaşı, 2010), it can be concluded that in general, 65.4% of the participants are innovator and 34.6% are low in innovativeness. In this case, more than half of the teachers in this study can be considered as innovator, however, it is noteworthy that about one third is low in innovativeness. In today's developing world, it is necessary to reduce this ratio for teachers in order to increase their qualifications and keep themselves up-to-date.

This study concluded that teachers' creative thinking tendencies and individual innovativeness characteristics do not differ significantly according to gender. According to professional experience, it was determined that teachers with professional experience over 16 years have a higher level of creative thinking tendencies and individual innovative scores than teachers with professional experience between 1-5 years. There are similar and different results in the literature. In parallel with this study results; it was determined in some studies that individual innovativeness characteristics do not differ significantly according to gender (Çuhadar et al, 2013; Kert and Tekdal, 2012; Kılıçer, 2011; Korucu and Olpak, 2015; Özgür, 2013) and in some studies individual innovativeness characteristics do not differ significantly according to gender and professional experience (Başaran and Keleş, 2015; Kılıç, 2015). On the other hand, in their study with educational administrators, Yılmaz and Beşkaya (2018) concluded their individual innovativeness scores do not differ significantly according to gender, but according to professional experience, their individual innovativeness scores were found to be in favor of the administrators having 1-5 years of managerial

experience, unlike the results of this study. Similarly, Richardson-Kemp and Yan (2003) found that teachers with fewer years of teaching experience have higher scores on innovativeness. In their study conducted with the prospective classroom teachers, Gök and Erdoğan (2011) determined a significant difference in the individual innovativeness scores in favor of the females and female prospective teachers have higher levels of creative thinking than the males. Stoltzfus, Nibbelink, Vredenburg and Hyrum (2011) found that males outperformed the females in creativity. It hasn't been reached any study examining teachers' creative thinking tendencies according to professional experience. Concerning the results of this study, it can be said that female and male prospective teachers have similar creative thinking tendencies and individual innovativeness scores. It can be also said that teachers with higher professional experience have a higher level of creative thinking tendencies and higher individual innovativeness scores than teachers with less professional experience. Sönmez (2004) stated that each experience receive something from the previous ones and has an effect on the quality of following experiences. When considered in this context, higher level creative thinking tendencies and individual innovativeness scores of the teachers with 16 years professional experience and over can be evaluated as an expected result.

This study concluded a moderate, positive and significant relationship between teachers' creative thinking tendencies and individual innovativeness scores. Then, it can be concluded that as teachers' individual innovativeness scores increase, so does their creative thinking tendencies. Besides, it was defined that the individual innovativeness scores of the teachers explained more than one third (38.7%) of the teachers' variance in their creative thinking tendencies. In this respect, it can be said that the individual innovativeness scores of the teachers are a significant predictor of teachers' creative thinking tendencies. When literature is examined, no study has been reached on the relationship between teachers' creative thinking tendencies and individual innovativeness characteristics. Duran and Saraçoğlu (2009) emphasized the fact that the process of innovation begins with a creative mind and the characteristics of creative and innovative individuals are basically similar to each other, although they have different ways of thinking. In addition, the characteristic of creative individuals are ordered as individuals who can produce different and diverse ideas, being curious, analyzing the facts from different views, thinking multidimensionally (Doğan, 2016), giving original answers rather than ordinary answers (Yaman and Yalçın, 2005), open to innovations and new ideas (Emir and Bahar, 2003). Ferrari, Cachia and Punie (2009) stated that creative thinking in education comprises understanding and awareness to new ideas, while innovation is the application of creative thinking process. In this respect, innovativeness is the element leading to creative thinking. Similarly, creative thinking is an important skill to promote educational innovation (Seechaliao, 2017). Hence, the close relationship between individual innovativeness and creative thinking tendencies in this study supports the relevant literature and can be regarded as an expected result.

In the light of these research results, teachers' creative thinking tendencies and individual innovativeness levels are promising for having a more original and entrepreneurial society with creative and innovative individuals in the future. However, it is necessary to create opportunities in which teachers can show and develop these creativity and innovative qualities. In addition, their creativity and innovativeness initiatives should be supported by their institutions. More studies can be conducted to determine the qualifications of current teachers. Following the determination of the deficiencies, it is suggested that these deficiencies can be eliminated with in-service trainings and various activities. This study is limited to scales as data collection tools, in future studies teachers' creative thinking tendencies and individual innovativeness can be examined more comprehensively by using various tests, interview form, etc. Furthermore, the predictors of critical thinking tendencies can be analyzed by including various variables such as critical thinking, metacognition, etc.

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Science High School Students' Perceptions of Science High Schools in Turkey *

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Behçet Oral ***

Uğur Epçaçan ****

Abstract

The aim of this study is to investigate the 10th, 11th and 12th grade science high school students' perceptions of science high schools where they are educated. The study, which is carried out by using qualitative research methods, is based on multiple case study model. The study group of the study consisted of 69 students studying at 10th, 11th and 12th grades. An interview form prepared by the researchers was used as a data collection tool. The data were analysed by using descriptive analysis and content analysis approaches. As a result of data analysis, it was concluded that science high school students mostly choose science high schools because of their qualified education and teachers. It has been found out that science high schools, in general, aim at educating qualified students, and enabling them to enter good universities. It has been further concluded that the students' social opportunities and experimental training in school environment should be augmented. With the students' opinions, it has emerged that science high schools are advantageous in terms of their level of achievement, qualified education, and good prospects; and disadvantageous in terms of high expectation and psychological pressure resulting from some other factors.

Keywords: Science high school, student views, curriculum.

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** Corresponding Author: Assist. Prof. Dr., Siirt University, Faculty of Education, Siirt, Turkey. E-mail: atapesen@siirt.edu.tr, <https://orcid.org/0000-0003-1676-7444>

*** Prof. Dr., Dicle University, Ziya Gökalp Faculty of Education, Diyarbakır, Turkey. E-mail: oralbehcet@dicle.edu.tr, <https://orcid.org/0000-0002-6885-1683>

**** Lecturer, Siirt University, Vocational School of Social Sciences, Siirt, Turkey. E-mail: ugur56@siirt.edu.tr, <https://orcid.org/0000-0003-0240-7093>

Fen Lisesi Öğrencilerinin Fen Liselerine İlişkin Görüşleri *

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Ata Pesen **

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Uğur Epçaçan ****

Öz

Bu araştırmanın amacı, fen lisesi 10, 11 ve 12. sınıf öğrencilerinin öğrenim gördükleri fen liselerine ilişkin görüşlerinin incelenmesidir. Nitel araştırma yönteminin kullanıldığı çalışmada, durum çalışması deseni esas alınmıştır. Araştırmanın çalışma grubunu fen lisesinin 10., 11 ve 12. sınıflarında öğrenim gören 69 öğrenci oluşturmaktadır. Araştırmada veri toplama aracı olarak araştırmacılar tarafından hazırlanan yarı yapılandırılmış görüşme formu kullanılmıştır. Veriler betimsel ve içerik analizi yaklaşımlarıyla analiz edilmiştir. Verilerin analizi sonucunda fen lisesi öğrencilerinin, daha çok eğitim kalitesi ve öğretmen niteliğinden dolayı fen liselerini tercih ettikleri saptanmıştır. Fen liselerinin genel olarak nitelikli öğrenci yetiştirme ve iyi bir üniversiteye yerleştirme amacına sahip olduğu bulgusuna ulaşılmıştır. Öğrencilerin okul ortamında sosyal imkânlarının ve deneysel çalışmaların artırılması gerektiği görüşü tespit edilmiştir. Öğrencilerin görüşlerinden; fen liselerinin başarı düzeyi, kaliteli eğitim ve iyi bir gelecek açısından avantajlı, yüksek beklenti ve psikolojik baskı gibi açılardan da dezavantajlı olduğu bulguları elde edilmiştir.

Anahtar Sözcükler: Fen lisesi, öğrenci görüşleri, eğitim programı.

* Bu çalışma, 3-5 Mayıs 2018 tarihlerinde, Alanya’da düzenlenen “Uluslararası Eğitim Bilimleri Sempozyumu” kongresinde sözlü olarak sunulan bildirinin genişletilmiş halidir.

** Sorumlu Yazar: Ata Pesen: Dr. Öğr. Üyesi, Siirt Üniversitesi, Eğitim Fakültesi, Siirt, Türkiye. E-posta: atapesen@siirt.edu.tr, <https://orcid.org/0000-0003-1676-7444>

*** Prof. Dr., Dicle Üniversitesi, Ziya Gökalp Eğitim Fakültesi, Diyarbakır, Türkiye. E-posta: oralbehcet@dicle.edu.tr, <https://orcid.org/0000-0002-6885-1683>

**** Öğr. Gör., Siirt Üniversitesi, Sosyal Bilimler Meslek Yüksekokulu, Siirt, Türkiye. E-posta: ugur56@siirt.edu.tr, <https://orcid.org/0000-0003-0240-7093>

Introduction

There has been a requirement to have qualified staff educated in particular scientific and technological arenas to be able to become a part of developed countries. The developed countries around the world invest a considerable amount of money to improve their educational systems by emerging technological and scientific needs. For this reason, it seems very significant for our country to manage to keep up with global competitive conditions by having science high schools throughout the country. Opening up science high schools in the country was put forward in the seventh Ministry of Education, council meeting held in 1962 (Zabun, 2007). After this decision, the first science high school was opened in Ankara in 1964 and the second in Istanbul in 1982. These schools were objected to act like laboratory schools for other schools (MEB, 1995; Ünal, Coştu & Karataş, 2004; Ünal & Ünal, 2010) and their importance was understood and consolidated in the following years, which resulted in opening more of them in several other cities.

“Science High schools aims at; preparing the students with a high level of intelligence and ability in maths and sciences for the related academic faculties, being resources for the allocation and training of qualified personnel and scholars needed in related scientific and maths areas, directing and stimulating the students to do researches, creating suitable environments for those who are interested in conducting researches or inventing new things via scientific and technological tools or means, educating those who are capable of and enthusiastic about using new technologies, producing new knowledge and preparing projects accordingly, training them in foreign languages to equip them with necessary skills to be able to make scientific researches, to follow up with the new scientific and technological advances.” (MEB, 1999).

Within this scope, Science High Schools in Turkey have got a system which is a coeducational one, has got a four-year period of education and where students with higher cognitive and academic skills compared to their counterparts are educated in a boarding environment. Therefore, these high schools which aim at improving their students with higher scientific and mathematical skills have generally a curriculum for exactly that objective. These high schools get great attention according to their classroom and educational standards such as the number of classrooms, students in those classes, foreign language education, scientific and cultural studies and so on. Moreover, their students, on the other hand, are distinguished in their general success in exams and several competitions besides their general levels and degrees (MEB, 2010).

The number of Science High schools in Turkey was reported to be 61 with thirteen thousand students in 2003-2004 educational years. However, in a report of Ministry of education in 2016-2017 it was informed that the number of schools had gone up to 302 throughout the country and the number of students was 99 thousand (MEB, 2017). There were more than 20 school types in the Turkish high school educational system apart from Science High schools by 2015, whose numbers and types were reduced by the Ministry of Education by means of some regulation amendments within that year. The best students chosen by a state exam called TEOG in a province generally go on their high school education in Science High schools. After a decision in April 2018, the high schools were classified as Qualified and Unqualified, which was reported in High school preference Guide in 2018, “Central Exam Application and Implementation Guide” as there were 1367 qualified schools chosen within the country. The types of these qualified schools are as given in Table 1:

Table 1

The Distribution of Qualified High Schools according to School Types (Apaydın, 2018)

School Types	Number
Science High school	309
Anatolian High school	222
Anatolian Imam Hatip High school	298
Vocational and Technical Anatolian High school	449
Social Science High school	89
Total	1367

These qualified high school have got a quota of 126 510 students in total; therefore, the projected quota per school types is % 27 to Anatolian high schools, % 27 to Science High schools, % 23 to Anatolian Imam Hatip High schools, % 15 to Vocational and Technical Anatolian high schools and finally % 8 to Social Science High schools (Apaydin,2018).

As can be seen from the numbers and distribution, Science High schools have achieved to maintain their importance and place in the educational system whatever changes or amendments have been decided and applied. The general higher success of science schools compared to other school types can be attributed to the qualified training it provides to its students. The first 30 000 students in terms of success in university entrance exam are generally among science schools, which can be given as evidence to their success.

When looking into literature about science high schools, it can be said that most studies focus on the success of students, their attitudes towards various courses and some different psychological variables görülmektedir (Akboy, 1998; Batur & Adıgüzel, 2015; Barut & Odacı, 2002; Berberoğlu & Kalender, 2005; Birol, 2005; Çiğerci, 2006; Çilingir, 2006; Dilmaç, 2007; Karaduman, 1997; Mutlu, 2006; Pehlivan & Köseoğlu, 2011a; Pehlivan & Köseoğlu, 2011b; Peker & Aydın, 2003; Pehlivan, 2010; Özbaş, 2013;Önen, 2003; Yavuz, Gülmez &Özkaral, 2016). Some studies were conducted according to the training programs applied in Science schools (Ersoy, 2005; Selvi, 1996; Yılmaz & Morgil, 1992; Yürümezoğlu, 2008). For this reason, it seems necessary and important to open up a new perspective of training programs of science schools by analyzing their students' perceptions of their schools as these students are the main subjects and components of this school type.

Aim of the study

This study aims at analyzing Science high school students' perceptions of their schools in 10th, 11th and 12th grades. Within this scope, the following research questions were analyzed to be answered: For Science high school students:

- 1- What are the reasons for their choice of Science High schools?
- 2- What do they think about the general objectives of Science High schools?
- 3- What are their opinions positively or negatively about their schools and training programs within the scope of educational and social contexts?

Method

Research Design

This study is a qualitative one in nature for which a multiple case study method was used. Yinn (1984) defines a case study as a method in which a subject is analyzed within its present conditions, there is not a concrete border between the subjects and its existing contexts or the data sources are used within only its present available states in specific contexts (retrieved from Yıldırım & Şimşek, 2013). Case studies focus on holistic descriptions and explanations (Merriam, 2013). According to Mcmillan (2000), a case study is to analyze deeply one or multiple cases, environments, programs, social groups or interconnected systems within their existing contexts. Within this scope, the perceptions of Science high school students of their schools were evaluated within their contexts.

Study Group

Random sampling was used to identify the participants in the study. Random sampling means choosing one according to the equal possibility of being chosen criteria. Moreover, this random sampling assures that no other non-participants were excluded by any inclusion of a chosen participant. In other words, the possibility of being chosen is free of any impact of inclusion or exclusion of others (Shavelson, 2016).

The participants in the study were 69 students from 10th, 11th and 12th grades in Turk Telekom Science High school in Siirt Province. During the selection of students, one class from each grade was identified randomly and 82 students out of those selected classes were interviewed. Some students who

are volunteer to participate or fill in the forms in a complete manner were excluded and there remained 69 students in the end. The demographical information of the participants is given in Table 2:

Table 2

Demographic Information of the Students

Grade	Girls	Boys
10 th Grade	13	14
11 th Grade	9	11
12 th Grade	12	10
Total	34	35

As can be seen in Table 2, there were 13 girls and 14 boys from 10th grades, 9 girls and 11 boys from 11th grades and finally 12 girls and 10 boys from 12th grades. The number of boys and girls might be concluded to be almost equal and the distribution of students from the grade levels also seems to be equal in terms of number.

Research Instruments and Procedures

The related data was collected by a semi-structured interview form prepared by the researcher. This form was presented to expert consultation to validate its contextuality and wording before it was applied. The suggestions from the experts were taken into account and the necessary amendments were done and the form was finalized accordingly. The questions in the finalized interview form appeared as follows:

1. Explain the reasons for your choice of Science High school (you can choose more than one from the below)
 - The choice of successful students in general
 - Having a Science High school etiquette
 - The quality of education provided
 - Qualification of teachers
 - Requirement of high grade in TEOG
 - Social activities out of classes and lessons
 - (if you want, you can add more reasons)
2. What do you think about the general objectives of Science High schools?
3. What do you think about your school and the education provided to you, either negative or positive perceptions?

Related permission was taken from the related authorities as well as the teachers to collect the data from the participants by means of the prepared interview form. In order to help the students to answer the questions in a relaxed and comforted manner, the forms were distributed and filled in a lesson identified by the counseling service of the school. Each student was numbered as S1, S2, S3... in the study to give the related excerpts from their answers.

Data Analysis

Contents analysis and descriptive analysis were applied to evaluate the collected data. According to descriptive analysis, the data is analyzed according to predetermined themes or codes. Direct quotations from the participants' opinions or sayings are given very often to reflect the attitudes or perceptions of them in an effective way. This kind of evaluation aims at explaining and reflecting the collected data to the readers in an organized and descriptive manner (Yıldırım & Şimşek, 2013, p.256).

Content analysis; on the other hand, provides alternatives to search for human behaviors and nature by means of indirect tools. Content analysis is among the most used techniques in Social Sciences (Büyüköztürk et al, 2014: 240). Content analysis aims at finding out common concepts or relations in the collected data. The described and evaluated data in descriptive analysis is telescoped deeply in content analysis in which the terms or concepts possibly having been skipped in descriptive analysis could turn up. For this reason, the first step is to conceptualize the collected data, then to organize emerging concepts in a tidy manner and finally to identify emerging themes out of those concepts (Yıldırım & Şimşek, 2013, p.259).

Researchers analyzed all the data to identify emerging themes, categories and codes. The codes and categories under certain themes were organized and tables were created accordingly. The appropriate emergent codes were tabled with their frequency. Moreover, some excerpts were taken out from the student answers to enrich the data and analysis.

Results

This part shows the findings emerged from the analysis of collected data from the participants. The research questions are evaluated separately one by one and tables were prepared accordingly. The reasons for choosing Science High school were given under one theme and 8 categories as seen in Table 3:

Table 3

The Opinions and Reasons for Students' Choice of Science High Schools

Theme: The reasons for choice of Science High Schools	
Category	f
Choice by especially successful students	47
Science High school Etiquette	32
Quality of Education	59
The quality of teachers	56
Requirement of a high grade in TEOG	38
Social activities	3
Family factor	12
A disciplined environment	2

The reasons for the choice of Science high school by the students emerged as “Choice by especially successful students” (f:47), having a “Science High school Etiquette” (f=32), “Quality of Education” (f:59), “The quality of teachers” (f:56), “Requirement of a high grade in TEOG” (f:38), “Social activities” (f=3), “Family factor” (f=12) and finally “a disciplined environment” (f:2). From the findings, the mostly and seemingly important reasons for students' choosing to study in science high schools are subsequently the quality of education, the quality of teachers and the choice of this school type by the students in general. The least mentioned reasons by the participants were the schools' having a disciplined environment and social activities, which appears quite interesting.

The perceptions of students about the scope and objectives of science school system emerged under three categories as “qualified students”, “quality of education” and “possibility of opening doors to a good university” (preparation of students well for the university entrance exam, good future prospects and so on). The findings and emergent categories are given in Table 4:

Table 4*The Perceptions of Students about the Scope and Objectives of Science High Schools*

Theme	Category	f	Code
The scope of Science High schools	Qualified Students	40	- to educate the ones who will play leading roles in the future of the country -outperforming of the least successful students over the others in the other school stypes - to educate qualified students and invest in the future
	Quality of Education	20	-High quality education
	Enabling to go to a good university	27	- To increase the number of possible medical school nominees - to educate the students according to their success and skill areas

The emerging categories for students' perceptions about the scope of science high schools were "Qualified Students (f=40)", "Quality of Education (f=20)" and "Enabling to go to a good university (f=27)". It can be concluded from this finding that the perceptions of students in terms of the scope of Science high schools were in accordance with the general objectives for opening these high schools by the Ministry of Education.

Under "Qualified Student" category, some excerpts taken out of student answer were as in the following:

"Investment into the future by educating qualified students....." (S2)

"To educate or train qualified, sophisticated and thoughtful individuals....." (S4)

".....to educate brains who will play leading roles in the development and improvement of the country..." (S61)

Under "Qualified Education" category, some excerpts taken out of student answers were as in the following:

"By means of qualified education here, the least successful student can outperform the others in other school types...." (S2)

".....to provide a qualified education by giving more focus to science lessons" (S33)

".....to provide qualified education to the ones who are interested in sciences and technology..." (S56).

Under "Enabling to go to a good university" category, some excerpts taken out of student answer were as in the following:

"...to enable every student to get registered to a good university as deserved..." (S5)

"...to enable the students to pass the university exam to their dreamed departments as much as possible..." (S40)

"...to direct the students generally to medical schools as well as some prestigious engineering departments..." (S41)

The perceptions of students about the educational and social issues at their school were analyzed under positive or negative perceptions. In positive ones, the qualifications of teachers, having a science-based curriculum and quality of education categories emerged. Within the negative theme, the lack or scarcity of social, sportive and artistic activities, the lack or scarcity of experimental (laboratory) activities, the untidy distribution of lessons and their hours, a memorization-based education system and finally the difficulty of exams emerged. The related codes and themes are given in Table 5:

Table 5*The Perceptions of Students about the Educational and Social Issues at Their School*

Theme	Category	f	Code
Positive	Efficiency of teachers	11	-having the best teachers in their subject areas
	Science lessons focus	5	-having science or maths lessons even in the elective courses
	Quality of education	12	-qualified education
Negative	Lack or scarcity of social, sportive and artistic activities	17	-devoid of literary, musical activities -the lack of social activities resulting in psychological destruction
	Scarcity of experimental (Laboratory) activities	11	-requirement of effective experiments and observations to enhance imagination and creativity -not being able to use the laboratory in an efficient way
	Untidy distribution of lessons and their durations	29	-not enough time allocation to each course, - the elective courses being allocated 3 hours, science lessons like physics, chemistry and biology being only for 2 hours, - the elective courses outperformed and outnumbered the science lessons
	Memorization based system	7	- though being in science high school, having the same amount and duration of science courses equal to other school types, - being a technology and science-based school though more focus on memorization of knowledge without practical information - objective of converting the students into some kind of robots, - educating not humans but maybe machines - giving orders like “eat, study, sleep” imperatives
	Difficulty of exams	12	- too much force via difficult exams

As can be seen from Table 5, the theme, “positive” was divided into three main categories, namely “quality of teachers” (f=11), “science lessons focus” (f=5) and “quality of education” (f=12). The negative perceptions had been analyzed under five categories, “lack or scarcity of social, sportive and artistic activities” (f=17), scarcity of experimental (laboratory) activities (f=11), “Untidy distribution of lessons and their durations” (f=29), “memorization-based system” (f=7) and finally “Difficulty of exams” (f=12). The number of negative perceptions outnumbered the positives ones as seen 5-3 and this is very interesting because the students mostly focused on their complaints about the school system.

Some excerpts related to “Quality of Teachers” category in the positive theme are as given in the following:

“Our teachers are very qualified.....” (S3)

“.....Each teacher is qualified and knowledgeable about their subject area..” (S13)

Some excerpts related to “science lessons focus” category in the positive theme are as given in the following:

“...it is positive for us to have more science lessons focus...” (S24)

“...it is important to give more importance to science lessons...” (S44)

Some excerpts related to “quality of education” category in the positive theme are as given in the following:

“...we are having a good education...” (S26)

“...the quality of education is really high....” (S57)

Some excerpts related to “lack or scarcity of enough social, sportive and artistic activities” category in the negative theme are as given in the following:

“...the quantity of social activities is too low...” (S2)

“...more sportive activities should be included in the curriculum...” (S28)

“...the students are devoid of enough artistic, literary or musical activities” (S51)

“...we are mostly not allowed to do any social activity; on the contrary we are always told to study all the time. As human being, a person. I should be social, be able to play football, create a friendship environment for him/her. ..These schools are educating people but maybe humanly machines. We are given orders like “eat, study, sleep” and that is what we do most of the times...” (S59)

Some excerpts related to “scarcity of enough experimental (Laboratory) activities” category in the negative theme are as given in the following:

“...the frequency of laboratory usage must be increased...” (S3)

“...there should be an educational system which aims at enriching our creativeness and imagination by means of rich experiments and activities...” (S55)

“...it is an unforgettable and unacceptable mistake for us not to be able to use science class as we have one and it is obvious that we cannot perform enough scientific activities as much as this school is supposed to provide.” (S56)

Some excerpts related to “Untidy distribution of lessons and their durations” category in the negative theme are as given in the following:

“...the hours of some elective courses add up to 3 hours a week whereas we have only two hours of physics, chemistry which are of great importance for us especially in university entrance exam...” (S5)

“...we have the same amount of science lessons as in the other school types. We must have more science courses...” (S21)

Some excerpts related to “Memorization based system” category in the negative theme are as given in the following:

“... we are expected to become successful in every lesson, this memorization-based system is not informative and useful at all...” (S33)

“...This school has been converted into something where we are only expected to memorize the given information passively in contrast to the main objective of this school type...” (S37)

Some excerpts related to “difficulty of exams” category in the negative theme are as given in the following:

“...the exams are difficult; the other school types ask easier questions in the exams so this decreases general average points in the university entrance exam...” (S32)

“...the exams are not so good. The easiness of exams in other school types affects our general average points negatively without our control on it. Their average points are higher than us.” (S35)

“... unnecessarily the exams force us a lot. Where is the justice?” (S36)

“...the exams are boring. They only want us to study. go to a medical school and study more. Work for the rest of life after you finish medical school. Is there anything to solve this problem...” (S53)

“...always study always study. Where does it stop? We are not robots...” (S62)

“...I do not like the education program in general as they make my skills rusty. I started forgetting even the subjects that I was good at. ..they are only preparing us for the exams...” (S65)

“...A bad program for students but a good one for robots...” (S67)

Discussion, Conclusion and Recommendations

The focus of the present study was to analyze the perceptions of science school students about their schools and it was found out that the ultimate reasons for the students' choice of science schools included quality of the school, qualified teachers and the choice of this school by more successful students in general. It is highly significant for the teachers to be able to have a quality for educating individuals, to have enough and updated knowledge incompatible with the age he is living in and apply approaches accordingly. For this reason, the efficiency of teachers plays a very important role on effective learning and teaching activities and motivating the students to learn in an efficient way (Abazoğlu, Yıldızhan & Yatağan, 2015). Science school seems to be deficient in satisfying student needs in terms of social activities. In a study conducted by Çilingir (2006), it was concluded that there was a significant difference between science high students and common high school students' perceptions in terms of social skills, especially for Affective Sensitivity. This finding was interpreted as the students of common high schools have got more ability to understand nonverbal messages and convey those messages compared to science high school students. In spite of the long time period that has passed since the date of this study, it appears to be very interesting to see still similar complaints of students in terms of deficiency of social activities in science high schools.

Upon looking at the perceptions of students in terms of the scope and objectives of science high schools, the emergent issues were mostly educating students in a more qualified manner, placement to a good university and qualified education. These perceptions seem to be in harmony with the objectives mentioned in the Regulation of Science High Schools (MEB, 2010). Moreover, Özbaş (2013) expressed in his study, which focused on the perceptions of common and science high students in terms of equality of opportunity principle in education, that there was a considerable amount of inequality distributed in common and science high schools, which is in harmony with the findings above.

It was concluded in the study that the perceptions of students about the general school program were mostly positive including issues like quality of education, efficiency of teachers and more focus on science lessons. However, some students expressed their negative feelings of the school claiming that the distribution of lessons was disorganized, some elective courses outnumbered important science lessons and scarcity of sportive and artistic activities made everything worse. The science high school students who are generally regarded as having some very important skills generally lacked enough amounts of social and sportive activities to spend their energies, as they claimed. According to Yüksel (1997), social skill is something which causes positive interpretation by others, prevents some negative reactions from others, enables interactions with the others, is acceptable socially, leaving an impact on the environment, is objective oriented, can change according to the social context, includes both observable and unobservable cognitive and affective elements and learnable behaviors (Retrieved from Çilingir, 2006). The Science high school students who are mostly devoid of social and sportive activities, seem to have difficulty in expressing themselves while fully satisfied socially according to the definition of Social Skill made by Yüksel.

It is very important for any person living in a society to be able to express his opinions, to have him understand and comprehend what the others are saying. All these depend on the ability of the persons' communication and interactional skills. For this reason, it seems highly significant for individuals to have the skill of communicating effectively. Such communication skill inevitably results in a successful life in the end. Especially for youngsters at high school levels, they need to interact with their surroundings in an efficient way. Interpersonal communication is highly essential for high school students. Adolescence period is a duration in which the individual faces a lot of indecisiveness and difficulty to express himself/herself in effective manners. Therefore, the adolescence may have problems to interact with other young friends, family members and other adults. The weakness in communication and interaction skills especially for adolescents leads to insufficient problem-solving abilities and facing indecisiveness for them (Çilingir, 2006). For this reason, as some of the students already mentioned in the excerpts, alienation of oneself can be inevitable at the end.

Kesercioğlu et al (2001) expressed that countries around the world are conducting studies to identify the problems and deficiencies in their education systems according to the presentation types of their education programs in order to be successful at international levels. Therefore, it is very important

to see the opinions of students in the system about both the positive and negative aspects of the system as the students are one of the most important shareholders and are direct victims of the system, to be able to see and adjust the program and thus ultimately to be successful both nationally and internationally.

Lack of enough experimental (laboratory) activities at school has emerged a very important deficiency in the school as expressed by the students. Laboratories are generally designed for science courses in the schools. This design contributes to science course by providing a special touch. Laboratories enable the teachers and students to teach and learn some difficult tasks more easily by facilitating the learning activities. Experiments in science lessons contribute to students' exploring new knowledge while confirming some of the information learnt by means of various ways. The science lessons taught along with experiments enhance students' learning motives. This makes them consistent and insistent in science courses (Kaptan 1999; Doymuş etal, 2006). Yıldız et.al. (2007) conducted a study to see the attitudes of science teachers in terms of science lessons experiments. They concluded in their study that the teachers' perceptions of a highly equipped science laboratory were positively different that of the ones with less equipped labs. The Ministry of Education got a scale prepared to see the perceptions of science and maths teachers in 1967-1968. %90 of the teachers expressed that the duration, location and lab activities allocated to experimental studies were not sufficient enough although the interest rates of students to the experimental activities appeared between high and average levels (Demirbaş & Yağbasan 2005). Although a considerable amount of time has passed since the mid-1960s, it is very thought-provoking to see almost the same application approaches in science high schools in terms of lab works at the present time. With the existing program, the number of expressing positive opinions in terms of the programs is almost the same for the ones expressing negative feelings in terms it. The students regard the difficulty of exams as being very unfair and unnecessary for them compared to other school types.

It was concluded that going to high school has both advantages and disadvantages. The seemingly important advantage of being a member of this school is high profile education and high-profile successful students. On the other hand, high expectations from almost everybody around the students reach to such extents as to make students more stressed out and pressured as a disadvantage. Moreover, some students exclaimed that they are in constant competition, which seems very interesting as some of them regarded this competition as leading to too much ambition.

The following suggestions could be provided according to emergent results of this study:

1. The elective courses could be provided to students according to their skills and interest areas voluntarily
2. Instead of completing the science and maths courses in elective courses, a more organized could be made in order to increase the weekly hours of those courses
3. The reorganization of social, artistic and sportive activities in an efficient way according to students' interests and abilities would contribute more to effective interaction and communication environment
4. Labs need to be designed and used in such a way as to serve the students according to emerging technological enhancements
5. The psychological counseling services may work more actively for some emerging problems imposed possibly by going to this high school such as "high expectations," "social pressure", "too much fatigue", alienation
6. As the most successful students academically are placed in these schools by means of a state exam, there could be science-talent classes for already talented students in order to maintain their enthusiasm and skills in their interest area.

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Value Priorities of Teacher Candidates: Using a Scaling Technique for Value Ranking

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Cengiz Aslan*

Abstract

Values which may be defined differently in various disciplines are the main determinants of decision making process for people. In this framework teachers, as one of the most fundamental actor of formal education institution, and their values will be the determinant of the quality for teaching-learning process and products. The purpose of this research is to determine the value priorities of teacher candidates in Turkey. Rokeach Value Survey (RVS) was used as a data collection tool. The rank order judgements scaling technique was used in order to analyze the research data. In this technique, it is determined that how a person prioritizes values rather than whether a value is possessed by the person. The RVS consists of two alphabetically ordered lists of 18 values as terminal and instrumental values. When the terminal values in RVS are analyzed using the scaling technique based on ranking judgments, the most commonly (predominantly) preferred value by teacher candidates is "family security", while the least commonly preferred terminal value is "pleasure". Among the instrumental values in the RVS, the most commonly (predominantly) preferred value is the "honesty", while the least commonly preferred one is the "obedience".

Keywords: Values, Rokeach Value Survey (RVS), scaling, ranking, teacher candidate.

* *Corresponding Author:* Dr., Ankara University, Faculty of Educational Sciences, Department of Educational Sciences, Ankara, Turkey. E-mail: cngzaslan@gmail.com, <https://orcid.org/0000-0003-3710-9838>

Öğretmen Adaylarının Değer Önceliklerinin Sıralama Yargılarına Dayalı Ölçekleme Tekniği Kullanılarak Belirlenmesi

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	14.11.2019	17.01.2020

Cengiz Aslan*

Öz

Çeşitli disiplinler açısından farklı tanımlanan değerler, bireylerin günlük yaşamda aldıkları kararların belirleyicisi konumundadır. Bu çerçevede formal eğitim kurumlarının en temel aktörü olan öğretmenlerin sahip olduğu değerlerin, eğitim-öğretim süreç ve ürünlerinin niteliğinin belirleyicisi olduğu söylenebilir. Araştırmanın amacı öğretmen adaylarının değer önceliklerinin belirlenmesidir. Bu araştırma, öğretmen adaylarının değer önceliklerini ortaya koymaya çalışan betimsel tarama modelinde bir araştırmadır. Araştırmada veri toplama aracı olarak Rokeach Değer Envanteri kullanılmıştır. Araştırma verilerinin analizi sıralama yargılarına dayalı ölçekleme tekniği ile yapılmıştır. Bu yöntemle bir değer kişinin var olup olmamasından çok, kişinin bu değerleri nasıl öncelediği belirlenmektedir. Envanter, alfabetik olarak sıralanmış 18'er adet amaçsal ve araçsal değer listesinden oluşmaktadır. Envanterde yer alan amaçsal değerler sıralama yargılarına dayalı ölçekleme tekniği kullanılarak analiz edildiğinde, öğretmen adayları tarafından en çok (ağırlıklı) öncelikli tercih edilen amaçsal değer "aile güvenliği" değeri, en az tercih edilen amaçsal değer "zevk" değeridir. Envanterde yer alan araçsal değerlerden öncelikli tercih edilen araçsal değer "dürüstlük" değeri, en az tercih edilen araçsal değer ise "itaatkârlık" değeridir.

Anahtar Sözcükler: Değerler, Rokeach Değer Envanteri, ölçekleme, sıralama, öğretmen adayı.

* Sorumlu Yazar: Dr., Ankara Üniversitesi, Eğitim Bilimleri Fakültesi, Eğitim Bilimleri Bölümü, Ankara, Türkiye.
E-posta: cngzaslan@gmail.com, <https://orcid.org/0000-0003-3710-9838>

Introduction

Various disciplines are closely interested in values as a concept. In sociology 'values' are defined as culturally defined standards that people use when deciding what is appealing, beautiful and good as well as general principles that are the key to social life and support beliefs (Macionis, 2012). In philosophy, values viewed as evaluation of objects in the outside world so as to exhibit the positive or negative meanings that they bear for people and the society in a way that is societally accepted (Çalışlar, 1997). In psychology 'values' are defined as a product of a mental process (Akyıldız, 2018). According to Kuşdil and Kağıtçıbaşı (2000), this cross-disciplinary interest arises from the fact that social scientists view values as bearing a fundamental significance in explaining human behaviour. Along with this, according to Boudon (2013), the origin of values from the perspective of social scientists is a complicated issue. Within this frame, it can be said that the differences in the definitions of the phenomenon with regard to various disciplines is both related to the phenomenon itself and its origin.

According to Rokeach (1973), there are five assumptions regarding values as abstract and general principles that govern the behavioural patterns in a certain culture. The five principles are: values that people have are limited; all people exhibit the same values at different levels everywhere; values occupy value systems; the origin of human values are found within cultures, societies, institutions and personality structures; the results of human values are reflected on all the social processes that social scientists too endeavour to understand and study. Within the frame of these assumptions, values which are perceived by each individual for their own in the societal life and compared with one another can be defined each as a criterion (Tolan, 2005) which aids in arriving at judgments such as good-bad, right-wrong, important-trivial. In other words, values are the shared criteria or ideas that put forth which societal behaviour is good, right and desirable (Özkalp, 2005). According to Tasker and Packham (1993), values have a more personal meaning which is derived from what is of value and gives purpose to individuals or groups. Therefore, it can be said that people who share a culture make decisions regarding how they are to live using values (Macionis, 2012) and that our choices in the daily life are fraught with the influence of values. With reference to all of these definitions, it can be acknowledged that values are each a criterion in the thoughts, attitudes and work of individuals. Rokeach (1973) states that values have cognitive, affective and behavioural components; and that when we say that a person has a value, what will be understood is the beliefs concerning the desired behavioural patterns or desired existence conditions. Therefore, it can be said that these definitions and assumptions put forth the fact that values are cultural, societal, individual and periodical, that it is a problematic subject area as well as corresponding to their changeability. On this subject, Rokeach (1973) states that the differences in culture, social classes, professions, religions or political preferences are related to individuals' values and value systems. Values are gained through socialization process and individuals constitute their own definitive value system, exhibiting social behaviour that is a product of this value system. According to Ning, Lee and Lee (2015), individuals' actions and behaviours are shaped by the underlying system of values'. Within this frame, it can be said that value system as a behaviour takes shape so as to meet the need of selfness of the individual and as a product of his/her learnings. Individuals in the socialization process both acquire the behaviours approved by the societal structure and meet their needs of personality (Akyıldız & Aslan, 2016). According to Maslow (1970) if the individual meets their need of self-respect, it will lead them to have the emotions of confidence, value, power, skill as well as competence providing the feeling of usefulness and necessity for the world. In the case that the meeting of these needs is hindered, the emotions of inferiority, weakness and desperation will emerge. Rokeach (1973) states that if values are acknowledged as cognitive indicators of needs, the differentiation in values actually should show the differentiation in needs; and that values and needs are meaningfully related to one another.

The mental-emotional disposition of the individual, according to Akyıldız and Aslan (2016), defines themselves as a product of the characteristics they have and reaches its potential as a result of the environmental structure proving suitable. The environmental structure that the individual resides in is their informal-formal educational environment. If the education service helps the individual for gaining new behavior, the individual who will design the new behavior should form a new mental-emotional structure in their own terms. Within this frame, the general aim of education is to provide individual with behaviors that will aid them in leading an actively fulfilling life. The experiences of teaching practice, on the other hand, serves the teacher candidate in forming behaviors regarding how they are to maintain teaching. According to Smith and Schwartz (1996) the value priorities prevalent

in a society are a key element, perhaps the most central, in its culture, and individuals represent central goals that relate to all aspects of behavior. On the other hand, values are directly influenced by everyday experiences in changing ecological and sociopolitical contexts. Values are therefore well-suited for examining the ongoing processes of cultural and individual change in response to historical and social changes". Therefore, examining the value priorities of individual will provide information for historical social and cultural changes in Turkish society. Within this frame, the research problem is to determine the value priorities of teacher candidates in different teacher training programs in Turkey.

Method

The aim of the study was to determine the value priorities of the teacher candidates by using ranking judgements scaling technique. It is important to know the value priorities of teachers who are the fundamental actors of formal educational environments. Besides this, using the scaling technique in educational research will provide fruitful data. This study was a descriptive survey model study that attempts to reveal the value priorities of teacher candidates in Turkey. According to Karasar (2003), the aim of the survey studies, which are prevalently used in social sciences, is to describe a state of affairs that existed in the past or is still extant. The event, individual or object that becomes the subject of the research is endeavored to be defined in its own conditions and as it actually is. According to Neuman (2010), researcher starts with a theoretical or a practical research problem and finalizes the survey with empirical measurements and data analysis.

Participants

In this research, the study group was teacher candidates in two different public universities in Ankara and Denizli. In these universities, teacher candidates enrolled in the Pedagogic Formation Training Programs were informed about the research and data collected from the voluntary participants. 200 teacher candidates in the Pedagogic Formation Training Programs in the departments of philosophy ($f = 51$), theology ($f = 76$) and sociology ($f = 73$) were participated in the study. 157 of the participants were female and 43 of them were male while 175 of them were single and 25 of them married.

Research Instruments and Procedures

Rokeach Value Survey (RVS) (1973) was used as a data collection tool. It has been ascertained that RVS, the validity and reliability tests of which were done by Aslan and Çalışkur (2013), can measure values on terminal and instrumental dimensions. All of the values in the RVS are socially accepted values and they are functionally related. Concerning the nature of values, Rokeach (1973) classified them terminally and instrumentally (Table 1), stating that they exhibit consistency, are a belief and are related with behavior pattern or appraisal of existence. He states that these two value groups embody different roles in different areas of social life. Terminal values are distinguished into two types as personal and social; while instrumental values are distinguished into two types as moral and competence related. He states that, terminal values are self-centered or society-centered. While the focus of self-centered values is oriented towards the person herself and her essence, society-centered values are extroverted and oriented towards others. Within this frame, people's values, attitudes and behaviors change according to what they give primacy to the personal or societal values. Moral values among instrumental values are rather limited in terms of general values and are about the manner of behavior. Competence, as another terminal value concerns self-actualization and rather personal instead of interpersonal and it does not have to be moral. The violation or non-possession of this value ends up with feeling of personal inadequacy instead of feeling guilty or the feeling of having done wrong as in the moral value. Thus, behaving honestly and responsibility leads one to feel that he is behaving morally, whereas behaving logically, intelligent or imaginatively leads one to feel that he is behaving competently (Rokeach, 1973). Within this frame, terminal values exhibit the individuals' fundamental goals in their lives, while instrumental values exhibit how they want to reach the goals that they pursue (Kuşdil and Kağıtçıbaşı, 2000).

Table 1*List of Terminal and Instrumental Values*

Terminal values		Instrumental values	
Social (society-centered)	Personal (self-centered)	Moral (focus on morality and relations)	Competence (self actualization)
Family security (taking care of loved ones)	Salvation (saved, eternal life)	Responsible (dependable, reliable)	Capable (competent, effective)
A world at peace (free of war and conflict)	A sense of accomplishment (a lasting contribution)	Honest (sincere, truthful)	Courageous (standing up for your beliefs)
Equality (brotherhood, equal opportunity for all)	Wisdom (a mature understanding of life)	Obedient (dutiful, respectful)	Imaginative (daring, creative)
True friendship (close companionship)	An exciting life (a stimulating, active life)	Loving (affectionate, tender)	Logical (consistent, rational)
A world of beauty (beauty of nature and the arts)	Inner harmony (freedom from inner conflict)	Polite (courteous, well mannered)	Ambitious (hard-working, aspiring)
Mature love (sexual and spiritual intimacy)	Self-respect (self-esteem)	Helpful (working for the welfare of others)	Clean (neat, tidy)
Social recognition (respect, admiration)	Happiness (contentedness)	Forgiving (willing to pardon others)	Independent (self-reliant, self-sufficient)
Freedom (independence, free choice)	A comfortable life (a prosperous life)	Cheerful (lighthearted, joyful)	Self-Controlled (restrained, self- discipline)
National security (protection from attack)	Pleasure (an enjoyable leisurely life)	Broadminded (open-minded)	Intellectual (intelligent, reflective)

Data Analysis

The rank order judgments scaling technique was used in the analysis of the data. According to Turgut and Baykul (1992), in this technique, which can be applied to all stimulants, that can be given a ranking number, all of the stimulants are given to the observants together in order for them to rank them in ascending or descending order. Proving the meaningful measurement and comparison of objects according to Dunn-Runkin et al. (2004), the main aim of the scaling is to measure and compare the objects in a meaningful way. As for Anıl and Güler (2006) it is put forth the basic rules and primary methods of the transition from observations to measurements.

In order to collect teacher candidates' judgments on values, they were asked to give a ranking number to each value in the RVS according to their own priorities. Rokeach (1973) stated that the values being in alphabetical order can lead to misguidance due to responders thinking that certain values are of higher priority. He defines this state of affairs as ranking effect. In order to neutralize this effect, respondents were asked to rank initially the first five and the last five values and then the rest of the values in terms of their priority in the Turkish form of the scale. Since the individuals assign the smallest number to the value of highest priority to them, the smaller numerical values in the scale illustrate the value that is given higher priority. SPSS 22 and excel programs have been used in the analysis of the data. As a result of the process which was made by using rank order judgements scaling technique, a frequency matrix has been created determining the frequency of values ranked by the participants. According to Guilford (1954), each column in the frequency matrix represents a stimulus, each line represents an observer and each cell represents a ranking given to a specific stimulant by a specific observant. The ratio matrix was acquired by dividing the values in each cell of the frequency matrix to the total number of people. The z values that are correspondent to the elements of ratio matrix were identified and the unit normal variance matrix was created. The mean of each z value across the columns was calculated and then, the scale values were found. Teacher candidates' most preferential values were determined by this technique.

Findings

Teacher candidates' responses to the RVS and analysis of their responses with scaling technique were given in the following tables.

Table 2

Terminal Values Frequency Matrix

	salvation	family security	a world at peace	a sense of accomplishment	wisdom	equality	true friendship	a world of beauty	an exciting life	inner harmony	self-respect	happiness	mature love	freedom	a comfortable life	social recognition	national security	pleasure	Total
1	81	25	24	1	7	3	2	1	2	15	11	6	0	13	2	1	4	2	200
2	21	54	23	11	15	8	4	1	2	16	10	11	1	10	2	3	7	1	200
3	11	23	32	12	4	17	12	4	2	18	16	15	4	10	7	0	12	1	200
4	2	23	16	14	11	18	10	5	6	19	22	15	3	16	6	1	11	2	200
5	4	16	14	14	14	14	17	3	6	15	15	14	9	23	9	2	9	2	200
6	7	18	10	15	7	24	17	4	8	16	13	9	6	14	9	7	10	6	200
7	8	10	15	16	11	18	17	4	3	25	18	14	6	9	12	4	6	4	200
8	3	3	6	16	13	14	18	13	10	11	18	16	11	13	11	8	9	7	200
9	3	7	8	14	12	14	15	14	8	14	12	22	7	11	14	10	10	5	200
10	8	5	10	18	12	17	12	7	11	10	11	10	18	11	15	5	16	4	200
11	8	7	10	10	14	8	16	8	10	7	15	17	10	13	11	10	13	13	200
12	4	1	5	18	13	9	15	9	8	7	9	16	17	9	25	13	14	8	200
13	4	3	4	8	14	9	10	13	12	7	4	11	13	20	22	20	14	12	200
14	1	1	5	6	9	6	12	26	22	5	8	7	19	7	13	21	17	15	200
15	1	1	3	10	11	5	10	25	27	4	9	4	16	8	15	18	11	22	200
16	3	1	6	9	16	9	7	17	17	5	3	7	22	8	19	17	12	22	200
17	5	2	4	6	10	6	1	26	25	5	2	4	17	4	5	32	14	32	200
18	26	0	5	2	7	1	5	20	21	1	4	2	21	1	3	28	11	42	200
	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200

In the frequency matrix in Table 2, columns exhibit the frequency of preference of the stimulants in the RVS while rows exhibit the value rankings. For instance, the frequency of participants who chose salvation as a value of high priority is 81 and the frequency of those who preferred it at the lowest priority is 26. According to Table 2, the first five values that the participants see of higher priority in life were respectively salvation ($f = 81$), family security ($f = 25$), a world at peace ($f = 24$), inner harmony ($f = 15$) and freedom ($f = 13$). In other words, this ranking of values is the frequency of terminal values being chosen at the first order. Moreover, the terminal values that the participants consider of lower priority and choose with the lowest scores are respectively pleasure ($f = 42$), social recognition ($f = 28$), salvation ($f = 26$), mature love ($f = 21$) and an exciting life ($f = 21$). In other words, this value ranking represents the lowest-ranked terminal values.

Table 3
Instrumental Values Frequency Matrix

	independent	forgiving	courageous	honest	intellectual	broadminded	imaginative	ambitious	obedient	self controlled	polite	logical	capable	cheerful	loving	responsible	clean	helpful	Total
1	49	6	13	40	9	6	7	3	2	6	2	9	3	10	3	22	4	6	200
2	18	12	17	30	9	12	6	6	5	8	6	11	4	6	7	16	11	16	200
3	15	12	14	23	14	13	9	4	2	16	9	18	3	3	5	18	10	12	200
4	19	14	11	16	14	10	11	8	1	15	12	17	6	9	5	17	7	8	200
5	9	6	10	17	8	12	5	10	2	16	11	20	9	6	12	16	17	14	200
6	7	12	15	8	6	14	10	10	7	6	6	23	7	6	14	11	20	18	200
7	7	8	8	14	5	18	8	11	3	12	9	14	10	20	11	11	12	19	200
8	9	8	3	10	12	21	10	4	4	6	11	8	13	18	16	15	11	21	200
9	5	6	17	2	9	13	15	6	2	8	16	6	10	14	14	18	19	20	200
10	7	21	8	10	13	11	8	12	5	9	12	12	16	15	12	10	12	7	200
11	9	10	10	3	12	12	9	8	10	11	10	16	14	16	14	8	18	10	200
12	7	11	15	9	9	17	10	5	8	12	22	9	14	13	18	5	4	12	200
13	5	10	13	4	16	9	20	12	6	18	11	10	14	6	16	8	11	11	200
14	8	10	12	8	11	8	15	8	19	11	14	4	11	17	16	7	12	9	200
15	7	14	10	2	17	7	17	8	7	21	12	9	19	19	16	4	8	3	200
16	5	15	11	4	13	6	20	15	12	13	20	5	22	12	8	5	8	6	200
17	11	13	5	0	13	7	13	27	37	9	10	7	17	5	6	7	8	5	200
18	3	12	8	0	10	4	7	43	68	3	7	2	8	5	7	2	8	3	200
	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200

According to Table 3, 49 of the participants chose the value of being independent with the highest priority, while three of them at the lowest priority. The first five values that the participants see of higher priority in life were respectively independent ($f = 49$), honest ($f = 40$), responsible ($f = 22$), courageous ($f = 13$) and cheerful ($f = 14$). In other words, this value ranking represents the highest-ranked instrumental values. Moreover, the terminal values that the participants consider of lower priority and choose with the lowest scores were respectively obedient ($f = 68$), ambitious ($f = 43$), forgiving ($f = 12$) and intellectual ($f = 10$). In other words, this value ranking represents the lowest-ranked instrumental values.

Table 4
The Scale Values and Priority Rankings of Terminal and Instrumental Values based on Ranking Judgments

Terminal values	Scale value	Significance ranking	Instrumental values	Scale value
family security	0.000	1	honest	0.000
a world at peace	0.359	2	independent	0.229
salvation	0.374	3	responsible	0.329
inner harmony	0.485	4	logical	0.440
self-respect	0.606	5	helpful	0.502
equality	0.673	6	courageous	0.504
freedom	0.698	7	broadminded	0.563
happiness	0.723	8	clean	0.655
a sense of accomplishment	0.792	9	self-controlled	0.711
true friendship	0.827	10	cheerful	0.769

wisdom	1.021	11	forgiving	0.770
national security	1.058	12	intellectual	0.777
a comfortable life	1.108	13	loving	0.800
an exciting life	1.385	14	polite	0.855
mature love	1.390	15	imaginative	0.876
a world of beauty	1.465	16	capable	0.996
social recognition	1.585	17	ambitious	1.133
pleasure	1.688	18	obedient	1.494

When the terminal values belonging to the RVS was analyzed using the scaling technique, the most commonly (predominantly) preferred value by the teacher candidates was found to be *family security*. Following this value, there were respectively *a world at peace*, *salvation*, *inner harmony* and *self-respect*. The terminal value of lowest priority was the *value of pleasure*. Following this value, the lowest priority values were respectively *social recognition*, *a world of beauty*, *mature love*, and an *exciting life*.

When the instrumental values were analyzed using the scaling technique, the most commonly preferred/highest-ranked instrumental value was found to be *honesty*. Following this value, the most commonly preferred values were respectively *independent*, *responsible*, *logical* and *helpful*. The value of lowest priority, on the other hand, was found to be *obedient*. Following this, the values of lowest priority were found to be respectively *ambitious*, *capable*, *imaginative*, and *polite*.

Discussion, Conclusion and Recommendations

When the frequency scores of the ranked values examined the first rank and having the highest frequency score was *salvation* ($f = 81$); while the lowest-ranked terminal value is found to be *pleasure* ($f = 42$) within the terminal values. Similarly, when instrumental values were ranked on the basis of frequency, the value that was preferred at the first rank and having the highest frequency value was *independent* ($f = 49$), while the lowest-ranked instrumental value was found to be *obedient* ($f = 68$). However, when the rank order judgements scale technique was used, the values of top priority for teacher candidates were respectively *family security* (taking care of loved ones), *a world at peace* (free of war and conflict), *salvation* (saved, eternal life), *inner harmony* (freedom from inner conflict), and *self-respect* (self-esteem). The values of lowest priority were respectively the values of *pleasure* (an enjoyable leisurely life), *social recognition* (*respect*, *admiration*), *a world of beauty* (beauty of nature and the arts), *mature love* (sexual and spiritual intimacy), and *an exciting life* (a stimulating, active life). The instrumental values of top priority for teacher candidates were respectively *honest*, *independent*, *responsible*, *logical*, and *helpful*. The values of least priority were found to be *obedient*, *ambitious*, *capable*, *imaginative*, and *polite*.

Rokeach (1973) qualifies the value rankings obtained as a result of his own study as a general characteristic of the American culture and states that many of the findings of his study corresponds with Maslow's hierarchy of needs. Maslow (2001) emphasizes that person-specific needs lead to person-specific values; that the dispositional differences between individuals and the choice differences in the ways the person interacts with their own, culture and the world creates the values; and that needs and values are in a hierarchical and developmental relation in terms of power and primacy. While security is a rather strong, overbearing and vital need in comparison to love, the need for food is stronger than both of them. Furthermore, these basic needs are generally the steps taken in self-actualization as all the basic needs are. In addition to this, Maslow (1970) states that if the physiological needs are relatively well gratified, there then emerges a new set of needs, which we may categorize roughly as the safety needs (security, stability, dependency, protection, freedom from fear, from anxiety and chaos, need for structure, order, law, limits, strength in the protector, and so on). In the case that both the physiological and security needs are quite well satisfied, that the needs of love, compassion, and belonging would arise. However, the needs of security will become of top priority when there are real threats in the society for law and regulation. Within this frame, it can be said that the value of *family security* in the RVS being the prioritized terminal value by the teacher candidates is related to this state of affairs. According to Maslow (1970), the threat of chaos or of nihilism can be expected in most human beings to produce a regression from any higher needs to the more prepotent

safety needs. Therefore finding the most preferred terminal values as *family security* and *a world at peace* instead of higher order needs like *pleasure*, *social recognition*, *a world of beauty*, and *mature love* may relate with feeling of the threat of chaos or of nihilism. In other words, these terminal value preferences (*family security* and *a world at peace*) show us that teacher candidates need security and peace not only in their daily life but also in the world. In addition to this, Rokeach (1973) in his study states that the need of security proving of lower importance for affluent and educated individuals is not due to this need being viewed of less value but because these needs are already being met, hence leading to the emphasis of values such as love, competence, and self-actualization as a result of the need for security having already been guaranteed. In addition, when considering the realities of the sample group in this study, teacher candidates mostly are still students and not working, it is not surprising to find that *family security* (taking care of loved ones) is prioritized. According to Kağıtçıbaşı (1996), in the societies where the financial dependency is in question, reciprocally tight relations and dependency is valued rather than independence. Similarly, according to Smith and Schwartz (1996), in conservative cultures, the person is identified with the community and participates in the communal lifestyle and largely gains meaning through societal relations. This type of value emphasizes the protection of status quo, propriety and the restriction of actions which may disarray the group of solidarity. Examples of specific values are social order, respect to tradition, family security, and self-discipline. In the cultures where independence is emphasized, the person is seen as a being who expresses their own uniqueness and endeavours to express their own internal qualities (preferences, characteristics, emotions, motives). Therefore, it can be expected that in a conservative culture, the value priority of teacher candidates will be identified with a community and be oriented towards a solidarity group. Results of the study show that the two terminal values preferred with top priority, *family security* and *a world at peace*, in this study means that the teacher candidates see social (focus on others) and society-centered values at higher priority. Within instrumental values highest priority was given to *honesty* and this means that values related to morality and relations are seen of higher priority. Within this frame, Kağıtçıbaşı (1996) states that those who are from the collectivist cultures identify with collectivist value judgments and behaviours while those from individualistic cultures do so with individualistic ones. Nonetheless, in the study, the teacher candidates' top five preferences among terminal values were *salvation*, *inner harmony*, and *self-respect* and this shows that self-focused values are prioritized. Their top preferences among instrumental values are *independent* and *logical* shows that the competence value was preferred which is rather personal than interpersonal. When the top five terminal value priorities of teacher candidates were examined, they were both related to the values that focus on others as well as personal, self-focused ones. In the instrumental values, it is seen that the preferences are both focus on *morality* and *relations* and on *competence*. Within this frame, it is understood that both inter-personal and personal values are important for teacher candidates.

According to Smith and Schwartz (1996), the value priorities of individuals are directly affected by the changing daily experiences of people within their ecological and socio-political context and reveal the cultural and individual processes of change. According to Ayvalıoğlu's (1989) study, the terminal value priorities of Turkish university students are respectively *national security*, *family security*, *salvation*, *a world at peace*, and *true friendship*; the instrumental value priorities of them are respectively *self-controlled*, *responsible*, *courageous*, *ambitious*, and *cheerful*. The common values between Ayvalıoğlu's (1989) study and this study in terminal value priorities are *family security*, *salvation*, and *a world at peace*. In addition to this, the only common prioritized value between these two studies are *responsible* within the instrumental values. Çileli's (2000) study with Turkish university students in the years of 1989, 1992 and 1995 showed interesting results. In 1989, most important terminal values for Turkish university students were *self-respect*, *freedom*, *inner harmony*, and *equality*. As for the 1992 sample, the most important terminal values were *wisdom*, *along with mature love*, *inner harmony*, *happiness*, and *family security*. For 1995 sample, *happiness*, *inner harmony*, *an exciting life*, and *mature love* were the most important terminal values. Çileli's (2000) study showed that the four most important instrumental values for the 1989 sample were *independence*, *honesty*, *broad-mindedness*, and *courage*. The four most important instrumental values for the 1992 sample were *ambition*, *cheerfulness*, *broad-mindedness*, and *capability*. The four most important instrumental values for the 1995 sample were *ambition*, *cheerfulness*, *capability* and

courage. Within this frame, it is seen that the teacher candidates' value priorities in terms of both terminal and instrumental values are different from university students' value priorities with reference to the studies conducted in the last 30 years. Therefore, this difference in the individuals' value priorities corresponds with the historical-social change of the Turkish society and reveals the cultural-individual processes of change. In addition to this, it should be taken into account that the different results in the studies conducted with university students by both Ayvalioğlu (1989) and Çileli (2000) can be related to their different sample/study groups.

In Schwartz (1994) circular model of values, the most basic aspect of the theorized structure is the organization of the four higher order value types into two dimensions: Openness to change (self-direction and stimulation) vs. conservation (tradition, conformity, security) and self-enhancement (power, achievement) vs. self-transcendence (universalism, benevolence). According to Kuşdil and Kağıtçıbaşı (2000), the dimension of conservation involves the individuals' values, which enables them to maintain consistency and definitiveness in their relations with people, institutions and traditions. The type that this dimension exhibits the least correlation, on the other hand, is hedonism. Within this frame, that the value of *family security* proving of highest priority and *salvation* proving of third highest priority for teacher candidates can be evaluated within the frame of Schwartz' dimension of the value of conservation. However, while the second and third value priorities of teacher candidates as *a world at peace* and *inner harmony* corresponds to Schwartz' dimension of the values of self-transcendence and universalism; the fifth priority *self-respect* corresponds to the value types of openness to change and self-direction. According to Kuşdil and Kağıtçıbaşı (2000), the value dimension of openness to change is oriented towards individuals being enabled to follow their emotional and mental interests in unpredictable ways, while the value dimension of self-transcendence is oriented towards the individual relinquishing their own egotistical purposes for the good of the humanity and the nature. Within this frame, it can be said that the value priorities which the teacher candidates preferred at the top five ranks do not only correspond with the value dimension of conservation in Schwartz' model of values but also with openness to change and self-transcendence.

Human behaviour occurs in different forms, degrees and intensity as a product of the societal structure and genetic features. Within this frame, it can both be said that human behavior occurs in a unique form as a product of the mental and emotional disposition possessed and that it is affected by the societal structure in which the individual is born and raised. Therefore, it can be spoken of that values and behavior not only arises as a product of active mental evaluations, but also as a product of external determinants. The external structure in which the individual resides are informal-formal environments. Individuals are equipped in formal educational institutions in terms of fundamental knowledge and skills. The most fundamental actor of formal educational institutions, in other respects, are teachers. The values possessed by teachers will be the determinant of the quality of the processes and products of education and training. In the literature, there are different instruments and analysing techniques for defining teacher values. RVS, the instrument used in this research, determine how the person prioritizes values rather than whether a value is possessed by a person. In the present study, scaling technique was used for analyzing the teachers' values. It is seen that value rankings differ when they are ranked on the basis of preference and when they are ranked using the scaling technique. This difference in the individuals' value priorities corresponds with the historical-social change of the Turkish society and reveals the cultural-individual processes of change. In Turkey there can be mention of that both collectivist and individualistic values are seen of high priority and a togetherness of values that represent different cultural structures.

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Developing Sustainable Education Disposition Scale and Teacher Views regarding the Education Disposition *

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Fatma Köybaşı Şemin**

Abstract

This study aimed at developing a scale to measure the level at which schools stand for offering sustainable education. In addition, it was aimed to examine teachers' views on sustainable education disposition against school type or gender. This study is a descriptive survey and consists of two stages. As the first step, a sustainability scale was developed by the researcher to determine the level of sustainable education. Exploratory and confirmatory factor analyzes along with reliability checks were conducted. Explanatory factor analysis was performed with the data from 209 teachers working at schools in Şarkışla and Yıldızeli districts and the scale was found to be one-dimensional with 32 items. Following the explanatory process, the scale was applied to 152 participants in Suşehri district for confirmatory factor analysis. The latter analysis was performed on the data obtained from the study group and the goodness-of-fit test was found within the acceptable limits. According to results, it can be inferred that the teachers have a high level of disposition to sustainable education. It was found out that teachers' views on sustainable education disposition differ between genders in favor of males.

Keywords: Sustainability, sustainable education, sustainable education disposition.

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** Dr. , Sivas Cumhuriyet University, Faculty of Education, Education Administration, Sivas, Turkey.
E-mail: fkoybasi@cumhuriyet.edu.tr, <https://orcid.org/0000-0002-8684-1235>

Sürdürülebilir Eğitim Eğilimi Ölçeği Geliştirme ve Sürdürülebilir Eğitim Eğilimine İlişkin Öğretmen Görüşleri*

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	15.11.2018	23.12.2019

Fatma Köybaşı Şemin**

Öz

Bu çalışma, okulların sürdürülebilir eğitim eğilimi düzeyini ölçmek için bir ölçek geliştirmeyi amaçlamaktadır. Ayrıca, öğretmenlerin sürdürülebilir eğitim eğilimine yönelik görüşlerinin okul türüne ve cinsiyetine göre incelenmesi amaçlanmıştır. Bu çalışma betimsel bir çalışma olup iki aşamadan oluşmaktadır. Birinci aşamada, sürdürülebilir eğitim eğilim düzeyini belirlemek için araştırmacı tarafından bir sürdürülebilir eğitim eğilimi ölçeği geliştirilmiştir. Güvenirlilik analizleri ile birlikte açımlayıcı ve doğrulayıcı faktör analizi yapılmıştır. Şarkışla ve Yıldızeli ilçelerinde bulunan okullarda çalışan 209 öğretmenin verileriyle açıklayıcı faktör analizi yapılmıştır ve ölçeğin 32 maddeyle tek boyutlu olduğu saptanmıştır. Açıklayıcı faktör analizi sürecinin ardından ölçek, doğrulayıcı faktör analizi için Suşehri ilçesindeki 152 katılımcıya uygulanmış ve uyum iyiliği testi kabul edilebilir değerler aralığına olduğu tespit edilmiştir. Elde edilen verilere göre, öğretmenlerin sürdürülebilir eğitime karşı yüksek düzeyde bir ilgileri olduğu sonucuna varılmıştır. Öğretmenlerin sürdürülebilir eğitim konusundaki görüşlerinin cinsiyetler arasında erkeklerin lehine farklılık gösterdiği bulunmuştur.

Anahtar Sözcükler: Sürdürülebilirlik, sürdürülebilir eğitim, sürdürülebilir eğitim eğilimi.

* Bu çalışma, Cumhuriyet Üniversitesi'nde yürütülen EĞT-068 kodlu CUBAP projesinin bir parçasıdır.

**Dr., Sivas Cumhuriyet Üniversitesi, Eğitim Fakültesi, Eğitim Yönetimi, Sivas, Turkey.
E-posta: fkoybasi@cumhuriyet.edu.tr, <https://orcid.org/0000-0002-8684-1235>

Introduction

The concept of sustainability means providing sufficient and necessary conditions for continuation of the ecosystem cycle. Chapin, Torn, and Tateno (1996) describe sustainability as the ability to transfer the functions and cyclic mobility of ecological systems into the future. Social and cultural aspects of sustainability as well as the interrelation and interaction among all fields (social, environmental, and economic) in which it relates (Blowers, 2003; Sachs, 1997) show that human factor has multidimensional needs. In other words, sustainability not only focuses on the environmental impact but also comprises of the dimensions of “environment”, “economy”, and “social welfare” where the society needs to find the equilibrium or even the optimum level (Brand, 2002). On the other hand, without limiting the ability to meet the needs of future generations, it also explains an improvement that can meet the needs of today's unspoiled environment, social justice, and economic prosperity (Finkbeiner, Schau, Lehmann & Traverso, 2010).

Education is considered as one of the most important factors that will play a mediating role in enabling generations to meet the conditions required by a sustainable life (UNESCO, 2009; Lenz, 2013; Wheeler & Bijur, 2000; Chalkley, Haigh & Higgitt, 2013). Education aims to provide individuals with the behaviours they will exhibit in their lives. There are also cases where all the desired behaviours are not put into practice in an individual's life. In this case, such issues arise as intriguing topics as how much of the educational objectives can be achieved and whether the behaviours that will bring an individual's life to the optimum level have been achieved as an objective of education.

Sustainable education means the ability to put into practice students' behaviours which are referred to as attainments in the process of education and instruction through a holistic approach in social, economic, and ecological terms. Sustainable education refers to a paradigm which ensures understanding of the social, economic, and ecological system of the world order and offers behaviours that help survival of these systems. Sterling (2001) states that relational and contextual education and learning assure sustainability as human and natural forces are tightly connected. He also emphasizes that sustainability of education is also necessary for sustainable living. Findings which mandate a transformed educational paradigm are the change in the nature of economy and increased lack of control as a result of a lax implementation of student-centred education (Resnick & Hall, 2016). To put into other words, Sterling (2001) lists the obstacles to the paradigm shift in education or realization of sustainable education as the failure to fully implement a constructivist education method through imposing and narration and problems arising from educational policies.

It can be clearly said that the reasons for failing to achieve sustainable education can be explained by the teaching methods as well as external factors (economic, external powers, etc.) besides educational policies. Tyack (1974) and Cohen (1988) pointed out that the desired positive changes have not been observed with weighted focus on educational administration, accountability and bureaucracy for the ultimate goal of improving education. It also seems contradictory to the system approach to expect a better quality of education through improvement of one single component of education. Sustainable education is about foreseeing that every single individual may have an effect on one other in all dimensions (economic, sociological, ecological, etc.) by virtue of the education offered at schools. In addition, it refers to the standpoint to see through a holistic perspective that we are shaping with our own hands the world in which we live all together. Resnick and Hall (2016) argue that it also puts education into a dead-end that every single parent demands schooling focusing on opportunities for their own child(ren) rather than an overall better education. A variety of educational reformation initiatives for such educational problems have been crippled because of the public resistance against reforms together with the organizational structure limiting such changes (Resnick and Hall, 2016). To start with, ways to remove obstacles should be sought for a change towards sustainable education. Deficiencies and faults in the path of sustainable education should be identified. In this context, dimensions of sustainable education and the current extent at each of these dimensions should be identified. Becker and Chiswick (1966) underlined that education is a long-term investment and thus related policies will take longer. Uhl, Kulakowski, Gerwing, Brown and Cochrane (1996) point out that governments must struggle towards training university students in contact with real-life situations through case studies, problem-oriented research, and similar methods so that the future can be shaped by smart, wise, and well-educated individuals. They further suggest that if engineers, businessmen, public employees,

teachers, artists, and scientists are trained through this education, they can be prepared to face the future world problems. The concepts which build up sustainable education are given in Figure 1. (The mentioned elements of rationales are included in the scale as items).

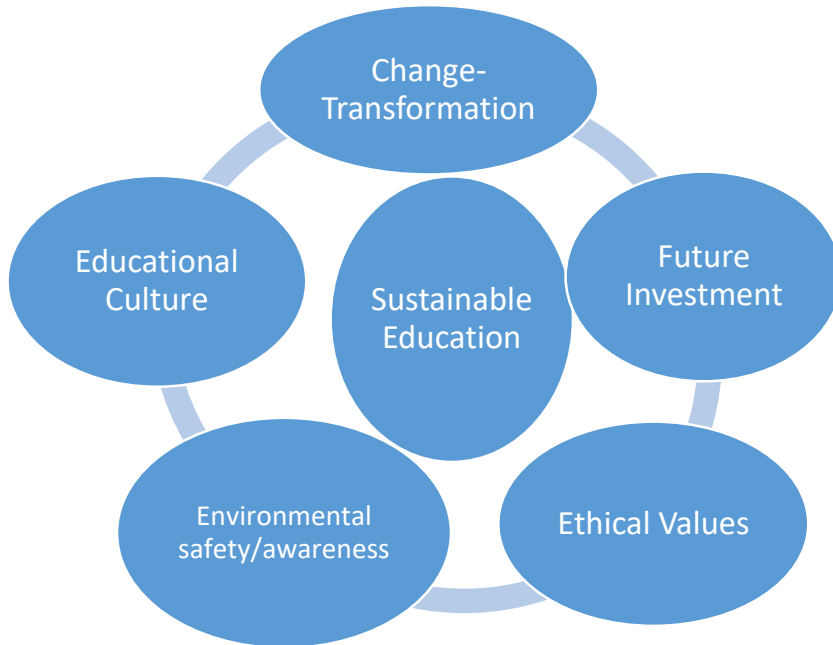


Figure 1. *Components of Sustainable Education*

During the literature review for this study, only a limited amount of literature was accessed because of our focus on the concept of education for sustainability rather than sustainable education (Sterling, 2001). In a prospect of the literature, it is noted that Cebrian and Junynet (2015) investigated university students' views about their competences in education for sustainable development. In another study; Wolff, Sjöblom, Hofman-Bergholm and Palmberg (2017) found out that teachers' education seems to be lagging the needs for sustainability. On the other hand; Andersson, Jagers, Lindsöök and Martinsson (2013) found out that sustainable development program increased awareness level of prospective teachers about sustainability. Apart from that; Pauw, Gericke, Olsson and Berglund, (2015) analyzed students' awareness of sustainable development at grades 6, 9, and 12. Spahiu and Lindemann-Matthies (2015) explored the positive effect of teachers' workshop on sustainable development.

Differently from the preceding ones, this study was intended to unearth the sustainable education disposition, which sets out the capacity of school education (goal, content, policy, method etc.) to serve sustainable development. There is currently a research gap concerning a measurement tool in this particular field. Furthermore, the measurement tool developed in this study could allow access to information that will strengthen the sustainable education in the light of the teachers' opinions on sustainable education disposition.

The first step to clarify this issue and turning it into a concrete theory will be to determine the scope of sustainable education. In this study, it was preferred to examine sustainable education in a more limited area based on the related literature. In order to identify sustainable education profile of schools; first, the contents forming sustainable education were tried to be determined concisely.

The main aim of the study is to develop a scale to measure the level at which schools stand for offering sustainable education. Also, the subgoals of the study are i) to determine teachers' views on sustainable education disposition and ii) to examine teachers' views on sustainable education disposition against school type or gender.

Method

This study is a descriptive survey and consists of two stages. As the first step, a sustainability scale was developed by the researcher to determine the level of sustainable education. Exploratory and confirmatory factor analyzes were conducted and reliability was assessed. The scale developed here was used as a means of identifying the schools' disposition to sustainable education and whether this disposition varies depending on gender or school type variables. Relational studies, which are a type of descriptive surveys, aim at determining the degree and direction of the relationship between the variables (Frankel, Wallen & Hyun, 2011). For this reason, the present study was planned as a relational survey since it aims to examine the level of sustainable education and its relationship with variables of gender or school type.

The Developing of the Scale

Study group

The scale developing was conducted with data collected from two different study groups. Group one consisted of primary, secondary and high school teachers working in the districts of Şarkışla and Yıldızeli affiliated to Sivas province. The demographic variables of the study group are given in Table1.

Table 1

Personal Information of Study Group One

Variable		f	%
Gender	Female	98	44.7
	Male	121	55.3
School Type	Nursery School	15	6.8
	Primary	84	38.4
	Secondary	58	26.5
	High School	62	28.3
Seniority	1-6 years	87	39.7
	7-12 years	65	29.7
	13-18 years	32	14.6
	19 years and above	35	15.9
Total		219	%100

This study group included 98 female and 121 male participants. Of the participants; 15 work in kindergarten, 84 in primary schools, 58 in secondary schools, and 62 teach in high schools. It consisted of a total of 219 teachers, 87 of which are senior in term of 1-6 years of experience, 65 of whom have seniority of 7-12 years, 32 have a seniority of 13-18 years, and 35 teachers with a seniority of equal to or more than 19 years. As for the other study group, it consisted of 152 teachers working in primary, secondary and high schools in the district of Suşehri of Sivas. The group has the following demographic variables:

Table 2

Personal Information of Study Group Two

Variable		f	%
Gender	Female	69	45.4
	Male	83	54.6
School Type	Primary	48	31.6
	Secondary	29	19.1
	High School	75	49.3
Seniority	1-6 years	57	37.5
	7-12 years	26	17.10
	13-18 years	40	26.13
	19 years and above	29	19.07
Total		152	%100

In this group, there were 69 female and 83 male teachers, totalling to 152 teachers. Of the participants, 48 work in primary schools, 29 in secondary schools, and the rest of 75 work in high schools. As for seniority; 57 teachers have 1-6 years' experience, 26 have 7-12 years, 40 participants have a seniority of 13-18 years, and 29 of them have experience of 19 years or more.

Developing of the Scale Items

To start developing the scale of education sustainability, first of all, literature was reviewed and a pool of items was formed. During the review of literature on the concept of sustainability in the context of educational sciences, it was seen that there is abundance of studies on the use of education for a sustainable environment. However, there was seen a scarcity of theoretical studies discussing the concept of sustainability of education. It was observed that characteristics defining sustainable education have been put forward as an educational paradigm, showing functional outcomes for maintaining balance in ecological, economic and social dimensions in order to adapt to the changing world. The pool of items was drafted by referring to the literature on the role of education for a sustainable world as well as applying to professional views of two specialists of educational administration.

The body of question adapted for sustainability of education was "Misconduct by school stakeholders is discussed". After this stage, the pool of 44 items was sent to 5 specialists in the faculty of education (educational administration, educational curricula, measurement and evaluation) for revision in terms of wording, meaning, content and clarity.

Analyses

To test the validity of the scale, scope and construct validity were checked. The last draft of the scale contained 32 items. This version was applied in the primary and secondary schools located in the central district of Sivas to perform validity and reliability checks. The questionnaire was distributed to 55 teachers who wanted to participate in the study voluntarily.

As a preliminary step, the data and teachers' opinions about the application of the scale were taken as feedback. Before testing construct validity of the scale, first, results of the Kaiser-Mayer-Olkin (KMO) and Sphericity Barlett tests were examined in the first study group in order to test the conformity of the scale with construct validity check. The values such as KMO = 0.94 and Bartlett sphericity test = 4232,43; $p < 0.01$ showed that the scale is eligible for factor analysis. In addition, Cronbach's Alpha coefficient was calculated from the same study group to test the reliability of the scale. Later, confirmatory factor analysis (CFA) was performed on the other study group in order to test the extent at which the scale confirms the factor structure.

The reliability of the scale was rechecked via analysis of Cronbach's Alpha coefficient in the second study group. Furthermore, analysis was conducted to find out the level of sustainable education disposition of schools and whether this level varies by gender or school type according to this scale. First of all, in reference to distortion and kurtosis values of the distribution (-1,5, + 1,5), the distribution was found to be normal (-1.1, +1.00). Also, distortion and kurtosis values of the distribution according to gender (-1.2, +1.1) and school type (-1.0, +1.3) shows that distributions are normal.

There was no data loss because no extreme value was found. In the research, the level of sustainable education disposition was calculated by means of frequency, percentage, arithmetic mean and standard deviation values. The mean values obtained were interpreted as following: 0-1.7 = low; 1.8-3.4 = moderate; 3.5- 5.00 = high level. Independent t-test was performed to determine whether the level of disposition differs depending on gender variable; while the same was checked with One-Way ANOVA test to highlight the variance, if any, for school type.

Results

Results of Exploratory Factor Analysis

The discriminatory power of the scale items was tested. The item total correlation coefficient values higher than .53 indicate discriminant items. Afterwards, the finding that the scale is suitable for construct validity as a requisite of testing the factor structure of the scale with exploratory factor analysis

indicates that there is a high level of correlation between the variables and that the data set is suitable for factor analysis. After this stage, exploratory factor analysis (EFA) was conducted on the first study group. In factor analysis, factor load values were examined for assigning the scale items to factors or omitting them. It was found out that the factor load of each item was not less than 0.30. Consequently, the items in the scale were determined and the total variance of the scale was given below.

Table 3

Results of Exploratory Factor Analysis of the Scale

Comp.	Initial Eigen Values			Sum of rotated square loads		
	Total	Variance	Cumulative%	Total	Variance	Cumulative %
1	15.57	48.68	48.68	7.01	21.91	21.913
2	1.51	4.73	53.41	4.88	15.25	37.172
3	1.35	4.21	57.63	4.56	14.27	51.449
4	1.17	3.68	61.31	3.15	9.86	61.312
5	.955	2.98	64.29			
6	.933	2.91	67.21			
7	.855	2.67	69.88			
8	.758	2.36	72.25			
9	.743	2.32	74.57			
10	.696	2.17	76.75			
11	.672	2.09	78.85			
12	.609	1.90	80.75			
13	.582	1.81	82.57			
14	.500	1.56	84.13			
15	.466	1.45	85.59			
16	.417	1.30	86.89			
17	.411	1.28	88.17			
18	.394	1.23	89.41			
19	.370	1.15	90.56			
20	.344	1.07	91.64			
21	.343	1.07	92.71			
22	.312	.97	93.68			
23	.305	.95	94.64			
24	.284	.88	95.52			
25	.229	.71	96.24			
26	.224	.70	96.94			
27	.205	.64	97.58			
28	.179	.56	98.14			
29	.177	.55	98.69			
30	.156	.48	99.18			
31	.138	.43	99.617			
32	.123	.38	100.000			

According to the total variance table explained by the factor analysis, there are 4 factors whose eigenvalue is greater than 1. The total variance of these factors is 61.31%. Figure 1 shows the ScreePlot graph, which is the scattering diagram of the eigenvalues of the factors. This graph is used to determine the total number of factors of the scale.

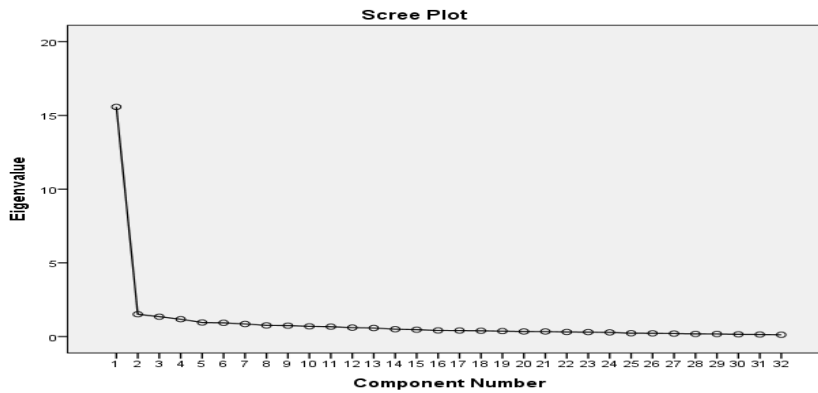


Figure 2. *Scree Plot Graph of the Scale*

Factors of the scale resulting from the factor analysis are required to explain at least 30% of the total variance. In the study, it was decided to have four factors with eigen value above 1 and to have a one-dimensional scale overall because the scale exceeds 30% of the total variance. The decision for unidimensional scale was based on the AFA. The factor structure of the items is as shown in the table below.

Table 4

Factor Structure of Scale Items

Components matrix	
Items	Variances of items
S1	.609
S2	.602
S3	.720
S4	.692
S5	.680
S6	.644
S7	.672
S8	.759
S9	.691
S10	.682
S11	.704
S12	.737
S13	.682
S14	.728
S15	.691
S16	.550
S17	.747
S18	.728
S19	.776
S20	.807
S21	.763
S22	.693
S23	.746
S24	.763
S25	.673
S26	.503
S27	.663
S28	.579
S29	.731
S30	.816
S31	.683
S32	.704

When the table was examined, it was seen that the scale explains 48.68% of the total variance at the level of sustainability of education with a one-dimensional structure. As a result of the factor structure, it was found that the common variances of the item varied between .50 and .81. The fact that the factor load values of the scale range from .50 to .81 and have high factor loads supports a one-dimensional scale structure. From these findings, the construct validity of the scale was found to be high. According to the Cronbach's Alpha test, the reliability coefficient of the scale was calculated as 0.96. So the scale was found to be highly reliable.

Results of Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is used to check whether a defined and restricted structure is verified as a model (Maruyama, 1998). It was determined with CFA whether the explained factors were verified in the other study group. In order to test the validity of the model in the CFA, fit indices such as Chi Square Fit Test, Goodness-of-Fit-Indices (GFI), Adjusted Goodness-of-Fit Index (AGFI), Root Mean Square Residuals (RMR), and Root Mean Square Error of Approximation (RMSEA) were examined. The ratio of chi square to degree of freedom ($\chi^2/df < 5$) determined with CFA to be less than 5 indicates that the model is in good fit with real data (Sümer, 2000).

For model data fit, RMS or standardized RMS and RMSEA values are expected to be less than 0.05, while GFI and AGFI values are expected to be higher than 0.90. Conversely, GFI value higher than 0.85, AGFI value above 0.80, and RMS value lower than 0.10 are taken as criteria for the model fit with real data (Anderson & Gerbing, 1984; Schermelleh-Engel, Moosbrugger & Muller, 2003). The fit index values obtained from the confirmatory factor analysis conducted to check validity of the scale after exploratory factor analysis were compared against the criteria in the literature. For construct validity of the scale of sustainability of education, CFA was performed in the second study group. For the CFA, calculated values were as $\chi^2 = 1472.03$; $df = 464$ and $p < .0000$. As the model revealed $\chi^2/df = 1472.03/464 = 3.17 < 5$, other fit indices of the model were examined. Other goodness-of-fit test of the model were examined by comparing against criteria in the table 5.

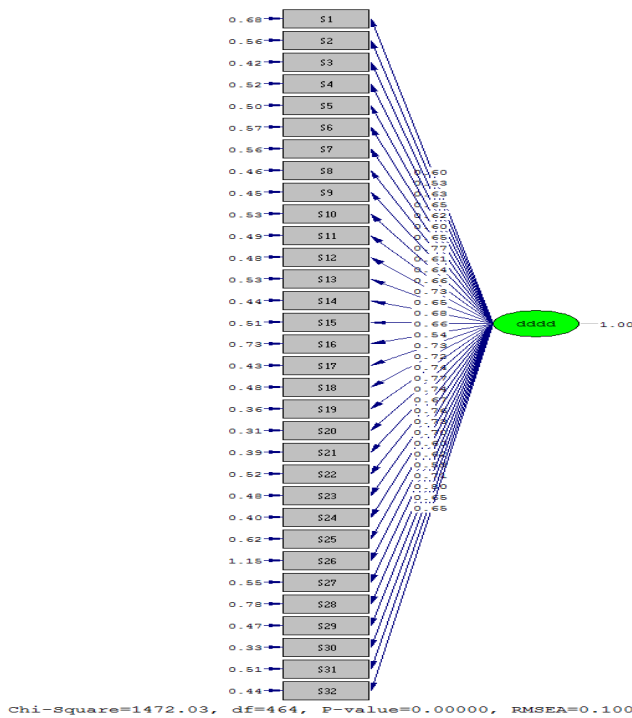


Figure 3. CFA Values of the Education Sustainability Scale

Table 5

CFA fit index test of the model

Goodness-of-fit test	Acceptable	Model Data
p	<.05	0.000
χ^2/df	<5	3.17
RMSEA	<.010	0.10
RMR	<.05	.05
NFI	>.95	.94
CFI	>.95	.96

When the values in the table are examined, the values of RSMSEA, RMR and NFI values are not found within the acceptable range. Therefore, modification was applied on items that will decrease the chi square value. The resulting CFA χ^2/sd is displayed in the figure and other goodness-of-fit test are shown in the table below.

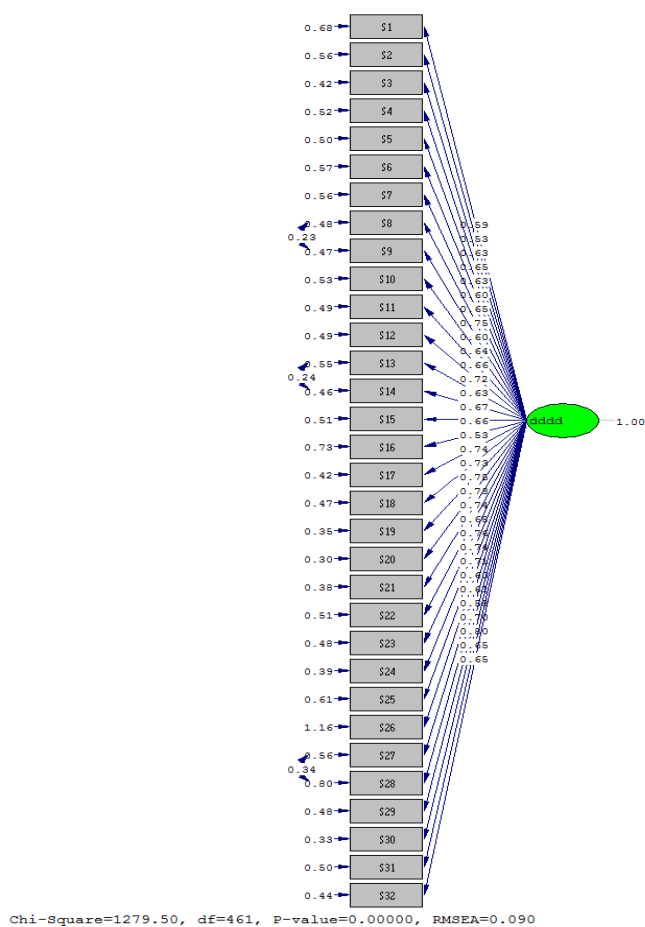


Figure 4. CFA values of the Educational Sustainability Scale (Modification Values)

As seen in the figure, the modification yielded the value of $\chi^2/sd= 1279.50/461= 2.77$ and RMSEA =0.09. As a result of the modification, the other goodness-of-fit test appears as in the table 6 below. It was observed that the goodness-of-fit test calculated from the CFA fall within the range of acceptable values.

Table 6*CFA fit index test of the model (Modification Values)*

Goodness-of-fit test	Acceptable	Model Data
p	<.05	0.000
X ² /sd	<5	2.77
RMSEA	<.010	0.09
RMR	<.05	.05
NFI	>.95	.95
CFI	>.95	.97

It was seen that the error variances in the analysis vary between .33 and .76 and factor loads vary from .33 to .76. These findings all together imply that the scale of sustainability of education is verified. It satisfies the necessary fit indices.

Results of Reliability

For reliability of the education sustainability scale, Cronbach's Alpha coefficient was examined. The reliability coefficient of the scale was calculated as .96. It indicates a highly reliable scale. Once reliability and validity of the scale were ensured, 5-point rating type was used (1 = Totally Disagree, 2 = Disagree, 3 = Agree, 4 = Partially Agree, 5 = Completely Agree). The minimum and maximum scores in the scale are 32 and 160, respectively. Higher scores obtained from the scale refer to increased sustainability of education.

Statistical Findings about Disposition to Sustainable Education

First of all, teachers' views about the disposition to sustainable education was determined by the developed scale. The findings are given in table 7.

Table 7

N	max	min	\bar{x}	Sd
370	4.1	3.3	3.8	.6

According to the teachers' views, the standard deviation (sd) for the level of sustainable education disposition was calculated as .6 and the mean as 3.8. So it can be inferred that the teachers have a high level of disposition to sustainable education. The results of independent t-test on whether teachers' views differ according to gender variable are as shown in the table 8.

Table 8*Analysis of Teachers' Views on Sustainable Education Disposition by Gender*

	N	\bar{x}	Sd	t	p
Female	167	3.72	.51	-3.62	.000
Male	203	3.98	.48		

As can be seen in the table 8, it was found out that teachers' views on sustainable education disposition differ between genders ($t = -3.62$, $p < .05$) in favor of males. In other words, male teachers hold more positive views on sustainable education disposition compared to their female peers. The results of ANOVA test regarding whether teachers' opinions differ by type of school are as shown in the table 9 below.

As it can be seen in the table 9, it was found out that opinions of teachers regarding sustainable education disposition do not differ according to type of school ($F_{(2-367)} = .53$, $p > .05$). That is to say, teachers working in different types of schools hold similar views regarding sustainability of education.

Table 9*Analysis of Teachers' Opinions regarding Sustainable Education Disposition by Type of School*

School Type	N		Sum of Squares	Mean Square	F	p
Primary	83	Between- groups	.51	.25	.53	.58
Secondary	137	Intragroup	176.90	.48		
High School	150	Total	177.41			

Discussion, Conclusion and Recommendations

This study was carried out to design an instrument of measurement about disposition to sustainable education. After the scale was prepared, the level of disposition to sustainable education level was investigated by means of teachers' views. At the same time, it was examined whether or not these levels differ according to the variables such as type of school or gender.

The study started with a review of literature for preparing the pool of items to be included in the scale on sustainability of education. The literature review was performed for education for sustainability since only a limited amount of literature is available specifically about our concern. Then statements which explain the concept of sustainable education and which indicate the existence of sustainable education were drafted by the researcher and revised in the light of expert opinions. Explanatory factor analysis was performed with the data and the scale was found to be one-dimensional with 32 items. After the explanatory process, the goodness-of-fit test was found within the acceptable limits. According to the reliability tests obtained from both study groups, the scale was found to be reliable.

The scale of sustainable education disposition is expected to contribute to the particular field because it is an important term which has universal implications, handles the phenomena in the core of education, and discusses problems recently coming onto the agenda in relation with the matter of sustainability from an educational perspective. Sandel, Öhman and Östman (2005) state that every single person plays a role in achieving sustainable development and that this role lies at the base of nature, school and democracy. In this regard, it seems important to use a valid and reliable measurement tool to test the implementation of sustainable life in the context of education. The scale of sustainable education disposition is an instrument which helps understand the extent at which the existing education system seems eligible for sustainable education. For eliminating obstacles before sustainable education, changes in one dimension only may not be enough. It might be needed to put into life changes in many other dimensions, such as teacher qualifications, educational policies, educational economics, programs, management and philosophy. Sund and Wickman (2008) suggest that teachers should have better teaching methods for sustainable development. They add that if teachers express their wish to change teaching practices for reflective teaching, it would bring about the same expectation for sustainable education. In order for the current generation to keep up with the changing world conditions and for the education provided to apply to the next generation, sustainable education could be utilised. If education continues to be used as a political tool to create a predetermined society, we might be faced with the risk of education losing its emancipatory and democratizing potential (Jickling, 2003). In contemporary education, many studies have linked a teacher-student perspective and a shared responsibility for learning between teachers and students with the idea of sustainability (Scott & Gough 2003).

It can be suggested that, once the status of schools (according to the size of school, location, school culture and climate, school type, etc.), as sub-elements of the system, is determined; the status of other dimensions can be disclosed so that conditions of sustainable education can be set out. In particular, efforts to be exerted by experts in different disciplines to achieve sustainable education can help to make the issue more concrete. In this regard, sustainable education refers to a universally sustainable education approach rather than practice in a single city, region or country because it is based on an educational paradigm that each individual lives in a balance in the world and that each individual is responsible for the place where he lives. Wals and Jickling (2000), Lijmbach et al. (2002), Rauch (2002) and Stables and Scott (2002), in diverse ways though, put forward that, towards the goal of attaining

sustainable development, free-thinking as a result of the democratic mission of universal education and operational competence of this mission would represent the essential components of the future. Still, there is an obstacle beyond that, which is the fact that human habits affect sustainability (Wickman, 2004).

Utilizing the sustainable education disposition scale in national and international contexts could determine the local and universal conditions for disposition to sustainable education. It will also allow comparison of the analyses on validity and reliability of the scale. Determining the level of sustainable education disposition can in turn provide clues about changes to be applied in the education system. Predominantly in developed countries (England, Canada, Sweden, Finland, etc.), it has automatically come to the agenda to make changes in teaching methods, educational contents, and teacher qualifications in various educational paradigms since these states seem to focus on education for sustainable development.

This study has revealed that teachers' views indicate a high disposition to sustainable education in the current status. Also, it was concluded that teachers' views on sustainable education disposition showed a significant difference against gender variable but did not show a significant difference by school type. Male teachers have higher disposition in sustainable education than female teachers. Still, teachers' views on sustainable education disposition do not seem to change in different types of schools. At the moment, it seems unlikely to make an evaluation or comparison on this issue, since no other example comparable to this study was accessible in the literature.

Last but not the least, the measurement tool developed to determine the sustainable education disposition as the first step of achieving sustainability in education system is likely to contribute to not only the literature but also practitioners with information about the quality of education. In the future, the use of scale to determine the level of sustainable education disposition in distinct settings will serve to reach clearer and more precise results since it will help generalize the results of the present study. Moreover, departing from the relationship between sustainable education and various disciplines, it is recommended to study the concept at interdisciplinary scale engaging educational sciences and social sciences at the same time (economy, sociology etc.) based on the relationship of sustainable education with different disciplines. This study was carried out with quantitative method. However, qualitative studies or mixed method studies could be conducted so that they can mediate concretization of sustainable education.

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Appendix 1
Sustainable Education Disposition Scale

Dear Participants,

This study aims to determine the sustainability level of education. Your thoughts are invaluable, for they contribute well to the results of this study. Therefore, I request you to give your replies to the items below by marking (X) options that best suit you. Thank you very much in anticipation.

Gender : Female () Male ()

School Type : Primary School () -Secondary School () - High School ()

No	ITEMS In this school,	I absolutely disagree	I disagree	I agree	I partially agree	I absolutely agree
1.	Democratic participation is ensured in the implementation of the decisions made.					
2.	Teachers and students are conscious of learning to learn.					
3.	Teachers and students embrace the attempts towards change.					
4.	School and its environment are integrated for expert, resource and learning in school-environment relationships.					
5.	Students are made to be sensitive towards the needs and rights of the next generations.					
6.	Replies to the questions “How far have we come so far?” and “How far more do we want to go?” are sought by school stakeholders.					
7.	Educators are aware that every little positive change contributes to the whole school.					
8.	Education provided to students enable them to be future-oriented upon making decisions.					
9.	Students are made to make connections between their daily life and global-environmental problems.					
10.	Education is based on making students sensitive about leading a balanced life with animals and the nature.					
11.	Students are taught the ways of learning to live together.					
12.	Studies that teach critical and creative thinking skills to students are focused more.					
13.	Learning outcomes are taught by associating local with global and the links of past-present-future.					

14.	It is believed that activities be reflected on the environment and society.					
15.	Useful information is shared with colleagues without hiding from them.					
16.	Misconducts are discussed by stakeholders.					
17.	Respecting everyone is valued.					
18.	Implementing the instructions timely without the fear of external audit is given importance.					
19.	Educators serve as models for students in following the ethical principles.					
20.	Fundamental rights such as organizational justice and equality are ensued.					
21.	Education contributes positively to students' moral development.					
22.	School stakeholders are sensitive to environmental problems.					
23.	Precautions are taken to prevent dangerous substances.					
24.	Resources that school has are used effectively.					
25.	Leaving the lights on and leaking taps are regarded as waste of energy.					
26.	Recycling bins are used to recycle the waste matter.					
27.	Results of global climate change are shared with students.					
28.	Students' awareness about the results of the use of nuclear energy and natural gas is raised.					
29.	Activities are organized to raise the awareness of students about the necessary precautions against natural disasters such as earthquake, flood, fire and soil erosion.					
30.	Common values are created through cooperation and sharing among school stakeholders.					
31.	It is believed that life-long learning be necessary.					
32.	Holistic relationships are ensured with the consciousness of the view that every individual has and belongs to the same world.					

Assessment of Criminal Charges Brought Against Teachers*

ArticleType	Received Date	Accepted Date
Research	21.11.2018	25.09.2019

Meltem Ökdem**

Abstract

The aim of this study was to assess the charges brought against teachers in criminal courts in Turkey. A qualitative research method was used in the study. The study used the document analysis method because it involved the study of legal documents. In order to determine what cases against teachers were brought to trial between 2004 and 2018, charges filed against teachers were obtained via *www.kazanci.com* and *www.LegalBank.com*_databases. The themes in the study were determined in accordance with the Turkish Criminal Law as crimes against the person, crimes against the nation and the state, and crimes against society. The study was initiated as a result of the fact that cases of violence in schools have increased rapidly in recent years. One factor in this is offenses committed by teachers, and this situation will cause grave social problems in the future if no measures are taken. It was found that most charges brought against teachers in the criminal courts were cases related to crimes against the person. This was followed by crimes against the nation and state and crimes against society. The curriculum of Faculties of Education should include courses such as human rights, education law, anger control and conflict management to raise teachers' awareness of these issues.

Keywords: Illegal acts, crime, punishment, teachers.

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** Assist. Prof. Dr., Vocational School of Justice, Çankaya University, Ankara, Turkey. E-mail: meltem@cankaya.edu.tr
<https://orcid.org/0000-0002-9155-6922>

Öğretmenlerin Ceza Mahkemelerine İntikal Eden Fiillerinin Değerlendirilmesi*

Makale Türü	Başvuru Tarihi	Kabul Tarihi
Araştırma	21.11.2018	25.09.2019

Meltem Ökdem**

Öz

Bu araştırmanın amacı öğretmenlerin ceza mahkemelerine intikal eden fiillerinin değerlendirilmesidir. Bu araştırma doküman analiz modeline dayalı bir araştırmadır. Bu çalışmada 2004-2018 yılları arasında öğretmenlerin ceza mahkemelerine intikal eden fiillerini tespit etmek üzere, www.kazancı.com ve www.LegalBank.com veri tabanlarından öğretmenler hakkında açılan davalara ulaşılmıştır. Bu araştırmada temalar Türk Ceza Kanuna uygun olarak oluşturulmuş olup kişiye karşı suçlar, millete ve devlete karşı suçlar, topluma karşı suçlar olarak belirlenmiştir. Bu araştırmanın yapılma nedeni son yıllarda okullarda şiddet olaylarının hızla artmasıdır. Bunun bir nedeni de öğretmenlerin saldırgan davranışlarıdır ve bu durum önlem alınmadığı takdirde gelecekte çok büyük toplumsal yapıda büyük yaralara neden olacaktır. Sonuç olarak öğretmenler hakkında ceza mahkemelerinde görülen davalar kapsamında en fazla kişiye karşı suçlarla ilgili davaların yer aldığı görülmüştür. Bunu millete ve devlete karşı suçlar ve topluma karşı suçlar izlemektedir. Okullarda öğretmenlerin öğrencilere şiddet uyguladığı ve çocukların cinsel istismara uğradığı da görülmüştür. Eğitim fakültelerinde insan hakları, eğitim hukuku, öfke kontrolü, çatışma yönetimi gibi dersler konularak öğretmenler bu konularda bilinçli hale getirilmelidir. Hizmet içi eğitim ile insan ve çocuk hakları konusunda öğretmenler bilinçlendirilmeli ve bu konulardaki farkındalığı artırılmalıdır. Okullarda rehberlik bölümü iyi çalışıp bu konuda öğrencilere gerekli desteği sağlamalıdır.

Anahtar Sözcükler: Hukuka aykırı davranışlar, suç, ceza, öğretmen.

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** Dr. Öğr. Üyesi, Çankaya Üniversitesi Adalet MYO. .E-posta: meltem@cankaya.edu.tr., <https://orcid.org/0000-0002-9155-6922>

Introduction

Teaching is one of the oldest, most sacred and important professions in human history. It is the duty of teachers to teach people what to do and not to do, and to teach the difference between good and bad, and right and wrong. Teachers have a very important role in ensuring that a child becomes a decent, honest, well-behaved and well-qualified person. But, as we learn from research or hear from the media and people around us, teachers may also be responsible for beatings, violence and other punitive acts. In other words, some teachers, who are supposed to protect and care for children, act against the core values of their profession. This research assessed the official legal documents relating to teachers who exhibited such behaviors, and, in particular, when they engaged in behaviors that were criminal. A first step was to define the concept of 'crime.'

Crime

Çopur (2015) defined crime as follows: "Crime is the actions that the law punishes or the acts and behaviors that are accepted and clearly defined by the legislative as being harmful and dangerous to society." Crime is a multifaceted concept, and has thus been the subject of many areas of study. Crime is defined in Turkish Penal Code as "an act punishable by law"; but the concept of crime varies according to many variables such as location, time and social structure (Çopur, 2015).

Crime includes many different acts, such as theft, robbery, assault, rape and murder. These acts suggest that the offender occupies a position at which criminal law and moral determinations intersect. However, disorderly conduct is not always considered a crime.

When the crime committed in Turkey is examined (Demirbaş, 2016), the main offences are homicide (28,996), attempted murder (1.821), sex crimes (15,226), fraud (5890), theft (42,589), forgery (8,874), drugs (35,385), plunder or extortion (22,881) and bodily harm (23,287). These figures are for 10 of the crimes committed or allegedly committed by prisoners and convicted prisoners who were in penal institutions in 2016. As is seen, these figures are substantial (Demirbaş, 2016).

People can commit crimes for many reasons. The importance of a crime is determined by its harm to the victim and society and by whether the perpetrator committed it intentionally or not (Soyaslan, 1996). Several studies have been conducted on factors affecting crime. Among these are economic, demographic, situational, social and cultural factors (Ayhan & Çubukçu, 2007). Various studies exist on this subject (Yıldırım, 2014; Doğan, 2011). Research has identified migration, war, poverty, unemployment, lack of awareness, irregular urbanization patterns, social deterioration, lack of respect for human dignity as the causes of crime (Menteşe, 2012).

Potentially Criminal Aggressive Behavior of Teachers in Schools

Acts of aggression can become criminal if no measures are taken and aggressiveness is a major problem both in schools and in social life in general (Carney, 2000; Smith, Morita, Jungler-Tas, Olweus, Catalano & Sleeve, 1999; Sullivan & Farrell, 1999). There is no official statistical data regarding aggression in schools Turkey; however, scientific studies show that the amount of aggressive behavior in schools should not be ignored (Alikasıfoğlu, Erginöz, Ercan, Uysal, Kaymak & İltar, 2004; Ögel, Tarı & Eke, 2005; Şahan, 2007). Since the incidence of violent acts in schools has been increasing in recent years, more attention has been directed to this issue and the prevention and reduction of violence in schools has become the subject of current studies. As emphasized in the "Intergenerational Transfer" theory, aggression and violence are learned behaviors, and if no measures are taken, they can cause irreversible problems in the social structure (Ayan, 2007). Families and teachers play an important role in children's acquisition of positive social behaviors and the development and maintenance of healthy relationships in society during the childrearing process. Children model themselves on their parents and then their teachers while growing; therefore, parents and teachers should be positive role models (Gençoğlu, 2014). However, as seen in the literature, teachers may exhibit aggressive behaviors toward students (Doğan, 2000; Çetin & Demirkasımoğlu, 2015; Mahiroğlu & Buluç, 2013; Gömlüksiz, Kilimci, Vural, Demir, Meek & Erdal, 2008). Studies have investigated the behaviors of teachers toward students and reported on those acts brought before the courts and that create major trauma for students. One of these studies on teachers' behaviors was conducted by Doğan (2000). In this study, conducted on 50,473 children between the age of 4-12, it was found that 62.6% of the children had been exposed to physical

punishment In another study conducted by Mahiroğlu and Buluç (2003), 59.5% of university students stated that they were subjected to physical punishment during their secondary education and that 51.8% of these punishments were imposed by school principals and assistant principals. According to the findings of research conducted by the Education and Science Workers' Union (Eğitim-Sen) (2003), teachers physically beat students in 40% of schools. In the Marmara and Eastern Anatolia regions, hair cutting punishments were imposed in 20% of schools, administrators reprimanded students in 66.80% of schools and teachers reprimanded students in 73.40% of the schools, and 30% of teachers and administrators carried a rod for corporal punishment in the school. According to the research, administrators beat students in 28.4% of schools. Beatings by teachers were most common in the Mediterranean region with 49%, and the Eastern Anatolia region with 46.5%. In the Marmara region, 37.5% of the teachers resorted to violence, while this percentage was 29% in Central Anatolia (). Criminal actions in schools impede education and training and damages the atmosphere in school (Uzbaş, 2009). Criminal action in a school may include intentional actions such as physical and psychological violence, as well as theft and damage to property. The mental health of children and adolescents exposed to violence may be impaired.

Gömleksiz, Kilimci, Vural, Demir, Meek & Erdal (2008) examined teachers' behavior towards students in the schoolyard from the perspective of children's rights. The results are deeply thought-provoking: it was determined that teachers used penalties incompatible with human dignity during assemblies. During the assemblies, some of the teachers pushed and shouted at the students to bring them into line and to be silent, shoved them, engaged in behaviors such as hitting, punching and kicking, and remained insensitive towards violence between students. In addition, it was found that during breaks they hit students with canes, rebuked them, and engaged in behaviors such as pushing, kicking and slapping them. The students accepted as natural the physical punishment imposed on them considered beatings to be disciplinary tools. It was determined that verbal and non-verbal violence were used more frequently in schools with a lower socio-economic level.

The purpose of this study is to determine the number and type of crimes committed by teachers, who should be responsible for maintaining an environment of trust in schools ,between 2004 and 2018 by examining legal documents and court records. This research is important in determining how well teachers, who are responsible for educating the citizens of the future, abide by the law. No prior study could be found investigating the behavior of teachers tried in criminal courts. The criminal offenses committed by teachers will be classified using the Turkish Criminal Law no. 5237.

Purpose

This study aimed to evaluate charges of criminal offenses committed by teachers that were heard in the courts between 2004 and 2018.

- 1) How many case involving teachers as the defendant were there?
- 2) How were these distributed by year?
- 3) What kinds of crimes did the teachers commit?

Method

In this study, the qualitative research method was preferred. In cases where observation and interview are not possible in qualitative research, written and visual materials are also studied beside these methods or with these methods. The “document review” method was used in this study to examine legal judgments. In this method, written materials with information on the subject to be investigated are examined (Yıldırım and Şimşek, 2016).

Data Collection

In the study, in order to determine which acts of teachers had been tried in criminal courts between 2004 and 2018, legal complaints filed against teachers were obtained via the www.kazancı.com and www.LegalBank.com databases. The keywords "teacher" and "school" were used in the databases' search engines. Cases between 2004-2018 were scanned and 403 criminal cases and 757 civil lawsuits were found. Civil proceedings were not included in the scope of the study and only criminal cases were

included. 403 criminal cases were examined and 66 of them were determined to meet the inclusion criteria and were included in the research. The reason for beginning the investigation of the cases from 2004 was that the Turkish Criminal Code was renewed on 26 September 2004.

Analysis of Data

The research data obtained through document analysis method were analyzed using content analysis method (Yıldırım & Şimşek, 2006). The acts of the teachers put on trial were grouped into three categories based on the Turkish Criminal Law no. 5237: "crimes against the person", "crimes against society", and "crimes against the state and the nation". These categories were divided into sub-categories as follows:

- a) Crimes Against the Person
- b) Crimes Against Society
- c) Crimes Against the State and Nation

A wide range of criminality is indicated since the law is very comprehensive. Here, the themes were created on the basis of the specific crimes committed by the teachers. In order to ensure the reliability of the study, randomly selected cases re-coded at different times by a research assistant who was studying criminal law. A 90% consensus was reached when the coding results were compared. A 70% consensus is required among coders for the reliability of research (Hall Vance & Van Hauten, 1983). It was concluded that the measurement of illegal act categories in this study was reliable since this percentage was exceeded. A code was assigned to each case in the presentation of the findings (such as D1, D2, D3) and the numbers and the years of the main decisions of the cases were shown in brackets.

Results

Table 1

The Distribution of Crimes Committed by Teachers by Year

Years	f
2004	3
2008	4
2013	2
2014	21
2015	14
2016	9
2017	13
Toplam	66

The distribution of crimes committed by teachers by year is given in Table 1. 66 cases related to teachers were found. When the distribution of these cases was analyzed by year, the highest number of cases was in 2014 with 21 cases, followed by 2015 with 14 cases, and 2017 with 13 cases. No cases were found for the years not indicated in the Table 1.

The frequencies of the criminal cases against teachers brought to court between 2004 and 2018 according to the categories are given in Table 2.

Table 2*Criminal Cases against Teachers Brought to Court between 2004 and 2018*

Cases Submitted to Criminal Courts	F
A-Crimes against the Person	
1-Crimes against life	
a- Man slaughter	4
2-Crimes against physical integrity	
a-intentional injury	17
b-reckless injury	3
3-Crimes against sexual inviolability	15
4-Crimes against liberty	2
5-Crimes against honor	5
6-Crimes against private life and private areas of life	4
7-Crimes against Property	7
B-Crimes against Society	
1-Crimes against public safety	3
2-General endangering crime	1
C-Crimes against the State and Nation	
1-Crimes against the reliability and functioning of the public administration	
a-Fraud	2
b-Abandonment or default in public service	2
2-Crimes against the judiciary	
a-Failure to inform the authorities	1
Total	66

When Table 2 is examined, it can be seen that 66 criminal cases were brought against teachers due to between 2004 and 2018 according to the www.kazanci.com and www.LegalBank.com websites. While 57 of these cases consisted of crimes against the person, four of them consisted of crimes against society and five cases consisted of crimes against the nation and state. Four of the crimes against persons constituted crimes against life and 24 of them consisted of crimes against physical integrity. Two of the crimes against society consisted of crimes against public safety and one of them was in the "general endangering crimes" category. The cases are examined under the following headings.

Cases Related to Crimes Against the Person

1- When examining the distribution of cases related to persons, it can be seen that the most frequent cases were those against physical integrity. 17 of these cases involved intentional injury and three of them reckless injury. The following is an example of a case related to intentional injury.

It is reported that the victim was injured by a slap to his ear by the accused teacher. In his interim report, dated 31.10.2008, "pain in the left ear, hyperemia and perforation in the left tympanic membrane" was reported..(D1,E. 2015/31119, K. 2016/9024,T. 11.4.2016).

2- Three cases were found with regard to reckless injury. The following case is an example of reckless injury:

The accused was standing at the entrance to the student's playroom with a tea cup in his hand shortly before midday, the mentally disabled victim Ö hit the tea cup in the hands of the defendant so that tea poured onto the defendant. (D6 E. 2015/8637 K. 2015/31013).

3- Fifteen cases of crimes against sexual inviolability were found among crimes against the person. An example is given below:

The defendant, who is a classroom teacher, called the 7 year-old victims, who were his students, to the teacher's desk, which was covered with tablecloth. He then committed major child sexual abuse by groping them in such a way that the other students in the classroom could not see when they were sitting normally..(D8 E. 2015/14-21 K. 2016/367)

4- Two cases of crimes against liberty were found among the crimes against the person. An example is given below:

The defendant invited the victim to his home on the date of event and, while in his home, said " I want to kiss you." The victim resisted this, but the accused continued to persistently repeat this statement (D21, E. 2014/4-761 K. 2015/364).

5- Five cases of crimes against honor were found among the crimes against the person. Libel and slander are considered crimes against honor. An example is given below:

The complainant, who is a data preparation and control operator in the District's National Education Directorate, alleged that the accused teacher used slanderous and threatening words towards himself such as "Why did you give up the task? You can't give the task to another person Who do you think you are? (D20, E. 2013/367, K. 2014/15639,T. 7.5.2014).

6- Four cases of crimes against private life were found. An example is given below:

The defendant sent an anonymous and unsigned letter to the constituent on 12 January 2011 stating there was an intimate relationship between the complainant, with whom he had previously been engaged, and the constituent who works in the same institution with her (D22,E. 2014/8709,K. 2014/26160,T. 22.12.2014).

7- Crimes against the property involve fraud and aggravated fraud. Seven cases were found in the research. An example is given below:

The defendant, who is a teacher in the [...]Elementary School, suggested that the complainant, who he previously knew, place a bid on the canteen and car park of the [...] High School which would be out of order...The accused [...] who was acting director in the A.N. Preschool on the date of the crime, allegedly made out false invoices and vouchers and cashed them himself (D30,E. 2014/8974, K. 2017/4596,T. 30.10.2017).

Crimes Against Society

Crimes against society are examined under two headings, crimes against public safety and general endangering crimes. One case was found for each heading. Examples of cases are given below:

1-General Endangering Crimes

"It was alleged that there was no more evidence than that of a criminal charge against the accused P. [...] It was understood that the accused teacher did not agree with the school's headmaster and, therefore, incited his student Ö to set fire to the school building in order to punishing the headmaster[...] (D24, E. 2006/8-132,K. 2006/160,T. 13.6.2006).

2- Crimes against Public Safety

Forgery of Official Documents

In the prosecution it was claimed that the accused committed the crime of forgery of official documents by adding to the answer sheets of the students named [...] and [...] in order to inflate the grades of a geometry class in September 2012 ... (D27,E. 2017/4404, K. 2017/9121,T. 19.12.2017).

Crimes Against the State and Nation

Crimes against the state and nation are categorized as crimes against the reliability and functioning of the public administration, and crimes against the judiciary. Two cases regarding fraud and two cases regarding abandonment or default in public service were found in crimes against the public administration. Examples are given below:

1- Crimes against the reliability and functioning of the public administration

Fraud and Abandonment or Default in Public Service

The accused [...], who was Acting Director in the A.N. Preschool on the date of crime, allegedly made out false invoices and vouchers and cashed them for himself and other accused persons serving as teacher and assistants in the same school, thus allegedly committing a crime (D30,E. 2014/8974, K. 2017/4596,T. 30.10.2017).

2- Crimes against the judiciary

Failure to inform the Authorities

With regard to the fact that the accused persons, who are teachers, were absent for one day in accordance with the decision taken by their union, regardless of the occurrence of crimes, for unlawful reasons (D33,E. 2003/1992 K. 2004/7607 T. 15.6.2004).

Discussion, Conclusion and Recommendations

This study found that crimes against the person were the most common criminal charges brought against teachers between 2004 and 2018. This was followed by crimes against the state and nation and then crimes against society.

Crimes involving intentional injury were the most common crimes against the person, and in this category incidents of violence against students were most common. In one case, as a result of being slapped by his teacher a preschool student experienced bleeding, vomited, and lost consciousness. In another case, the teacher hit the child on his ear and ear damage occurred. Injuries caused by a stick/cane used as a weapon indicate an abuse of power by the teacher.

Although corporal punishment should no longer exist in the educational system, beating and other violent actions are still unavoidable in Turkey. In this study, it was seen that the majority of the cases of teachers in the criminal courts consisted of offences against physical integrity and these acts were carried out intentionally by teachers. Further discussion is needed on beatings and violence against students in the education system, especially as carried out the teachers. Studies generally commend that educational activities related to the subject of the research be increased; however, in this research, the subject is teachers themselves and their use of violence against students. This is an issue of great importance in Turkey, given that most beatings are ignored by families and students and do not become criminal cases. Beatings and violence are difficult to avoid, but such behavior cannot be tolerated and previous measures taken in this regard are insufficient. Although there have been many studies on violence in schools, incidents of violence have still occurred in recent years, and these have made schools far from safe places (MEB, 2015). Violence in school occurs not only between students, or between teachers and students, but also between school administrators and staff (Kızmaz, 2006). This study examined the cases in which criminal charges were brought against teachers. The results show that teachers and administrators use violence in the school.

Yavuz et. al. (2003), in their research with high school students, found that while students experienced physical violence in both the school and family environment, female students primarily experienced domestic violence and male students primarily experienced violence in school. It has been determined that the violence experienced in the school is mostly instigated by teachers.

The violence that the child is exposed to at school can have a negative impact their future life. Students, who perceive the aggressive behavior of their teachers as a normal way of exerting social influence and resolving conflict, can internalize these behaviors through "social learning". Teachers and

the school staff play an important role in the development of the child's psychological and social skills. While teachers are models for students in helping them gain abilities such as conflict resolution skills, empathy and respect for others, their friends also affect their behaviors by example (Şemin, 2016).

Teachers' behavior towards their students also affects their relationships; a teacher who uses violence will inspire fear in their students rather than respect. This also negatively affect show they communicate. Fear, anger, aggression, low self-esteem, insecurity, communication problems, dislike of authority, and peer relationship problems can be seen in students who are subjected to violence from their teachers, and this can lead to learning problems, which can affect development. This may also cause disorders such as sleep problems, school phobia, depression, and anxiety (Kasapçı, 2016).

The man slaughter files of the teachers were also examined. In one case, the student was exercising for May 19 activities, failed to support himself with his hands and fell onto his neck, eventually dying. As a result of this incident, the teacher was also charged with man slaughter.

This study found that among the charges brought against teachers in the criminal courts, the second most common offenses were crimes against sexual inviolability. Research show that children are most often abused by people they trust most. Other studies support these findings. Türk (2018) conducted research in primary schools and stated that all of the administrators and psychological counselors participating in the research had witnessed sexual harassment of students in primary schools, and that the perpetrators could be students, teachers, and school staff. When the criminal cases brought to court are examined, the results of the studies which determine that sexual harassment towards students are common in schools are revealed in parallel with the results (Türk, 2018). Many sexual harassment behaviors are hidden in schools. Talking about sexuality in patriarchal societies often causes many objections. Therefore, sexual harassment cases are often not discussed (Sexual Education Treatment and Research Association, 2006). Incidents of sexual harassment in the family, and sometimes even in the school environment are hidden. The findings of the study conducted by Turk (2018) support this notion. Sexual harassment occurs in schools worldwide. In the study conducted by Robinson (2006) in Australia, incidents of sexual harassment incidents by boys were not taken seriously and were defined as a joke. Another finding shows that the sexual abuse of male students is a common situation (Chiodo, Wolfe, Crooks, Hughes & Jaffe, 2009). In his study "Reflections of Ethical and Unethical Behaviors of Teachers and Administrators in the Media", Çetin (2015) revealed a total of 184 unethical behaviors teachers engaged in that were reported in the media. 85 of these cases were sexual harassment incidents against students. These figures seem to support the findings of this research and suggest that measures should be taken against sexual harassment of children in Turkey

The next most encountered offenses were crimes against property. Fraud is considered in this group and charges of fraud were brought to the criminal courts. One teacher introduced himself as a Department Manager in the Directorate of National Education and demanded money from a man to whom he promised to employ his daughter in a school as an assistant. In another case, the accused, who was a teacher in an Elementary School, told a complainant whom he previously knew that the canteen and car park of a high school was going out to tender. The accused said that he was a close friend of Director of National Education of the area, and knew other people in the commission, and, after saying that he could offer a good deal depending on the tender proposal, then received money from the complainant. This study shows that the penalties imposed are not sufficiently deterrent. The study showed that teachers committed offenses against honor as well.

Among the crimes against society, crimes against public safety and general endangering crimes were found. The number of cases was low. As a general endangering crime, it was found that one teacher instigated his student to set fire to a school building because he was angry with the school principal. As a crime against public safety, the teacher who forged official documents can be given as an example.

Among the crimes against the state and nation, crimes against the reliability and functioning of the public administration and crimes against judiciary were found. In this category, cases of fraud, abandonment or default in public service, and failure to inform to the authority cases were identified. In one fraud case, it was seen that the teachers got an additional course fee although they did not participate in the seminar. In his study on teachers and administrators, Çetin (2015) found cases of neglect of duty and negligence involving 11 teachers and 20 administrators reported in the media.

Recommendations

Students should be educated. They should be told that their bodies are private and should not allow anyone to touch their body, and that if they are faced with such a situation, it is not their fault. They should be told from whom they can get help in such situations.

Some programs have been implemented around the world to prevent this from happening. These programs generally focus on issues of gender equality in schools, an explanation of the relationship between violence and harassment, dealing with harassment, what to do when harassment is encountered, how and from whom to ask for help. Such programs should also be implemented in Turkey.

The curriculum of Faculties of Education should include courses such as human rights, education law, anger control and conflict management. In this manner teachers awareness of these issues will be increased. This study found that in one case a teacher sat next to one of the students and put his arm around her shoulder. The teacher may perhaps have thought that this behavior demonstrated affection, but it is better for the male teachers not to touch female students in any way. Teachers should be taught that they should not engage in such behavior, even if they are acting in good faith.

Teachers should be more carefully selected. A psychological and personality test could be applied before they assume their duties.

More attention should be paid to this issue and additional research should be conducted.

School counselors should embrace these matters, be particularly sensitive to case of child abuse cases, and intervene immediately.

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