The Digital Burnout Scale Development Study

Pınar ERTEN, Bingol University, 0000-0003-3114-6064
Oğuzhan ÖZDEMİR, Fırat University, 0000-0002-5310-6605

Abstract

Digital burnout occurs as a result of spending excessive amounts of time on digital devices. It causes stress, fatigue, desensitization toward the environment, loss of interest, and physical and mental problems. This study developed a scale to determine digital burnout levels. Digital natives and digital immigrants were selected as the study group. Exploratory and confirmatory factor analysis was done to determine the scale's structure validity. Cronbach's alpha reliability coefficient was used to determine the reliability. These procedures generated a scale with 24 items in three sub-factors: digital aging, digital deprivation and emotional exhaustion. The scale has a valid item content and structural validity. Its Cronbach's alpha coefficient was 0.946. It is thought that the digital burnout scale will contribute to the field. This study can be a reference for detecting digital burnout levels. By detecting digital burnout levels, people may notice their situation and seek solutions.

Keywords: *Digital burnout, scale development, digital aging, digital deprivation, emotional exhaustion.*

İnönü University
Journal of the Faculty of Education
Vol 21, No 2, 2020
pp. 668-683
DOI: 10.17679/inuefd.597890

Article type:
Research article

Received : 29.07.2019
Accepted : 21.06.2020

Suggested Citation

Erten, P. & Özdemir, O. (2020). The Digital Burnout Scale Development Study, *Inonu University Journal of the Faculty of Education*, *21*(2), 668-683. DOI: 10.17679/inuefd.597890

Dijital Tükenmişlik Ölçeği Geliştirme Çalışması

Pınar ERTEN, Bingöl Universitesi, 0000-0003-3114-6064
Oğuzhan ÖZDEMİR, Fırat Üniversitesi, 0000-0002-5310-6605

Öz

Dijital tükenmişlik, çok fazla dijital kaynaklarla zaman geçirme sonucu oluşur. Zamanla stres, yorgunluk, etrafa karşı duyarsızlaşma, ilgi azalması, bedensel ve zihinsel sorunlar yaşanmaya başlanacak ve yaşama yansımaları olacaktır. Bu çalışma ile bireylerin dijital tükenmişlik seviyelerini belirlemeye yönelik bir ölçek geliştirilmiştir. Çalışma grubu olarak dijital yerliler ve göçmenler seçilmiştir. Ölçeğin yapı geçerliği için açımlayıcı ve doğrulayıcı faktör analizi gerçekleştirilmiştir. Ölçeğin güvenirliğini belirlemek için ise Cronbach alpha güvenirlik katsayısı kullanılmıştır. 24 madde ve "dijital yıpranma", "dijital yoksunluk" ve "duygusal tükenme" üç alt faktörden oluşan bir ölçek elde edilmiştir. Madde içerikleri ve yapı geçerliliği açısından ölçeğin geçerli olduğu görülmüştür. Cronbach Alpha katsayısı 0.946 bulunmuş. Dijital tükenmişlik ölçeğinin alana katkı sağlayacağı düşünülmektedir. Bu çalışma, bireylerin dijital tükenmişlik düzeylerini belirlemede bir referans olabilir. Dijital tükenmişlik seviyelerinin belirlenmesi ile bireyler kendi durumlarının farkına varabilir ve buna göre çözüm yolları bulabilirler.

Anahtar Kelimeler: *Dijital tükenmişlik, ölçek geliştirme, dijital yıpranma, dijital yoksunluk, duygusal tükenme.*

İnönü Üniversitesi
Eğitim Fakültesi Dergisi
Cilt 21, Sayı 2, 2020
ss. 668-683
DOI: 10.17679/inuefd.597890

Makale türü:
Araştırma makalesi

Gönderim Tarihi : 29.07.2020
Kabul Tarihi : 21.06.2020

Önerilen Atıf

Erten, P. ve Özdemir, O. (2020). Dijital Tükenmişlik Ölçeği Geliştirme Çalışması. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *21*(2), 668-683. DOI: 10.17679/inuefd.597890.

INTRODUCTION

The word, burnout means "the status of having became exhausted on strength, not endeavor" (Turkish Language Institution-Türk Dil Kurumu [TDK], 2017). Freudenberger (1974) defines it as running out of internal resources as a result of failure, exhaustion, reduced energy and strength or wishes that cannot be satisfied. According to Maslach and Jackson (1981), burnout is a syndrome of emotional exhaustion and cynicism (depersonalization) that often occurs due to working with people. Emotional exhaustion has dimensions of desensitization and personal success. Burnout syndrome occurs as a result of running out of emotional resources, is followed by emotional exhaustion, isolation and desensitization, and culminates in reduced personal success with feelings of inadequacy (Maslach & Jackson, 1981; Maslach, Jackson, & Leiter, 1996; Maslach, 1998).

The types of occupation-related burnout that are experienced in work environments are the most common subjects of research. The burnout, that manifests itself in many different symptomatic ways which vary in symptom from person to person, has both physical effects (fatigue, feeling of tiredness, cold blood, headache, gastrointestinal discomfort, sleep deprivation, dyspnea) and behavioral effects (short temper, becoming abruptly provoked, disappointment, not being able to control one's emotions, paranoia) (Freudenberger, 1974). These symptoms alter people's lives who suffer from burnout and reduces their quality of life and make them unhappy (Ardıç & Polatcı, 2008). When people's emotional, physical and cognitive energy resources are wasted and depleted, they experience reduced self-efficacy and self-respect, changes in relations with families and social environment, deteriorating health, stress, desperation and despair (Hobfoll & Shirom, 1993; Shirom, 2003). These negative affective responses proceed continuously (Demir, 2010).

Since burnout is both physical and psychological, people can go through different types of burnout in their lives (Bakoğlu Deliorman, Boz, Yiğit, & Yıldız, 2009). One type is digital burnout, which is one of the diseases of our age. With the 24/7 use of digital devices making it possible to do business outside traditional work hours, workers find themselves in a digital burnout that they do not know when to stop. Irresistible information flow and constant accessibility are harmful to people's health. The purpose of digital connection disappears, and stress increases. Digital burnout emerges in work environments as sleep deprivation, problematic relations at home and reduced organizational effectiveness in workplaces (Detecon, 2013; Quill, 2017).

The rapid development and expansion of technology have swept people into a digital lifestyle in which technologies affect their professional competencies and psychosocial development. Technology has substantial positive and negative effects on social relations, cognitive structure, behavior, emotions and psychological health. Since digital communication, technology and the internet have positive effects, they also have negative effects: envy, loneliness, depression, low self-esteem, addictive behaviors and impotency in relationships (Greenberg, 2016). Digital burnout's symptoms include low productivity, being unable to cope with routines, constant fatigue and inability to control emotions (Accountancy SA, 2015; Spalding, 2015).

According to Dion Chang (2016), one of the founding consultants of Flux Trends, digital burnout is a recent phenomenon that has yet to be understood. Its destructive outcomes are caused by people's virtual existence, while stress and tension caused by long work hours are the causes of traditional burnout. It is a digital age disorder that threatens individuals and also causes physical and mental disorders. Digital detox or midyear recesses are required to cope with digital burnout. According to Chang (2016), there is a friction between our online and offline worlds that has been growing for many years. It has become a significant source of conflict in families. People live in two parallel universes, the diminishing physical environment and a virtual world, where they spend most of their time. People have ways of using digital devices that leads them to spend more time on internet than sleeping and then try to discover the cyber world in their free time. Not being able to focus on work for more than a few minutes is a sign of digital burnout.

People's brains readjust themselves to be in permanent multitasking mode when they are always using and dependent on digital devices, leading to digital burnout (Chang, 2016). Constant availability causes an increase in mental disorders. They spend most of their time with digital devices. Average telephone users use their phones 150 times in a day and starts 10 apps, but addicts check their phones 900 times a day and starts 60 apps. As our addiction to digital devices becomes normal and accepted, realizing the need for digital recovery takes quite some time. Multitasking and information overload (also known as infoxication) tend to cause depression in women and cardiovascular diseases in men. People do not entirely disconnect their bodies and especially their brains from digital devices after spending time with them and turning them

off just before sleep. This stimulates their brain to be preoccupied and generates mental fatigue, physical fatigue and burnout (Grant-Marshall, 2014).

Technology is like any other tool that can be used in both favorable and unfavorable ways. The use of technology is alluring to people because of its quality and velocity. Yet, current technology should be assimilated in a reasonable way. The question of how we should interact with technology needs to be discussed and resolved.

The technological preferences and usage of different generations vary. Positive experiences with technology cause generations with positive perception, while negative experiences or lack of experience cause generations with negative perceptions (Gunuc & Kuzu, 2014). Digital burnout occurs as a result of spending excessive amounts of time on digital devices. Over time, stress, fatigue, desensitization toward the environment, loss of interest, and physical and mental problems will occur.

Studies on burnout have been carried out in many areas (Ardıç & Polatcı, 2008; Yildiz-Durak & Saritepeci, 2019; Yıldız-Durak & Seferoğlu, 2017; Freudenberger, 1975; Güven, 2013; Maslach & Jakson, 1985; Mandaviya, 2019). Most of these studies are related to burnout experienced by people working in various occupations. Therefore, scales for measuring such burnouts have been developed (Kristensen, Borritz, Villadsen, & Christensen, 2005; Maslach & Jackson, 1981; Seidman & Zager, 1986-1987). However, individuals who lead a digital life due to the rapid spread and use of technology experience physical, psychological and social problems. There is no tool in the literature to demonstrate this situation. It is important to identify these situations. In addition, it is thought that the development of this tool will make it easier for both individuals and experts to apply the necessary measures.

Evaluation can be done by using a measure to evaluate and pass judgments based on results about individuals, incidents, situations or objects (Ercan & Kan, 2004). It is thought that the digital burnout scale will contribute to the field.

Aim of the research

The purpose of this study is to develop a scale to identify digital burnout levels, and its validity and reliability studies of this Likert type scale were carried out.

METHOD

The Population and Sample of the Study

The population of the study consists of digital natives and digital immigrants (Prensky, 2001) who are digitally literate and can use and adopt digital technologies (Kazu & Erten, 2013). Purposeful convenience sampling (Erkuş, 2017; Sönmez & Alacapınar, 2016) was chosen in order to find individuals who were qualified enough to represent the features of the population of the study (Erkuş, 2014). The study was carried out in two implementations. Exploratory factor analysis was used on the data from the first implementation, and confirmatory factor analysis was used on the data that was obtained from the second implementation. The validity and reliability studies were carried out on all the total data from both implementations. Various types of analysis should be used in order to test the psychometric properties of items in a way that suits the variable that is to be assessed (Azaltun, 2008). The sample of the study consisted of 376 (286 high school, 138 university) students between the ages of 14 and 37 for the first implementation, and 283 (150 university students and 133 graduates) individuals between the ages of 18-48 for the second implementation. The population and sample of the study were chosen with the purpose of collecting generalizable data (Kuş, 2009). Administering the scale to different groups was intended to strengthen the validity and reliability of the study. Individuals' heterogeneity regarding the related property is desirable in scale development studies (Erkuş, 2017). The scale was administered to 437 individuals in the first implementation and 461 individuals in the second implementation. Since there were 376 usable data from the first implementation and 283 usable data from the second, statistical analysis was carried out using these data. Data from participants were collected by way of internet. In scale development studies, there need to be more participants than the variables subjected to factor analysis. The reliability of factors depends on the size of the study sample (Bryman & Cramer, 2005). There should be at least five participants per item and no less than 100 participants per analysis (Gorsuch, 1983). The size of the pretest sample to evaluate the psychometric properties of items should be between 100-200, and then confirmatory sample size should be at least 300 (Tay & Jebb, 2017). In the implementation of the structural equation model, sample size is 100 participants for low level and 200

participants for acceptable level (Gürbüz & Şahin, 2014). Sufficient sample size for factor analysis was achieved.

Scale Development Process

First, an item pool was formed after a review of the relevant literature (Büyüköztürk, 2005, p. 136). Burnout (Çapri, 2006; Freudenberger, 1974; Kristensen, Borritz, Villadsen, & Christensen, 2005; Maslach & Jackson, 1981; Maslach, Jackson, & Leiter, 1996; Shirom, 2003; Shirom, Melamed, Toker, Berliner, & Shapira, 2005), digital burnout (Accountancy SA, 2015; Detecon, 2013; Grant-Marshall, 2014; Quill, 2017; Spalding, 2015), digital fatigue (Tohlang, 2016), digital stress (Reinecke et al., 2016), digital health (Loos, 2017) and scale development (Akbulut, Kesim, & Odabasi, 2007; Ayas & Horzum, 2010; Burucuoğlu & Erdoğan, 2016; Korkmaz, Çakir, & Özden, 2017; Otrar & Argın, 2015; Şahin, 2016; Uğur & Turan, 2016; Yavuz Konokman & Yanpar Yelken, 2015; Yeşil & Aslanderen, 2017) studies were also examined. An item pool consisting of 68 items about the opinions of not only high school and university students, but also graduates, was formed. For the content validity of this scale (Erkuş, 2014, p. 8), which indirectly evaluates the responses of individuals to various stimulants, a computer teacher, a faculty member in the field of computer and instructional technology and an associate professor of educational sciences were consulted. The scale was finalized by determining whether its items were sufficient or suitable in terms of assessing the content and quality of the behavior to be assessed (Büyüköztürk, 2013, p. 179-180). A Likert-type scale with 40 items in total, was formed (Tavşancıl, 2010, p. 139). The response options were: entirely agree (5), agree (4), do not entirely agree (3), disagree (2), strongly disagree (1). Reverse coding was done for negative items. The data obtained from the participants were entered in computer software for validity and reliability analysis.

Data Analysis

Exploratory and confirmatory factor analysis techniques were used in order to determine the structural validity (Balcı, 2009, p. 113) that indicates the accuracy of the scale (Çokluk, Şekercioğlu, & Büyüköztürk, 2012, p. 177). Factor analysis provides a way of thinking about these relations by positing the existence of underlying factors or factor structures of face value statements in a correlation matrix (Comfrey & Lee, 1992, p. 6). Exploratory factor analysis is used to choose between principal components analysis, which may include purposes of the study, define latent structure or can be based on data reduction and mutual factor analysis. Confirmatory factor analysis, which uses a structural equation model, is used for validating the dimensional structure of the scale (Floyd & Widaman, 1995, p. 286).

The adequacy of the data obtained from a sample is determined with the Kaiser-Meyer-Olkin (KMO) test. It is evaluated as perfect as it closes to 1, and as unacceptable when it is below 0.50. Bartlett's test was performed because population distribution should be normal for factor analysis. The higher the results of Bartlett's test are, the greater the significance (Sönmez & Alacapınar, 2016; Tavşancıl, 2010). Internal consistency coefficients were calculated to determine the reliability of the scale. Cronbach's alpha reliability coefficient was used to determine the internal consistency levels of the scale items (Büyüköztürk, 2013, p. 181). The threshold for statistical significance level was <0.05.

In exploratory factor analysis, confirmatory factor analysis should be performed on the new sample, and it should be evaluated with the fit index number of the model after the occurrence of the theory-based dimensionality (Tay & Jebb, 2017). In scale development studies, validation of the present model with confirmatory factor analysis is expected after exploratory factor analysis (Erkorkmaz, Etikan, Demir, Özdamar & Sanisoğlu, 2013). Confirmatory factor analysis evaluates the consistency between the original structure and the pre-determined factor model (Çokluk et al., 2012; Doğan, 2015; Erkorkmaz et al., 2013; Sayın & Gelbal, 2016; Seçer, 2015). AMOS software (Çokluk et al., 2012) was used to test the model's hypothesis. General consistency and the consistency of the model and data are determined as statistical values by calculating model parameters (Çokluk et al., 2012; Erkorkmaz et al., 2013). This shows the general quality of factors and the tested model (Sümer, 2000). Several fit indices are used for the validity of the model, depending on the statistical software. Min 4, max 8 of fit indexes are used for model explanation because fit indices show how well a previously defined model explains the data (Ayyıldız & Cengiz, 2006). CMIN/DF (chi-square/degree of freedom), CFI, NFI, GFI and RMSEA values were used in this study. These values should be: lower than 3 for CMIN/DF correlation as perfect fit, higher than 0.90 for CFI value as good fit, lower than 0.08 for RMSEA value as good fit, closer to 1 for NFI, fluctuating between 0 and 1 for GFI values as perfect fit and closer to 0 for inconsistency (Çokluk et al., 2012; Hooper, Coughlan & Mullen, 2008; İlhan & Çetin, 2014; Seçer, 2015; Sümer, 2000; Yılmaz, 2004). Models have good fit not when goodness-of-fit tests are high, but when the correlations between variables are low. It is normal for the model fit indices of newly developed fields to be under the critical limit values (Ayyıldız & Cengiz, 2006).

Cronbach's alpha reliability coefficient was used to determine the reliability of the scale. A Cronbach's alpha value (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2016; Kline, 2016), which indicates the consistency of measuring test items completely, of 0.70 or higher is enough for reliability (Cronbach, 1951; Pallant, 2007; Nunnally, 1975).

FINDINGS AND INTERPRETATION

The Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity, which are used to determine the adequacy of data for factor analysis, were 0.916 and 6624.227 (p=0.000), respectively. KMO values should be 0.60 or higher, and values of 0.90 or higher to indicate excellent sample size (Kaiser & Rice, 1974; Pallant, 2005; Tabachnick & Fidell, 2007; Tavşancıl, 2010; Çokluk et al., 2012; Büyüköztürk, 2013). Bartlett's test P values lower than 0.05 are significant for factor analysis (Can, 2016; Pallant, 2007). These results indicate that data were adequate for factor analysis.

Whether the scale is unidimensional or not was determined using principal components analysis. In principal components analysis, the first principal component is added to total variance at the highest level, and other components are added to total variance at lower levels (Uğur & Turan, 2016). Of the scale items, 40 were found to have nine components with an eigenvalue of higher than 1 and a contribution to total variance at the rate of 60.831%. The effects of these nine components on total variance were: 29.224%, 7.375%,4.820%, 4.154%, 3.756%, 3.386%, 2.958%, 2.656% and 2.502%. In exploratory factor analysis, the number of factors is defined by eigenvalues higher than 1 and their effects on mutual variance and scree plots (Figure 1) (Can, 2016; Erkuş, 2014; Pallant, 2007; Reise, Waller, & Comrey, 2000; Sönmez & Alacapınar, 2016). Thus, the scale had a three-factor structure, and analysis was redone for these three factors. Varimax vertical rotation method was used as for principal components. This made it possible to determine the groups accumulating the items and increased the factor variances that were suitable for strong interpretation (Çokluk et al., 2012).

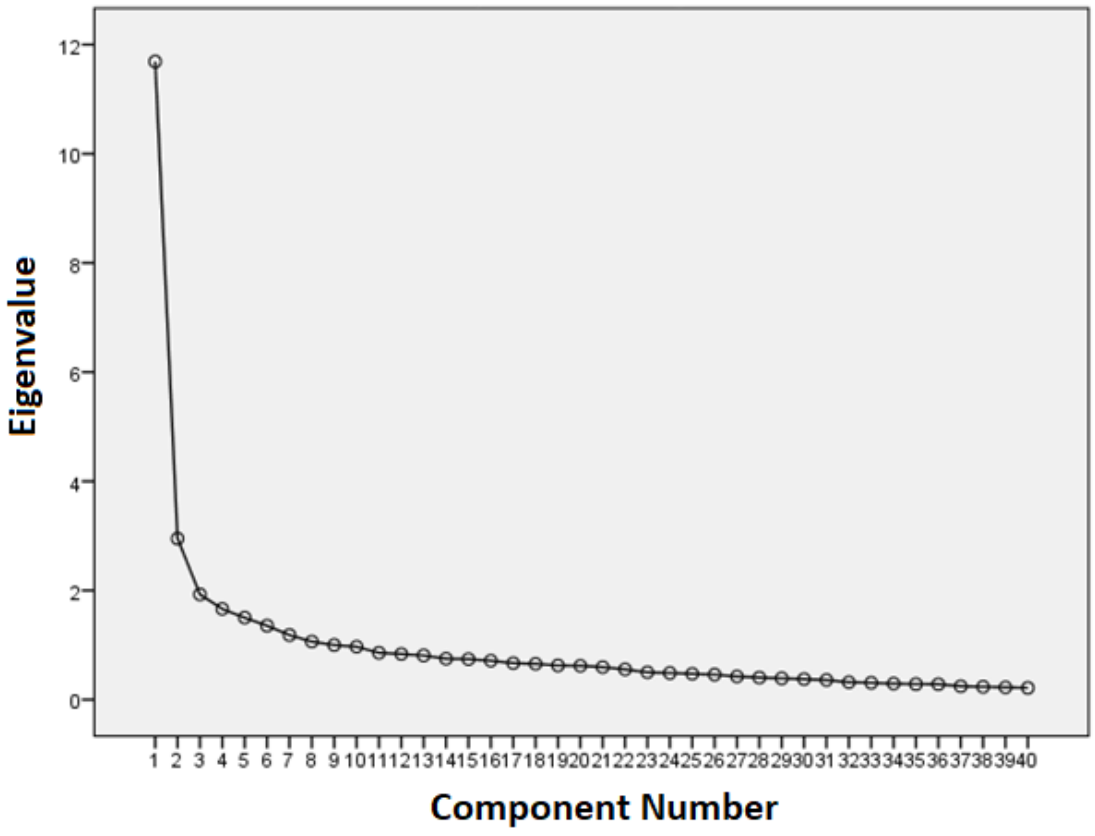

Figure 1. *Scree Plot*

In factor analysis, a factor loading value of 0.45 was chosen to exclude items that did not evaluate same structure. Thus, the items that best evaluated the structure of the scale were included (Büyüköztürk, 2013; Can, 2016). Some studies use factor loading values as low as 0.30 (Pallant, 2007) or 0.32 (Tabachnick & Fidell,

2007). The scale was finalized after the exclusion of items with factor loading values lower than 0.45 (Table 1).

Table 1

The Results of the Exploratory Factor Analysis of the Digital Burnout Scale

Items	**Mutual Factor Variance**	**Factor Loading**
First Factor: Digital Aging	**Explained Variance=17.241%**	
28. I have attention deficit.	0.446	0.560
29. I do nothing in the name of productivity.	0.336	0.501
32. I always feel tired.	0.426	0.569
34. I think that I will lose my mind one day.	0.519	0.685
35. I sometimes feel like my mind gets blurred.	0.487	0.669
36. I feel stressful.	0.535	0.692
37. My mind is always occupied with digital devices that I use.	0.526	0.681
38. Either my hand or my body aches as a result of constantly writing and checking messages.	0.455	0.528
39. I started to think that I have symptoms of depression.	0.522	0.651
40. A feeling of loneliness dominates me.	0.360	0.541
42. I am confused about my statue.	0.418	0.599
45. I feel restricted.	0.398	0.601
57. I cannot establish balance between the real world and the virtual world.	0.446	0.512
59. I spend long periods of time in the virtual world with digital devices.	0.494	0.538
67. I speak and look around less.	0.286	0.467
Second Factor: Digital Deprivation	**Explained Variance=12.828%**	
12. I feel uneasy when I do not have internet connection or I am offline.	0.494	0.626
13. I always think about which message I just received and what is happening.	0.505	0.634
15. I feel naked when I do not have my digital devices (phone, tablet, computer etc…) with me.	0.584	0.718
16. I check my tweets, facebook account, e-mails, messages all the time. If I don't, I feel weird or anxious.	0.627	0.753
17. I feel powerless when I do not have an internet connection or I am offline.	0.531	0.648
61. I fell most afraid of losing or forgetting my phone. This thought disturbs me.	0.482	0.588

Third Factor: Emotional Exhaustion	**Explained Variance=11.350%**	
2. I feel uneasy when I use digital devices excessively.	0.356	0.464
3. I feel worthless when I use digital devices excessively.	0.441	0.542
6. I feel exhausted due to virtual and digital worlds.	0.397	0.567
8. I almost feel nothing about events and situations around me.	0.448	0.620
9. I have become intolerant of and desensitized to the people around me.	0.585	0.701
10. I have become impatient.	0.591	0.683
11. I have become quick-tempered.	0.509	0.631
21. I think that my relationships and communications with people have been weakened.	0.478	0.589
23. I think that my face-to-face relationships have weakened.	0.351	0.534
Explained Total Variance: 41.419%		

There were 30 items left after the analysis. Since factor loading values fluctuate between 0.464-0.753 for all of the scale, their contribution to total variance was 41.419%. Explained variances between 40%-60% is sufficient for multi-factor scales (Çokluk et al., 2012). Factor loading values fluctuated between 0.467-0.692 for the first factor, 0.588-0.753 for the second factor and 0.464-0.701 for the third factor. The explained variances of the factors were 17.241%, 12.828%, and 11.350%, respectively. Mutual factor variances, which are formed by factors on every variable as a result of factor analysis, are required to be calculated for multi-factor structures. When this mutual factor variance, which has a value between 0 and 1, closes to 1, it means that its contribution to variance is high, and when it closes to 0, it means that its contribution is low (Çokluk et al., 2012). The scale was defined as valid according to item content and structural validity. After these procedures, the factors were named. During this process, the literature and the views of field experts were consulted. Since the variable with the highest factor loading value is taken as the basis (Karagöz, 2016), the first factor was digital aging, the second was digital deprivation, and the third was emotional exhaustion.

Confirmatory factor analysis was performed to validate the factor structures of the scale, which has three factors. A new sample of 283 people was selected for confirmatory factor analysis. This sample size is suitable for confirmatory factor analysis (Kline, 2016). The results of confirmatory factor analysis were sufficient: CMIN/DF=2.614 (Kline, 2005; Sümer, 2000), CFI=0.909 (Ayyıldız & Cengiz, 2006; Çokluk et al., 2012; Sümer, 2000), GFI=0.838 (Günüç, 2009; Yılmaz, 2004), NFI=0.861 (Yılmaz, 2004) and RMSEA=0.076 (Çokluk et al., 2012; Dursun & Kocagöz, 2010; Hu & Bentler, 1999; Kline, 2016; Yılmaz, 2004). Based on these results, it can be concluded that the model confirms the factors. The diagram of factor-item relationships is shown below (Figure 2).

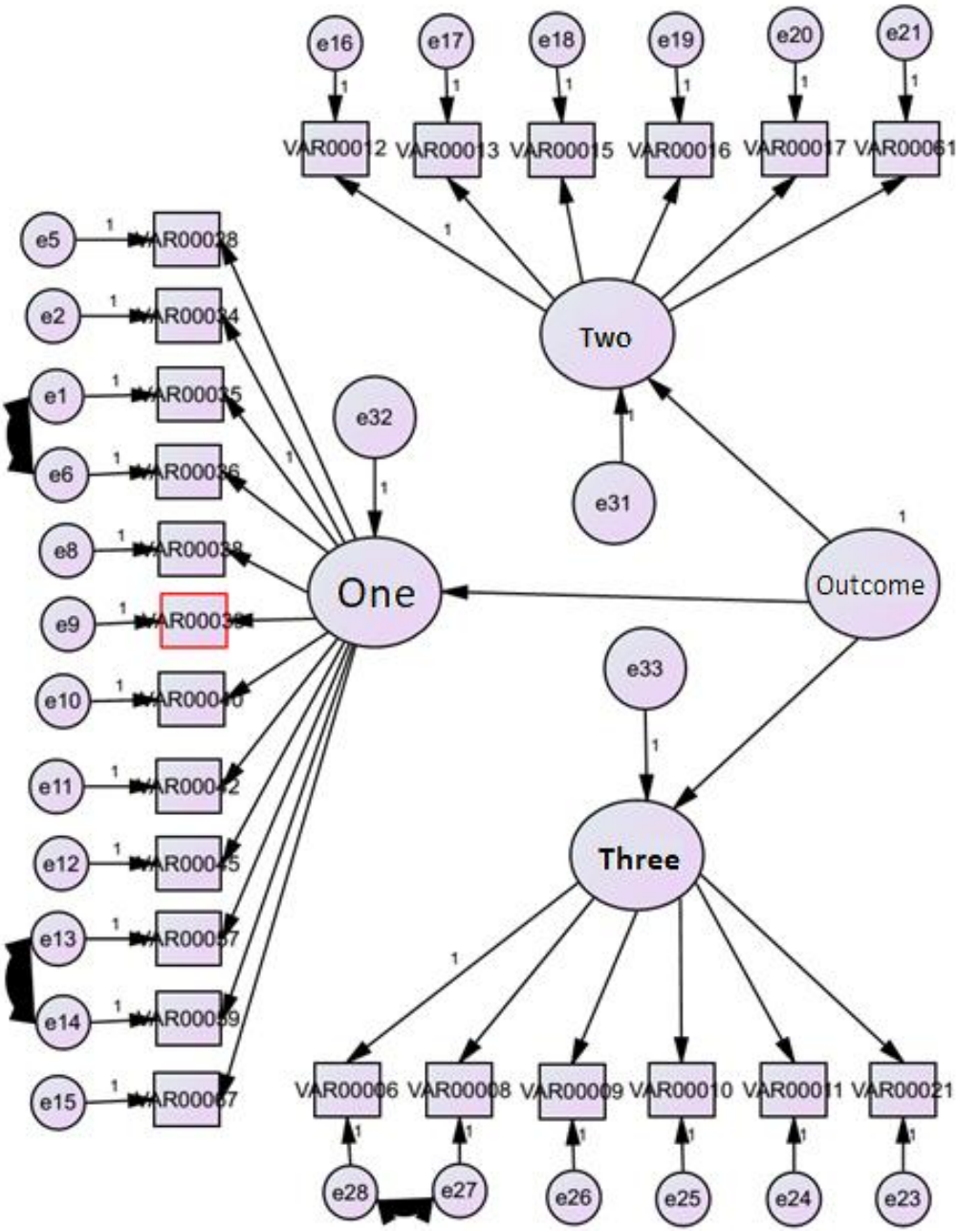

Figure 2. *The Confirmatory Factor Analysis Diagram of The Scale (One: Digital Aging, Two: Digital Deprivation, Three: Emotional Exhaustion, Outcome: Digital Burnout)*

The scale was finalized according to the exploratory and confirmatory factor analysis (Table 2), and a scale with 24 items in 3 factors was obtained.

Table 2
The Final Version of The Digital Burnout Scale

Factor	Item No	Items
Digital Aging	28	I have attention deficit.
	34	I think that I will lose my mind one day.
	35	I sometimes feel like my mind gets blurred.
	36	I feel stressful.

Factor	Item No	Items
	38	Either my hand or my body aches as a result of constantly writing and checking messages.
	39	I started to think that I have symptoms of depression.
	40	A feeling of loneliness dominates me.
	42	I am confused about my statue.
	45	I feel restricted.
	57	I cannot establish balance between the real world and the virtual world.
	59	I spend long periods of time in the virtual world with digital devices.
	67	I speak and look around less.
Digital Deprivation	12	I feel uneasy when I do not have internet connection or I am offline.
	13	I always think about which message I just received and what is happening.
	15	I feel naked when I do not have my digital devices (phone, tablet, computer etc…) with me.
	16	I check my tweets, facebook account, e-mails, messages all the time. If I don't, I feel weird or anxious.
	17	I feel powerless when I do not have an internet connection or I am offline.
	61	I fell most afraid of losing or forgetting my phone. This thought disturbs me.
Emotional Exhaustion	6	I feel exhausted due to virtual and digital worlds.
	8	I almost feel nothing about events and situations around me.
	9	I have become intolerant of and desensitized to the people around me.
	10	I have become impatient.
	11	I have become quick-tempered.
	21	I think that my relationships and communications with people have been weakened.

The Cronbach's alpha coefficient, which is the reliability level internal consistency method, was calculated as 0.946. It meets the suggested criteria of being 0.90 or higher (Tay & Jebb, 2017). The Cronbach's alpha coefficient was 0.919 for the first factor, consisting of 12 items, 0.885 for the second factor, consisting of 6 items, and 0.865 for the third factor, consisting of 6 items. Accurate predictions for the general population of the study were able to be made as the reliability of the scale improved (Ercan & Kan, 2004). Thus, the entire scale and its sub-factors are reliable.

CONCLUSION AND RECOMMENDATIONS

The digital burnout scale was developed to detect burnout due to the use of digital technologies in daily life. First, a literature review was carried out, and items were written for a Likert-type scale. Individual and situational characteristics that indicate digital burnout were taken into consideration. A draft of 68 items was sent to experts for content validity. The scale was renewed according to the items that should be regulated or removed. The resulting 40-item scale was administered to the sample, and the results were subjected to exploratory factor analysis. The scale was determined to have 30 items in three factors. The factor loading values met the criteria for structure validity in terms of explained variance values and eigenvalues. Confirmatory factor analysis was performed after exploratory factor analysis. Its results confirmed the

validation of the model by the data. The relevant literature was reviewed in order to determine the validity of the scale; however, similar scales' validity could not be calculated because no scales with the same content and purpose were found. The Cronbach's alpha value of the 24-item scale in three factors was found to be sufficient. The digital burnout scale was confirmed to be reliable and valid by reliability, exploratory and confirmatory factor analyses. Scales that are tested for reliability and validity and found sufficient enable practitioners to obtain valid data (Ercan & Kan, 2004). Therefore, studies that will contribute to the literature can be carried out with this scale. This study can be a reference for detecting digital burnout levels. By detecting digital burnout levels, people may notice their situation and seek solutions. This study contributes to taking measures for a healthier and higher quality of life.

The digital burnout scale has been developed to appeal to a wide segment. In future studies, it is thought that applying to individuals in different professions or students at different levels will contribute to the validity and reliability of the scale. Its inclusion in future research studies will enable us to achieve a better understanding of the personal, social and institutional variables that either encourage or reduce the emergence of digital burnout. In addition, it is thought to be useful to identify the variables predicting digital burnout. It is thought that by determining the levels of digital burnout of individuals, field experts will refer to the necessary measures.

Çıkar Çatışması Bildirimi

Yazar(lar), bu makalenin araştırılması, yazarlığı ve / veya yayınlanmasına ilişkin herhangi bir potansiyel çıkar çatışması beyan etmemiştir.

Destek/Finansman Bilgileri

Yazar(lar), bu makalenin araştırılması, yazarlığı ve / veya yayınlanması için herhangi bir finansal destek almamıştır.

REFERENCES

Accountancy SA, (2015). Not-so-smart new disease, In *UP-TO-DATE: Keeping you informed of business today.* Retrieved February 5, 2018 from https://www.accountancysa.org.za/up-to-date-keeping-you-informed-of-business-today-16/

Akbulut, Y., Kesim, M., & Odabasi, F. (2007). Construct validation of ICT indicators measurement scale (ICTIMS). *International Journal of Education and Development using Information and Communication Technology (IJEDICT), 3*(3), 60-77.

Ardıç, K., & Polatcı, S. (2008). Tükenmişlik sendromu akademisyenler üzerinde bir uygulama (GOÜ Örneği) [Emotional exhaustion: An application to academic personal (The case of Gazi Osman Pasa University)]. *Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi [Gazi University Journal of Faculty of Economics and Administrative Sciences], 10*(2), 69-96.

Ayas, T., & Horzum, M. B. (2010). Sanal zorba/kurban ölçek geliştirme çalışması [Cyber bully/victim scale development study]. *Akademik Bakış Dergisi: Uluslararası Hakemli Sosyal Bilimler E-Dergisi [Academic Sight International Refereed Online Journal], 19*, 1-17.

Ayyıldız, H., & Cengiz, E. (2006). Pazarlama modellerinin testinde kullanılabilecek yapısal eşitlik modeli (YEM) üzerine kavramsal bir inceleme [A conceptual investigation of structural equation models (SEM) on testing marketing models]. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi [Süleyman Demirel University The Journal of Faculty of Economics and Administrative Sciences], 11*(1), 63-84.

Azaltun, M. (2008). VI. Araştırma yöntemleri semineri–ölçme ve ölçek geliştirme [VI. Research methods seminar-measurement and scale development]. *Anatolia: Turizm Araştırmaları Dergisi [Anatolia: The Journal of Tourism Researches], 19*(1), 104-111.

Bakoğlu Deliorman, R., Taştan Boz, İ., Yiğit, İ., & Yıldız, S. (2009). Tükenmişliği ölçmede alternatif bir araç: Kopenhag tükenmişlik envanterinin Marmara Üniversitesi akademik personeli üzerine uyarlaması [An

alternetive tool for the measurement of burnout: adaptation of the Copenhagen burnout inventory on Marmara University academics]. *Yönetim [Istanbul Management Journal], 20*(63), 77-98.

Balcı, A. (2009). *Sosyal bilimlerde araştırma yöntem, teknik ve ilkeleri [Research methods, techniques and principles in Social Sciences]*. (7th ed.). Ankara: Pegem Akademi Publishing.

Bryman, A., & Cramer, D. (2005). *Quantitative data analysis for SPSS 12 and 13: A guide for Social Scientists*. New York: Routledge.

Burucuoğlu, M., & Erdoğan, E. (2016). Etik pozisyon ölçeğinin geçerlilik ve güvenilirliğine ilişkin bir çalışma [A study about the validity and reliability of ethical position scale]. *Uluslararası Bilimsel Araştırmalar Dergisi [The Journal of International Scientific Researches], 1*(3), 7-15.

Büyüköztürk, Ş. (2005). Anket geliştirme [Questionnaire development]. *Türk Eğitim Bilimleri Dergisi [The Journal of Turkish Educational Sciences], 3*(2), 133-151.

Büyüköztürk, Ş. (2013). *Sosyal bilimler için veri analizi el kitabı istatistik, araştırma deseni SPSS uygulamaları ve yorum [Data analysis handbook for social sciences statistics, research design SPSS applications and comments].* (Extended 18th ed.). Ankara: Pegem Akademi Publishing.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2016). *Bilimsel araştırma yöntemleri [Scientific research methods]* (21st ed.). Ankara: Pegem Akademi Publishing.

Can, A. (2016). SPSS ile bilimsel araştırma sürecinde nicel veri analizi [Quantitative data analysis in the scientific research process with SPSS] (4th ed.). Ankara: Pegem Akademi Publishing.

Chang, D. (2016). *Digital burnout: The new, invisible threat to businesses*. Flux Trends. Retrieved July 7, 2017 from http://www.fluxtrends.com/digital-burnout-the-new-invisible-threat-to-businesses/

Comrey, A. L., & Lee, H. B. (1992). *A First Course in Factor Analysis* (2nd ed.). New York: Psychology Press.

Cronbach, L. J. (1951). Coefficient Alpha and The internal structure of tests. *Psychometrika, 16*(3), 297-334.

Çapri, B. (2006). Tükenmişlik ölçeğinin Türkçe uyarlaması: Geçerlik ve güvenirlik çalışması [Turkish adaptation of the burnout measure: A reliability and validity study]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi [Mersin University Journal of the Faculty of Education], 2*(1), 62-77.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2012). *Sosyal Bilimler için Çok Değişkenli İstatistik SPSS ve LISREL Uygulamaları [Multivariate Statistics for Social Sciences SPSS and LISREL Applications] (*2nd ed.). Ankara: Pegem Akademi Publishing.

Demir, S. (2010). *Ankara Üniversitesi Tıp Fakültesi hastaneleri çalışanlarının tükenmişlik ve iş doyumu düzeylerinin bazı değişkenler açısından incelenmesi [Ankara University Medical Faculty Hospital workers burnout and job satisfaction an investigation of some variables]*. Unpublished master thesis, Atılım University Social Sciences Institute, Ankara.

Detecon. (2013). *Staying "Online" sustainably: What users can do for the environment and to prevent digital burnout*. Detecon Management Report Blue, 42-45. Retrieved January 23, 2018 from https://www.detecon.com/sites/default/files/DMR_SP_Blue_Transformation_Umwelt_Digital_Burnout_Nachhaltig_092013_E.pdf

Doğan, İ. (2015). *Farklı veri yapısı ve örneklem büyüklüklerinde yapısal eşitlik modellerinin geçerliği ve güvenirliğinin değerlendirilmesi [Evaluating the validty and reliability of the structural equation modeling in different data structure and sample sizes].* Unpublished doctoral dissertation, Eskişehir Osmangazi University Health Sciences Institute, Eskişehir.

Dursun, Y., & Kocagöz, E. (2010). Yapısal eşitlik modellemesi ve regresyon: Karşılaştırmalı bir analiz [Structural equation modeling and regression: A comparative analysis]. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi [Journal of Erciyes University Economics and Administrative Sciences Faculty], 35*, 1-17.

Ercan, İ., & Kan, İ. (2004). Ölçeklerde güvenirlik ve geçerlik [Reliability and validity in the scales]. *Uludağ Universitesi Tıp Fakültesi Dergisi [Journal of Uludağ University Medical Faculty], 30*(3), 211-216.

Erkorkmaz, Ü., Etikan, İ., Demir, O., Özdamar, K., & Sanisoğlu, S. Y. (2013). Doğrulayıcı faktör analizi ve uyum indeksleri [Confirmatory factor analysis and fit indices]. *Turkiye Klinikleri Journal of Medical Sciences, 33*(1), 210-23. doi: 10.5336/medsci.2011-26747.

Erkuş, A. (2014). *Psikolojide ölçme ve ölçek geliştirme I: Temel kavramlar ve işlemler [Psychological measurement and scale development I: Basic concepts and processes]* (2nd ed.). Ankara: Pegem Akademi Publishing.

Erkuş, A. (2017). Ölçek geliştirme ve uyarlama çalışmalarındaki sorunlar ile yazım ve değerlendirilmesi. In Ö. Demirel, & S. Dinçer (Eds.), Eğitim bilimlerinde yenilikler ve nitelik arayışı (pp. 1221-1234). (2nd ed.). Ankara: Pegem Akademi Publishing. http://dx.doi.org/10.14527/9786053183563b2.074

Floyd, F. J., & Widaman, K. F. (1995). Factor Analysis in the Development and Refinement of Clinical Assessment Instruments. *Psychological Assessment, 7*(3), 286-299.

Freudenberger, H. J. (1974). Staff burnout. *Journal of Social Issues, 30*(1), 159-165. Doi: http://dx.doi.org/10.1111/j.1540-4560.1974.tb00706.x

Freudenberger, H. J. (1975). The staff burn-out syndrome in alternative institutions. *Psychotherapy: Theory, Research & Practice, 12*(1), 73-82. Doi: https://doi.org/10.1037/h0086411

Gorsuch, R. L. (1983). *Factor Analysis.* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Grant-Marshall, S. (2014). *Surviving digital burnout.* Business Day Live, Times Media Ltd. Retrieved July 7, 2017 from http://www.bdlive.co.za/life/gadgets/2014/10/06/surviving-digital-burnout

Greenberg, L. K. (2016). *Digital lives: The clinical implications of technology on young adults.* Master's Project, The Faculty of the Kalmanovitz School of Education Saint Mary's College of California, USA: ProQuest LLC. ProQuest Number: 10140745

Gunuc, S., & Kuzu, A. (2014). Tendency scale for technology use in class: Development, reliability and validity. *Journal of Theory and Practice in Education, 10*(4), 863-884.

Günüç, S. (2009). *İnternet bağımlılık ölçeğinin geliştirilmesi ve bazı demografik değişkenler ile internet bağımlılığı arasındaki ilişkilerin incelenmesi*. Yayınlanmamış yüksek lisans tezi, Yüzüncü Yıl Üniversitesi Sosyal Bilimler Enstitüsü, Van.

Gürbüz, S., & Şahin, F. (2014). *Sosyal bilimlerde araştırma yöntemleri: Felsefe-yöntem-analiz.* (2nd ed.). Ankara: Seçkin Publishing.

Güven, S. (2013). *Cerrahi kliniklerde çalışan hemşirelerin mizah tarzları ile tükenmişlik düzeyleri arasındaki ilişkinin saptanması [Determining of the Relationship between the Humor Styles and Burnout Levels of the Nurses Working in Surgical Clinics]*. Unpublished master thesis, Başkent University Institute of Health Sciences, Ankara.

Hobfoll, S. E., & Shirom, A. (1993). Stress and burnout in the workplace: Conservation of resources. In R. T. Golembiewski (Ed.), *Handbook of organizational behavior* (pp. 41-60). New York: M. Dekker.

Hooper, D., Coughlan, J., & Mullen, M.R. (2008). Structural equation modelling: guidelines for determining model fit. *The Electronic Journal of Business Research Methods, 6*(1), 53-60.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55.

İlhan, M., & Çetin, B. (2014). LISREL ve AMOS programları kullanılarak gerçekleştirilen yapısal eşitlik modeli (YEM) analizlerine ilişkin sonuçların karşılaştırılması [Comparing the analysis results of the structural equation models (SEM) conducted using LISREL and AMOS]. *Eğitimde ve Psikolojide Ölçme ve Değerlendirme Dergisi [Journal of Measurement and Evaluation in Education and Psychology], 5*(2), 26-42.

Kaiser, H. F. & Rice, J. (1974). Little Jiffy, Mark Iv. *Educational and Psychological Measurement, 34*(1), 111-117. DOI: 10.1177/001316447403400115

Karagöz, Y. (2016). *SPSS 23 ve AMOS 23 uygulamalı istatistiksel analizler [SPSS 23 and AMOS 23 applied statistical analyzes]*. Ankara: Nobel Academic Publishing.

Kazu, İ. Y., & Erten, P. (2013). Prospective Teachers' Perception Levels of Their Digital Literacy. *International Journal of Multidisciplinary Thought,* CD-ROM. ISSN: 2156-6992::*3*(1): 51-68.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). NewYork, London: Guilford Press.

Korkmaz, Ö., Çakir, R., & Özden, M. Y. (2017). A validity and reliability study of the computational thinking scales (CTS). *Computers in Human Behavior, 72*, 558-569.

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress, 19*(3), 192-207.

Kuş, E. (2009). *Nicel-Nitel Araştırma Teknikleri Sosyal Bilimlerde Araştırma Teknikleri Nicel mi? Nitel mi?* (3rd ed.). Ankara: Anı Publishing.

Loos, A. T. (2017). The role of librarians in promoting digital wellness: A case study. *Public Services Quarterly, 13*(1), 32-40. Doi: 10.1080/15228959.2016.1268943.

Mandaviya, M. (2019). The job burnout and turnover intensions among social workers: A cross sectional study. *International Journal of Human Resource Management and Research (IJHRMR), 9*(4), 135-148.

Maslach, C. (1998). A multidimensional theory of burnout. In C. L. Cooper (Ed.). *Theories of organizational stress* (pp. 68-). Manchester, UK: Oxford University Press.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior, 2*, 99-113.

Maslach, C., & Jackson, S. E. (1985). The role of sex and family variables in burnout. *Sex Roles, 12*(7–8), 837-851.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory* (3rd ed.). Palo Alto, CA: Consulting.

Nunnally, J. C. (1975). Psychometric Theory-25 years ago and now. *Educational Researcher, 4*(10), 7-21. Doi: 10.3102/0013189X004010007.

Otrar, M., & Argın, F. S. (2015). Öğrencilerin sosyal medyaya ilişkin tutumlarını belirlemeye yönelik bir ölçek geliştirme çalışması. *Eğitim ve Öğretim Araştırmaları Dergisi, 4*(1), 391-403.

Pallant, J. (2007). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS for Windows Version 15* (3rd ed.). UK: Open University Press.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, *9*(5), 1-5.

Quill, M. (2017). *The harmful effects of digital burnout on organisational effectiveness.* Brisbane, Sydney, Melbourne: TMS Consulting. Retrieved November 5, 2017 from http://www.tmsconsulting.com.au/harmful-effects-digital-burnout-organisational-effectiveness/

Reinecke, L., Aufenanger, S., Beutel, M. E., Dreier, M., Quiring, O., Stark, B., Wölfling, K., & Müller, K. W. (2016). Digital stress over the life span: The effects of communication load and internet multitasking on perceived stress and psychological health impairments in a German probability sample. *Media Psychology, 1*, 1-26. DOI: 10.1080/15213269.2015.1121832

Reise, S. P., Waller, N. G., & Comrey, A. L. (2000). Factor Analysis and Scale Revision. *Psychological Assessment*. *12*(3), 287-297.

Sayın, A., & Gelbal, S. (2016). Yapısal eşitlik modellemesinde parametrelerin klasik test kuramı ve madde tepki kuramına göre sınırlandırılmasının uyum indekslerine etkisi [Structural equation modeling effect of restricted with parameters from the classical test theory and item response theory]. *International Journal of Education, Science and Technology, 2*(2), 57-71.

Seçer, İ. (2015). *SPSS ve LISREL ile pratik veri analizi: Analiz ve raporlaştırma* (Extended 2nd ed.). Anakara: Anı Publishing.

Seidman, S. A., & Zager, J. (1986-1987). The teacher burnout scale. *Educational Research Quarterly, 11*(1), 26-33.

Shirom, A. (2003). Job-related burnout: A review. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 245-264). Washington, DC, US: American Psychological Association. Doi: 10.1037/10474-012

Shirom, A., Melamed, S., Toker, S., Berliner, S. and Shapira, I. (2005). Burnout and health review: Current knowledge and future research directions. In G. P. Hodgkinson & J. K. Ford (Eds.), *International Review of Industrial and Organizational Psychology 2005*, Volume 20 (pp. 269-308). Chichester, UK: John Wiley & Sons Ltd. doi: 10.1002/0470029307.ch7.

Sönmez, V., & Alacapınar, F. G. (2016). *Örneklendirilmiş bilimsel araştırma yöntemleri* (Extended 4th ed.). Ankara: Anı Publishing.

Spalding, C. (2015). *Are you suffering from digital burnout?* Tuesday Consulting Articles. Retrieved February 5, 2018 from http://tuesday.co.za/tackling-digital-burnout-in-the-workplace/

Sümer, N. (2000). Yapısal eşitlik modelleri: Temel kavramlar ve örnek uygulamalar. *Türk Psikoloji Yazıları, 3*(6), 49-74.

Şahin, F. (2016). Kaufman alanları yaratıcılık ölçeği'nin Türkçe'ye uyarlanması ve psikometrik özelliklerinin incelenmesi [Adaptation of the Kaufman domains of creativity scale into Turkish and examination of its psychometric properties]. *İlköğretim Online [Elementary Education Online], 15*(3), 855-867.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics.* (5th ed.). Boston: Pearson/Allyn and Bacon.

Tavşancıl, E. (2010). *Tutumların Ölçülmesi ve SPSS ile Veri Analizi.* (4th ed.). Ankara: Nobel Publishing Distribution.

Tay, L., & Jebb, A. (2017). Scale development. In S. Rogelberg (Ed), *The SAGE Encyclopedia of industrial and organizational psychology,* (2nd ed.). Thousand Oaks, CA: Sage.

TDK (Türk Dil Kurumu). (2017). *Genel Türkçe sözlük.* T.C. Başbakanlık Atatürk Kültür, Dil ve Tarih Yüksek Kurumu Türk Dil Kurumu, Ankara. Retrieved January 21, 2018 from http://www.tdk.gov.tr.

Tohlang, S. F. (2016). *Social Networking Burnout: Digital Fatigue*. Flux Trends. Retrieved July 7, 2017 from http://www.fluxtrends.com/social-networking-burnout-digital-fatigue/

Uğur, N. G., & Turan, A. H. (2016). Mobil uygulama kabul modeli: Bir ölçek geliştirme çalışması [Mobile application acceptance model: A scale development study]. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi [Hacettepe University Journal of Economics and Administrative Sciences], 34*(4), 97-125

Weinstein, E. C., & Selman, R. L. (2014). Digital stress: Adolescents' personal accounts. *New Media & Society, 18*(3), 391-409. Doi: 10.1177/1461444814543989.

Yavuz Konokman, G., & Yanpar Yelken, T. (2015). Araştırma direnci ölçeği geliştirme: Açımlayıcı ve doğrulayıcı faktör analizi [The development of research resistance scale: Exploratory and confirmatory factor analysis]. *Uluslararası Sosyal Araştırmalar Dergisi [The Journal of International Social Research], 8*(40), 621-636.

Yeşil, R., & Aslanderen, M. (2017). Ahilik değerleri ölçeğinin geçerlik ve güvenirlik çalışması [Validity and reliability study of the Ahi-Order morals scale]. *Turkish Studies-International Periodical for the Languages, Literature and History of Turkish or Turkic, 12*(4), 565-584. Doi: 10.7827/TurkishStudies.11390.

Yıldız-Durak, H., & Seferoğlu, S. S. (2017). Öğretmenlerde tükenmişlik duygusunun çeşitli değişkenler açısından incelenmesi [Examination of teachers' sense of burnout in terms of various variables]. *Gazi University Journal of Gazi Educational Faculty, 37*(2), 759-788.

Yildiz-Durak, H., & Saritepeci, M. (2019). Occupational burnout and cyberloafing among teachers: Analysis of personality traits, individual and occupational status variables as predictors. *The Social Science Journal, 56*(1), 69-87. Doi: 10.1016/j.soscij.2018.10.011

Yılmaz, V. (2004). Lisrel ile yapısal eşitlik modelleri: Tüketici şikayetlerine uygulanması [Structural equation modeling with LISREL: Application of consumer complains]. *Anadolu Üniversitesi Sosyal Bilimler Dergisi [Anadolu University Journal of Social Sciences], 4*(1), 77-90.

İletişim/Correspondence
Dr. Öğ. Üy. Pınar ERTEN
perten@bingol.edu.tr
Doç. Dr. Oğuzhan ÖZDEMİR
oguzhan@firat.edu.tr