

# A Study on Validity and Reliability of Digital Addiction Scale for 19 Years or Older

Tuncay Dilci

Department of Educational Sciences, Faculty of Education, Cumhuriyet University, Turkey

Copyright©2019 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

**Abstract** The aim of this study is to develop a diagnostic scale to measure the influence of digital dependency, which has swiftly been a part of today's standards of living, on individuals in quite a tangible way and to carry out a validity-reliability study on this scale. The sample group of the scale consists of 450 university students (264 female and 286 male) studying at Cumhuriyet University in the 2017-2018 academic year. The scale has five-point Likert type and has been initially converted into a draft questionnaire consisting of 53 items. In accordance with the feedbacks from the field experts, some alterations have been employed, then it is made ready for pre-application. After the preliminary test, factor loadings below .30 are subtracted from the scale and structural validity has been ensured. The scale is concluded with 40 items possessing high internal consistency in the measurement tool. It has been determined that the KMO value of the scale is .94; Bartlett test .00 ( $p < .01$ ); the released variance is 64.7% in the factor analysis of the scale. As a result of the confirmatory factor analysis, while the inter-item fit index is found to be significant in the Chi-square value ( $\chi^2 = 756.20$ ,  $N = 450$ ,  $sd = 278$ ,  $p = 0.00$ ); it is detected that RMSEA: 0.075, SRMR: 0.14, GFI: 0.87, AGFI: 0.91, CFI: 0.98, IFI: 0.98, NFI: 0.093;  $\chi^2/df = 2.78$ . The *Cronbach's alpha* ( $\alpha$ ) internal consistency coefficient of the scale is found to be .976. Considering the data obtained, with respect to its validity and reliability, it is assumed that the 40-item-scale for aged 19 or older will close the gap in the field and contribute to the literature.

**Keywords** Digital Addiction, Scale Development, Addiction, Student

## 1. Introduction

Today, digital / electronic devices carrying an important role in characterizing various life parameters, have a gradually increasing impact on people's life and they are in fact surrounding individuals. It can be seen that even the

simplest activities such as going to sports centers are transformed into simultaneous mobile phone events (as cited in Dilci, 2015). This growing effect can be observed in many areas of life and places such as in classes, schoolyards, workplaces, at homes and while walking etc. (as cited in Dilci, 2015). The main digital/electronic devices taking part in people's daily lives are televisions, mobile phones, computers and iPads. In addition, the access to the Internet via these instruments is a crucial factor, which causes individual to spend more time with these tools (as cited in Dilci, 2015). Although the history of these instruments dates back just a quarter of a century, their main function as a tool for communication now has more different purposes comparing their initial use in the recent past. In the world, the rate of digital tools' use, excluding television, has reached 42%, and they are actively used by nearly three billion people. Together with this percentage in the world, more than half of the population in Turkey uses the Internet. Considering the Internet users in Turkey, 14-25 year-olds make up 78.1% and this is much higher than the average Internet use in the world. Even though the Internet use of the young population in the world seems to be a positive situation, it is necessary to anticipate the negative consequences that may occur in the future, and to develop digital literacy competence within the young population. Unless this need is met, the unregulated use of digital media leads to Internet use disorders or Internet addiction, which is called digital addiction. Digital addiction as of other addictions paralyzes and distorts youngsters' life habits, and it turns them into those who do not think or produce and who spend most of their time with these digital media. The adverse future outcomes of this issue in young people's lives have to be closely examined (Chou, Condrón, & Belland, 2005, p. 363-388). According to the Turkish Statistical Institute, currently, the average age of computer use is eight, and the average use of mobile phones is ten. Furthermore, every 9 out of 10 children in Turkey watch television, 65% use the computer, 50.8% use the Internet, and 24.3% use mobile phones (Turkish Statistical Institute, 2012).

### 1.1. Digital Addiction

The word addiction is derived from the Latin word “addicere” meaning “giving over, surrender”. Addiction is a state of a habit and an ongoing relationship between the people and the objects and it is established by the individuals themselves by choice. This habit has a characteristic of suppressing the independence of the individuals over time (Barış, 1994, p.6 as cited in Karakaya, 2016). The term addiction is used as “addiction” and “dependence” in the literature. Though the term addiction is generally attributed to smoking, alcohol and drugs, it is defined as “one’s involvement of excessive behaviours” (Shaffer, 1999, p. 9-14). Addiction is “a state in which a person is unable to abandon a habit despite his/her tendency to give up” (Ögel, 2001, p.4 as cited in Karakaya, 2016). Egger and Rauteberg defines addiction as one’s intense interest in some certain objects in his/her life and unable to abstain from it. In this sense, with a period of six months, it indicates that unable to control the acts and behaviors, and the permanence of them continues.

Behavioral addictions without chemical substances are watching television, being a member of game sites, overuse of mobile phones and social media (Griffiths, 1995, p. 14-19). The term “Internet Addiction” was first formed by Goldberg in 1996. Today, by means of the digital technology media and their instruments, some elements providing interaction such as sounds, images etc., which has a certain frequency threshold, can increase tendency to addiction (Griffiths, 1999). Our aim is to develop a scale with a collective measurement tool that can measure the digital terms including game addiction, mobile phone addiction, computer addiction, social media addiction without referring addiction to the use of technological media only as the Internet use. In terms of pathology, the abuse and problematic use of digital objects (PUDO), maladaptive thinking and the difficulty of self-control together with inappropriate behaviors are psychiatric issues (Davis R.A, 200, p. 187 as cited in Karakaya 2016).

The Internet and digital world, transforming the real life into a virtual world, affect profoundly and deeply positive and negative interactions a lot more than other technological media. Digital addiction and its variations pose a threat to real life by continuous isolation from real life along with violated conscience, emotional desensitization, and identity and personality disorders.

### 1.2. Related Research

According to the researches, individuals who spend six hours a day with electronic devices are probably addicted to the Internet. When compared to other addictive habits, the occurrence of the internet addition, which starts at an early age, is 1.8% in societies. Considering the prevalence of Internet addiction in the society, it is a disorder that needs to be treated (as cited in Psychiatrist Sevim.2018). Posing a new problem, this situation called addiction due to

intensive engagement in digital objects, has led related the researchers to conduct studies on this matter. Researchers still continue their studies on identification and diagnosis of the Internet addiction. It is seen that there is an increase in determining the risk factors that cause to this addiction. The studies show that there is a relationship between depression, anxiety, loneliness, shyness, low self-esteem, insufficient social support and the Internet addiction. They also indicate that positive life support and social climate can reduce the inclination to the Internet use of individuals thus lowering the risk of internet addiction.

First studies on technology and game addiction are conducted by Young in England, and the Internet Addiction Test (IAT) is introduced in literature. Many studies demonstrate that computers are most commonly used for games. Sutherland et al. (2000) claimed that computers are mainly used for computer games. According to Haris (1999), the primary reason why parents buy computers is computer games (as cited by Dilci, 2015). In other studies showing that computers are mainly used for playing computer games is most of the children playing computer games do not have enough computer literacy (as cited in Dilci, 2015). According to the data in studies carried out by Pew Research Center and American Life Project about the Internet use habits, 44% of smartphone owner have their mobile phone with them in bed. 67% of the respondents participated in the survey answered that they check their mobile phones every 30 minutes even it is not ringing or vibrating. In spite of the negative findings from these studies, people have started to become aware of digital addiction. While 29% of people stated that they could survive without mobile phones, the figure was 39% in 2010. Considering these findings, the growing awareness in people and experiencing the negative effects physically are crucially important (as cited in Dilci, 2015).

Dependency to the technology, which is initially called as “Internet addiction” in the literature, is conceptualized as digital addiction in the book *Time for Digital Diet* (Dijital Diyet Zamanı) by Dilci (2015) and has defined as this way in the literature. This term is also conceptualized in different ways by various researchers and clinicians. Majority of the studies on Internet addiction are conducted by applying “*Internet Addiction Test*”, which was developed by Young and designed to identify gambling disorders in the category of DSM-IV impulse control disorder (Greenfield, 1999, p. 403-412). On one hand, Young’s “*Internet Addiction Test*” reveals pathologic internet use properties, and on the other hand, it comprises items to evaluate negative outcomes of loss of control and signs of addiction (Young, 1997, p. 237-244 as cited in Karakaya, 2016). When the relevant literature in the world and in Turkey is reviewed, it can be found that there are many studies carried out under various names and in categories measuring digital life and its rate scientifically with different types of scales. However, there are no scales taking individuals’ interests and their developmental

periods into account, or including adults. Therefore, in order to eliminate this significant deficiency in the literature, a scale measuring digital media use of individuals at the age of 19 and over is planned to be developed.

In this respect, the importance of this study is that the scale is intended for adults at the age of 19 and over, which is a huge gap in the literature. In addition, this is not an adaptation of its kind, but an authentic scientific study based on the references of Turkish lifestyle and cultural codes. The Turkish digital addiction scale based on the sample findings can be generalized into digital dependency profile in Turkey.

### 1.3. Digital Addiction Scale for 19 Years and Over

This study aims to develop internet addiction scale for 19 years and over. This scale is intended both to identify digital dependency or the situation regarding people's lifestyles in Turkey, and to determine the factors by applying 5 point Likert-type scale in order to specify their attitudes, emotions and opinions. A survey of 53 items is administered to adults who are selected with a random method during the preparation of items and the application of the test scale. The feedbacks collected are examined closely and they are converted into pure data.

## 2. Method

### 2.1. The Aim of the Study

When diagnosing the internet addiction also called as substance use disorder and rating the addiction level, mainly observation, tests; criterion-centered measurement tools and methods can be implemented (Chou et al., 2005). Nevertheless, there are no digital addiction scales developed in Turkey addressing to developmental categories. For this reason, our aim is to develop an attitude scale incorporating physio-psychology of developmental stages accompanied by cultural codes.

### 2.2. Sample Group

The sample group of the scale consists of 450 students (264 female, 286 male) aged between 19 and 35 years, studying in Sivas Cumhuriyet University during the 2017-2018 academic year. Convenience sampling method is used with the assumption that participants spend at least two hours day with digital objects.

### 2.3. Data Collection Tool

A test item form is constructed to present to the expert opinion. In accordance with the expert opinions, the number of the items has been reduced to 53 prior to test

scale. The test scale has been applied to 87 participants as a pilot scheme, then the average time for answers has been determined, and printing errors and the content have been corrected. Within the pilot application, the reliability (.955) has a positive result, following that, the test scale form has been applied to the whole sample group afterwards. There are 53 items in the test scale form, and all the items are claimed to be positive. Attitude levels are graded with five-point Likert Scale. The ratings on a Likert type scales are scored from the highest level to the lowest as follows: "Strongly Agree" corresponds to 5 point, "Strongly Disagree" corresponds to 1 point. In other words, as the item scores increase from 1 point to 5 point, the dependency level increases relatively. Over the evaluation of the arithmetic average of the respondents' answers, the ratings based on are 1.00-1.79 = "Strongly Disagree", 1.80-2.59 = "Disagree", 2.60-3.39 = "Neutral", 3.40-4.19 = "Agree", 4.20-5.00 = "Strongly Agree".

### 2.4. Construction of the Items in the Scale

Likert type scales are used to determine attitudes, perceptions and inclinations based on multiple choice items. Hereby, participants are asked to reflect their attitudes and behaviors in hypothetical situations in the scale by choosing a suitable answer symbolizing their opinions and beliefs (Bozdogan & Ozturk, 2008). Thus, it is provided that the participants mark suitable options in the pre-prepared test questions.

The scales designed as Likert type consist of numerous and interrelated verbal expressions regarding to the theme to be measured. The participant are allowed to mark only one option on the same item to reflect their opinion among the five rating as follows: "Strongly Agree", "Agree", "Neutral", "Disagree" and "Strongly Disagree". Accordingly, the participants illustrate the integrity of their opinions by specifying their degree of participation with their answers to the items (Tezbaşaran, 2008).

Corroborative tests on construct validity and the factor structure of the scale have been implemented to calculate Validity and Reliability thus validating the reliability of the scale. Regarding to this, the factor structure have been designed with factor analysis. In addition to this, Cronbach Alpha internal consistency coefficient together with total item correlation has been calculated both for the entire scale and for each factor loading. During this process, Meyer-Olkin (KMO) results are also analyzed. The validity of the scale is prerequisite for its reliability. Therefore, total item test score correlation and Cronbach Alpha reliability coefficient values have been analyzed to determine the reliability degree of the scale. It is believed that the Cronbach Alpha reliability coefficient value indicates internal consistency among the test scores of the scale. So, values over 0.70 are considered minimum valid and sufficient for test reliability (Yanık & Çamlıyer, 2013). Further, Kaiser-total item test score correlation value is

used to represent the relationship between item score and total test item score. At this point, it is pointed out that having high and positive relationship, the degree of total item test score correlation is the indicator of internal consistency of the scale (Büyüköztürk, 2007).

In an effort to complete the development of the scale, Exploratory Factor Analysis of the scale is conducted with help of the SPSS 22.0 package program. In addition to exploratory factor analysis, the scale is finalized by removing test items with low factor values following the statistic results in accordance with the corroborative factor analysis.

After the steps above, in accordance with the validity-reliability analyses, internal consistency coefficient Cronbach alpha ( $\alpha$ ) is taken into consideration for reliability. Consequently, content validity, face validity and construct validity have been examined, and in the light of the efficiency of items in the scale in measuring digital addiction, they have been sent out to the experts. Following the experts' feedbacks on content validity and face validity of the measurement tool, the necessary modifications and corrections have been made and then it has become ready to implement. Considering the face validity, an appropriate heading is set for the scale form, and in the beginning of the form, an instruction informing the purpose of it is specified.

### 3. Findings

The gender distribution of the sample group is indicated in Table 1.

Table 1 shows the gender distribution of the sample group of the study.

**Table 1.** Gender Distribution of the Sample Group

Gender	F	%
Female	264	42.7
Male	286	57.3
Total	450	100.0

The data in Table 1 show that the sample group consists of 264 female students with the rate of 42.7%, 286 male students with the rate of 57.3%.

**Table 2.** Values relating to Kaiser-Meyer-Olkin (KMO) Coefficient and Bartlett Test of sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		940
	Approx. Chi-Square	4,812E3
Bartlett's Test of Sphericity	df	780
	Shallow.	000

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy Value of the Bartlett Test as .940 and Chi-Square Value of the Bartlett Test as 4,812E3, df 780 Sig. (p) 0.000 are reflected on the findings. The suitability of the data for factor analysis can be analyzed with Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's Test of Sphericity. It is known that the closer the KMO is to 1, the more reliable it is. The result of the KMO value in the scale is 0.94. Besides, with a value of around 0.90, a scale is believed to be excellent (Tavşancıl, 2006). Therefore, it is believed that the data obtained are suitable for the factor analysis.

The Bartlett test indicates whether the relationship between variables are sufficient, hence, (p) value lower than significant 0.05 degree, suggests that there is sufficient relationship between variables for factor analysis (Yanık & Çamlıyer, 2013).

Table 3 shows the variances regarding the factor loadings.

**Table 3.** Scale Variances of Factor Loadings

Factor	Total	Variance	Total Variance
1	6,044	15.110	15.110
2	5,738	14.344	29.454
3	5,002	12.506	41.960
4	4,979	12,448	54.408
5	4,329	10.823	65.232

Subsequent to the processes followed in order to examine the construct validity of the scale with the test items, those which cannot to be corrected and whose factor loading value below 0.30 have been removed out of the initial 53 items. Consequently, the scale is built on 40 items, and to determine the components of the scale, these steps are respectively followed: identifying factor number, identifying factor variables, and naming factors.

#### 3.1. Identification of Factor Number

First of all, factor number of the study is identified. After that, the distribution of items according to factors are identified. Factors and factor loadings are given in Table 3.

Variance values of the scale are at a reasonable degree. There are different viewpoints on the validity of the variance values. According to Büyüköztürk (2006), the common values of item variances being close 1.00 or over 0.66 are sufficient for a scale. On the other hand, it is acceptable when factor loadings explain over 40% of total variance (Kline, 1994). It is found out in the table above that, the factors explain 65,232% of total variance. According to Klein, the study is reliable in this respect. The table shows that the designed factor explains a five-point factor to use in the scale.

**Table 4.** Designed Factor Loading of the Scale

Item No	Factor				
	1	2	3	4	5
S30	,681		,430		
S47	,642				
S44	,622				
S28	,618			,431	
S49	,610				,472
S50	,565				,470
S45	,553			,404	
S36	,510			,471	
S27	,492				,476
S20	,484		,401		
S24	,483	,401			
S35	,469				,429
S41	,447			,438	
S10		,729			
S11		,716			
S15		,708			
S12		,604			
S9		,576			,498
S13		,567			
S14		,534			
S46		,518		,474	
S19		,510	,415	,437	
S25		,468			
S2			,755		
S1			,736		
S3			,704		
S4			,693		
S18		,434	,443	,433	
S16				,630	
S40				,585	
S29	,419			,562	
S23				,542	
S22	,403			,524	
S51				,512	,450
S53				,509	
S5					,604
S6					,591
S52	,503				,522
S8			,443		,489
S21				,408	,485

To determine on how many factors of the items with factor analysis accumulated, firstly eigenvalues and explained percentages are taken into account (Duyan & Gelbal, 2008).

In this study, explanatory factor analysis is conducted in order to identify construct validity, and then confirmatory factor analysis is conducted to test the difference of the factor half. The scale consists of 5 factors: "Deprivation", "Impulsivity", "Underperformance", "Low Self Perception", and "Social Isolation". Total explained variance of the scale is found to be 46,164%. In addition to validity-reliability of the study, 45 individuals out of 450 (10,0%) have been identified as internet addicts with the average of over 60 points.

### 3.2. Item Distribution of the Designed Factor Analysis

#### "DEPRIVATION"

21. Feels/ I feel bad after using the computer/mobile phone/TV/Internet,

22. Feels/ I feel very happy while using the computer/mobile phone/TV/Internet,

24. Doesn't care/ I don't care about eating due to the computer/mobile phone/TV/Internet,

25. Spends/ I spend the following day sleepy, nervous and unproductive due to the computer/ mobile phone/ TV/ Internet,

27. Looks forward to/ I look forward to using the computer/mobile phone/TV/Internet,

29. Often gives up/ I often give up some gains for the sake of computer/mobile phone/TV/Internet,

33. Starts to use/ I start to use the computer for a couple minutes of work but leave it after hours,

35. Feels/ I feel both guilty and great pleasure in spending too much time on the computer/mobile phone/ TV/ Internet,

36. Feels/ I feel unrest and Shows / I show signs of deprivation when away from the computer/mobile phone/ TV/ Internet,

40. The use of the computer/mobile phone/TV/Internet is intensive in a day,

#### "IMPULSIVITY"

1. Finds himself/herself/ I find myself "Spending a little more time" on the computer/mobile phone/TV/Internet although done with them,

6. Thinks of/ I think of the things to do on the computer/mobile phone/TV/Internet while away from them,

7. Feels/ I feel bad-tempered and angry when the computer/mobile phone/TV/Internet are not around,

9. Feels/ I feel the need to check on the computer/mobile phone/TV/Internet in time,

10. Spends/ I spend more time on the computer/mobile phone/TV/Internet than planned,

11. Feels/ I feel the need to recheck the computer/mobile phone/ TV/ Internet just after using them,

14. Thinks of / I think of the things having done earlier when not using the computer/mobile phone/TV/Internet,

17. Checks / I check the Internet connection the moment Uses / I use the computer/mobile phone/TV,

26. Lies / I lie about not using the computer/mobile phone/TV/Internet more than necessary,

31. Overeating occurs while using the computer/mobile phone/TV,

32. Under eating occurs while using the computer/mobile phone/TV,

34. Defecation occurs due to the computer/mobile phone/TV,

37. Though spending the usual time on the computer/mobile phone/TV, Doesn't enjoy / I don't enjoy like before: Wants / I want to spend more time with them,

38. Has / I have obsession with the computer/mobile phone/TV/Internet,

39. Follows / I follow the same movement of pushing the buttons on the computer/mobile phone/TV/Internet,

#### "UNDERPERFORMANCE"

3. Gets criticized / I get criticized over using the computer/mobile phone/TV/Internet,

12. Forgets / I forget things planned earlier while using the computer/mobile phone/TV/Internet,

13. The things that prevent him/her / me from using the computer/mobile phone/TV/Internet are boring,

23. Is late / I'm late for school, work etc. due to the computer/mobile phone/TV,

30. Tiredness, exhaustion, lack of sleep and stress occur,

#### "LOW SELF PERCEPTION"

4. It eases him/her / me to use the computer/mobile phone/TV/Internet when bothered with something,

5. The use of the computer/mobile phone/TV/Internet keeps him/her / me away from problems and negative thoughts,

8. Life is pointless without the computer/mobile phone/TV/Internet,

20. Has / I have a bad relationship with family and friends due to the computer/mobile phone/TV/Internet,

28. Being away from social life, wish to be alone and poor friendship occur,

#### "SOCIAL ISOLATION"

2. Overuse of the computer/mobile phone/TV/Internet results in neglecting people around him/her / me,

15. Using the computer/mobile phone/TV/Internet is more appealing than other things in life,

16. Believes / I believe that He/ She is / I'm addicted to the computer/mobile phone/TV/Internet,

18. Prefers / I prefer spending time with the computer/mobile phone/TV/Internet to spending time with family and friends,

19. Keeps himself/herself / I keep myself out of real world because of spending too much time on the computer/mobile phone/TV/Internet,

**Table 5:** Data on Total Statistic Values of the Scale

	The Effect of the Scale to the Average	The effect of the Variance to the Average	Total Average of the Correlation Value	The Reliability Ratio of the Deleted Question
S1	103.9400	1868.916	, 682	, 976
S2	103.7667	1866.247	707	, 976
S3	103.5333	1859.284	714	975
S4	103.5267	1860.130	719	975
S5	103.8733	1866.192	692	, 976
Q6	103.7133	1868.917	684	, 976
S8	103.6133	1868.158	, 671	, 976
Q9	103.8400	1869.679	, 656	, 976
S10	103.6867	1856.270	, 726	975
S11	103.7400	1859.241	743	975
S12	103.6600	1855.649	710	, 976
S13	103.3467	1865.423	, 665	, 976
S14	103.5867	1855.774	745	975
S15	103.5000	1861.876	, 681	, 976
S16	103.8400	1873.182	613	, 976
S18	103.6533	1856.993	730	975
S19	103.6133	1858.507	, 712	, 976
S20	103.9133	1855.945	, 739	975
S21	103.6267	1853.189	765	975
S22	103.6133	1855.997	, 757	975
S23	103.4667	1855.673	711	, 976
S24	103.4133	1862.043	, 691	, 976
S25	103.6000	1858.336	, 708	, 976
S27	103.6000	1866.242	, 687	, 976
S28	103.7467	1863.278	, 754	975
S29	103.6133	1865.662	, 688	, 976
S30	103.5600	1861.563	, 681	, 976
S35	103.5867	1862.862	719	975
S36	103.6333	1852.959	, 789	975
S40	103.6733	1860.208	, 717	975
S41	103.6467	1865.599	, 681	, 976
S44	103.6133	1860.118	, 694	, 976
S45	103.6200	1868.841	647	, 976
S46	103.5867	1867.573	661	, 976
P47	103.5467	1875.135	600	, 976
S49	103.5067	1864.050	684	, 976
S50	103.7133	1865.374	, 697	, 976
S51	103.6200	1857.727	767	975
S52	103.6267	1855.497	765	975
S53	103.7400	1866.408	663	, 976

**Table 6.** Statistics on (a) Alpha Reliability Coefficient of the Scale

Reliability Ratio	Number of questions
,976	40

The general internal consistency coefficient ( $\alpha$ ) of the scale is found to be .976.

#### 4. Discussion and Conclusions

In the light of the findings, a 5-point Likert type scale is developed to identify the degree of the digital objects use by 19 year-olds and older. The objectives are achieved by means of the quantitative findings concerning the validity and reliability of the scale. The findings show that the scale bears significant qualifications on identifying the risk group regarding the use of adults and on which sub-dimension of the subject to concentrate on. Besides, the reliability coefficient of the scale, Cronbach Alpha coefficient is found to be 0.97. On the other hand, fit index appears to corresponding and favorable. In the light of the exploratory and confirmatory factor analysis, 40-item scale, which is credited to have validity and reliability, is completed. Sub-dimensions of 5 factor model is designed as a result of the factorial decomposition. These factor are entitled as “*Deprivation*”, “*Impulsivity*”, “*Underperformance*”, “*Low Self Perception*”, and “*Social Isolation*”.

NORMAL PROCESSING	SPSS STATISTICS (based on the criteria)
0-20 TOO WEAK	“1.00-1.79 = “Strongly Disagree”
21-40 WEAK	“1.80-2.59 = “Disagree”
41-60 MEDIUM	“2.60- 3.39 = “Neutral”
61-80 HIGH	“3.40- 4.19 = “Agree”
81-100 TOO HIGH	“4.20- 5.00 = “Strongly Agree”

The findings on validity and reliability of the scale, concerning the digital addiction in the level of scientific validity are made available to the literature.

#### REFERENCES

- [1] Bozdoğan, A. E. ve Öztürk, Ç. (2008). Coğrafya İle İlişkili Fen Konularının Öğretimine Yönelik Öz-Yeterlilik İnanç Ölçeği'nin geliştirilmesi. Balıkesir Üniversitesi
- [2] Büyüköztürk, Ş. (2007) Bilimsel araştırma yöntemleri kitabı Pegem Akademi
- [3] Dilci, T. (2015) Dijital Diyet Zamanı Geçit Matbaacılık Kayseri
- [4] Duyan, V., ve Gelbal, S., (2008). Barnett Çocuk Sevmeye Ölçeğini türkçeye uyarlama çalışması. Eğitim ve Bilim, 33 (148), 40-48. Link: [egitimvebilim.ted.org.tr](http://egitimvebilim.ted.org.tr)
- [5] Chou, C., & Tsai, M. J. (2007). Gender differences in Taiwan high school students' computer game playing. Computers in Human Behavior, 23(1), 812-824.
- [6] Erkuş, A. (2003). Psikometri üzerine yazılar. Ankara: Türk Psikologlar Derneği Yayınları.
- [7] Greenfield 1999: Psychological characteristics of compulsive internet use: a preliminary analysis. 403-412 cpb.1999.2.403.
- [8] Griffiths, M., & Wood, R. T. (2000). Risk factors in adolescence: The case of gambling, videogame playing, and the Internet. Journal of gambling studies, 16(2-3), 199-225.
- [9] Griffiths, M. D., Davies, M. N., & Chappell, D. (2004). Online computer gaming: a comparison of adolescent and adult gamers. Journal of adolescence, 27(1), 87-96.
- [10] Günüş, S., & Kayri, M. (2010). Türkiye’de internet bağımlılık profili ve internet bağımlılık ölçeğinin geliştirilmesi: Geçerlik-güvenirlik çalışması. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 39(39), 220-232.
- [11] Karakaya Y. (2016) Basılmamış Yüksek Lisans Tezi Cumhuriyet Üniversitesi Sivas
- [12] Mehroof, M., & Griffiths, M. D. (2010). Online gaming addiction: the role of sensation seeking, self-control, neuroticism, aggression, state anxiety, and trait anxiety. 13(3), 313-316.
- [13] Ögel, K. (2012). İnternet bağımlılığı, internetin psikolojisini anlamak ve bağımlılıkla başa çıkmak. (s.47-60). İstanbul: Türkiye İş Bankası Kültür Yayınları.
- [14] Sevim M. E. (2018) <https://www.doktorsitesi.com> > Psikiyatri > İstanbul
- [15] Shaffer, D. W., & Kaput, J. J. (1999). Educational Researcher, 33(9), 14–25. 14.
- [16] Tavşancıl, E. (2010). Tutumların ölçülmesi ve SPSS ile veri analizi (4. Basım). Ankara: Nobel Yayın Dağıtım.
- [17] Tezbaşaran, A. A. (1997). Likert tipi ölçek geliştirme klavuzu. Ankara: Türk Psikologlar Derneği.
- [18] Tezbaşaran, A. (2008). Likert tipi ölçek hazırlama klavuzu. Ankara: Türk Psikologlar Derneği Yayınları.
- [19] TÜİK (2013). Hanehalkı Bilişim Teknolojileri Kullanımı Araştırması. 10 Kasım 2018 tarihinde <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=24862> adresinden alınmıştır.
- [20] Yanık, M. ve Çamlıyer, H. (2013). Ortaöğretimde Beden Eğitimi Öğretmenlik Mesleğine Yönelik Tutum Ölçeği geliştirilmesi. International Journal of Human