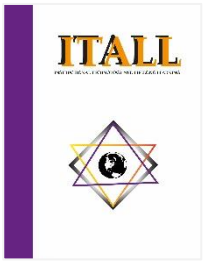
Atıf/ Citation: Saritepeci, M. (2021). Multiple screen addiction scale: validity and reliability study. *Instructional Technology and Lifelong Learning* 2(1), 1-17. DOI: 10.52911/itall.796758.



Instructional Technology and Lifelong Learning Vol. 2, Issue 1, 1-17 (2021)

https://dergipark.org.tr/tr/pub/itall

ITALL

Research Article

ISSN: 2717-8307

Multiple Screen Addiction Scale: Validity and Reliability Study

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ARTICLE INFO

Article history:
Received: 18.09.2020
Accepted: 24.11.2020
Online: 12.12.2020
Published: 29.06.2021

Keywords:
Multiple screen addiction
Screen addiction
University students
Scale development

ABSTRACT

In daily life, university students spend a significant part of their time in front of screens such as phones, tablets, computers, and televisions, as in the general public. Individuals' multi-screen experiences may tend to get out of control and turn into a kind of behavioral addiction. Therefore, this study, it is aimed to develop a valid and reliable measurement tool that can be used in determining the multiple screen addiction levels of university students. For this purpose, the multiscreen addiction form created within the framework of DSM-V criteria, and the literature was applied to 216 students. The collected data were analyzed by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). As a result of EFA, a structure with 15 items and 3 factors was formed. There are 8 items in the Compulsive Behavior dimension, 3 items in the Loss of Control dimension, and 4 items in the Excessive Screen Time dimension. The factor structure determined by EFA was tested with CFA and it was determined that the factor structure was suitable. The internal consistency coefficients of the scale were found to be between .70 and .92. Both monothetic and polythetic formats were used as addiction criteria. It was determined that 4.63% of the participants within the monothetic criterion and 50% of the participants within the framework of the polythetic criterion were multiple screen addicts.

Çoklu Ekran Bağımlılığı Ölçeği: Geçerlilik ve Güvenilirlik Çalışması

MAKALE BİLGİ

Makale Geçmişi:
Geliş: 18.09.2020
Kabul: 24.11.2020
Çevrimiçi: 12.12.2020
Yayın: 30.06.2021

Anahtar Kelimeler:
Çoklu ekran bağımlılığı
Ekran bağımlılığı
Üniversite öğrencileri
Ölçek geliştirme

ÖZET

Günlük yaşamda toplumun genelinde olduğu gibi üniversite öğrencileri de zamanlarının önemli bir bölümünü telefon, tablet, bilgisayar, televizyon gibi ekranların başında geçirmektedir. Bireylerin çoklu ekran deneyimleri kontrolden çıkma eğilimi gösterebilmekte ve bir tür davranışsal bağımlılığa dönüşebilmektedir. Bundan dolayı bu çalışmada üniversite öğrencilerinin çoklu ekran bağımlılığı düzeylerinin belirlenmesinde kullanılabilecek geçerli ve güvenilir bir ölçme aracı geliştirilmesi amaçlanmıştır. Bu amaç doğrultusunda DSM-V kriterleri ve literatür çerçevesinde oluşturulan çoklu ekran bağımlılığı formu 216 öğrenciye uygulanmıştır. Toplanan veriler açımlayıcı faktör analizi (AFA) ve doğrulayıcı faktör analizi (DFA) ile çözümlenmiştir. AFA sonucunda 15 madde ve 3 faktörlü bir yapı oluşmuştur. Compulsive Behavior boyutunda 8, Loss of Control boyutunda 3 ve Excessive Screen Time boyutunda 4 madde bulunmaktadır. AFA ile belirlenen faktör yapısı DFA ile test edilmiş ve faktör yapısının uygun olduğu tespit edilmiştir. Faktör yapısının uygunluğu belirlenen ölçeğin iç tutarlık katsayıları .70-.92 arasında bulunmuştur. Bağımlılık ölçütü olarak hem monotetik hem de polietik format kullanılmıştır. Monotetik ölçüt kapsamında katılımcıların %4.63'ü, polietik ölçüt çerçevesinde ise katılımcıların %50'sinin çoklu ekran bağımlısı olduğu belirlenmiştir.

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1. Introduction

Today, devices with screens (TV, Smart Phone, Tablet, PC, etc.) that enable us to reach various multimedia media have become the most important tools of our daily life (Lin, Kononova, & Chiang, 2019). The use of these devices for a wide variety of activities and tasks in daily life causes an increase in the dependence of individuals on mobile devices (Lin et al., 2019) and the Internet service accessed by these devices. Smartphone/Mobile phone and Internet addiction are described as a type of behavioral addiction (Bianchi & Phillips, 2005; Cha & Seo, 2018; Jun & Choi, 2015; Kwon, Lee, et al., 2013) and in the literature, there are numerous studies, to understand the structures they are related, have been conducted (Aljomaa, Qudah, Albursan, Bakhiet, & Abduljabbar, 2016; Yildiz Durak & Saritepeci, 2019; Gökçearslan, Uluyol, & Şahin, 2018; Kwon, Kim, Cho, & Yang, 2013; Yildiz Durak, 2019; Young, 1998). However, there are a few studies about multi-screen addiction or screen addiction (Balhara, Verma, & Bhargava, 2018; Din & Isam, 2019; Khalili-Mahani, Smyrnova, & Kakinami, 2019; Lin et al., 2019; Lucena, Cheng, Cavalcante, Silva, & Farias Júnior, 2015). In this study, multiple screen addiction is considered as a behavioral addiction, as in smartphone addiction or Internet addiction. Accordingly, multi-screen addiction can be expressed as excessive and obsessive media consumption with more than one device with screens (Balhara et al., 2018; Bölükbaşı-Macit & Kavafoğlu, 2019; Lin et al., 2019). The most important difference between multi-screen addiction and smartphone addiction or Internet addiction is that it does not express a situation limited to a single tool or service. One of the important indicators of behavioral addiction is that the person's lack or restriction of access to an object or situation creates discomfort. In multi-screen addiction, not having access to only one device with a screen such as a phone, tablet, computer or TV is not an important indicator on its own. It expresses the status that an individual experiences discomfort and deprivation when they lose access to all or several of these devices at the same time (Lin, Kononova & Chiang, 2019).

In the Digital-2020 report, in Turkey, the 16-64 age range in which Internet users watch TV for 3 hours per day, use 7.5 hours of Internet, and it is understood that an average 1-hour play console games (We Are Social, 2020). Watching various video content is not just limited to TV. Therewithal, the behavior of watching videos over the Internet with various mobile devices is closely related to this situation. In support of this, when the data related to monitoring online daily video published by Statista (2019) are analyzed, Turkey and Saudi Arabia with a daily rate of 64% watch online videos are the countries with the highest rate. Accordingly, it can be said that university students whose social interaction has been limited due to the Covid-19 epidemic have increased or increase the time they spend with multiple screens (Phone, Tablet, PC, TV) and they face the risk of turning into an addiction.

This situation, in which interaction with people other than family members is limited, may cause individuals to experience stress from various angles and spend more time on screens to overcome this stress. Although screens help overcome the stress experienced in such a situation, it can be said that the individual can significantly increase the risk of developing multiple screen addiction (Khalili-Mahani et al., 2019). This type of addiction may have several negative behavioral, social, and health consequences for individuals (Chang et al., 2018; Kardaras, 2016; Mozafarian et al., 2017; Sarojini, Gayathri, & Priya, 2019; Seaward, 2020). Accordingly, it can be said that it is important to determine the level of multiple screen addiction, which is an important risk factor for university students. In this context, in this study, it is aimed to create a valid and reliable measurement tool that can be used to determine the multi-screen addiction levels of university students.

2. Method

This research is a valid and reliable scale development study to determine the multiple screen addiction levels of university students.

2.1. Participant

This study was carried out with the voluntary participation of students who continue their undergraduate education in various higher education institutions in Turkey. An appropriate/purposeful sampling method, which is more convenient for voluntary participation, was used in determining the study group. 69% of the 216 students included in the study were women, and 31% were men (See Table 1). When the distribution of the participant group, which has an average age of 21.72, according to the class level is examined, the highest participation is composed of the first-grade students with a rate of 39.4%. When the time spent by the participants with devices with screens is examined, it is seen that they use mobile phones for an average of 6.10 hours per day and a PC or Tablet PC for 3.00 hours per day and watch TV for an average of 1.63 hours per day.

Table 1.

Personal data of participants

Options		**f**	**%**
Gender	Female	149	69.0
	Male	67	31.0
Age	Mean=21.72; SD=3.44; Min=17 Max=39		
Class Level	1	85	39.4
	2	60	27.8
	3	22	10.2
	4	49	22.7
TV Watching Time (hours)	Mean=1.63; SD=1.62; Min=.00 Max=8.00		
Daily use of PC or Tablet (hours)	Mean=3.00; SD=3.56; Min=.00 Max=16.00		
Daily use of Smart Phone (hours)	Mean=6.10; SD=3.35; Min=.00 Max=16.00		

2.2. Scale Development Process

In the development of the multi-screen addiction scale, first of all, international studies on screen addiction were examined. Following this, various research and various measurement tools developed regarding smartphone addiction, Internet addiction, problematic technology usage, etc., which have various similarities, have no clear boundaries between them, and are even transient in certain situations, are examined. In addition, the Diagnostic and Statistical Manual of Mental Disorders DSM-V Internet Gaming Disorder addiction indicators (American Psychiatric Association, 2013) and Internet addiction, some of the indicators associated with smartphone addiction have been thought to be important factors for screen addiction. In this context, various smartphone addiction (Kwon et al., 2013; Lin et al., 2014) and Internet addiction scales (Chen, Weng, Su, Wu, & Yang, 2003; Young, 1998) and studies on screen addiction instruments (Lin, Kononova, & Chiang, 2019) used were studied. Within the scope of the literature review by the researcher, an item pool of 18 items was created to take into consideration DSM-V Internet Gaming Disorder indicators, the biopsychosocial framework presented by Griffiths (2005), and internet addiction diagnostic criteria determined by Young (1998). The pool of draft items was examined in terms of clarity, language, suitability to the target audience, and spelling check by a linguist. Following this, a draft scale form was sent to 3 volunteer university students, and the compliance of the items

with the target audience was checked with an online focus group interview. As a result of the focus group interview, one item that was not found to be understandable due to its leading to different implications was removed from the scale. The 17-item draft "Multi-Screen Addiction Scale Expert Opinion" form was sent to 3 experts related to scale development and the research topic. They examined each item in terms of “appropriate”, “not appropriate”, “should be corrected” options and added their opinions about the items as “explanation” where they deemed necessary. In line with expert opinions, two experts shared the opinion that an item should be corrected, and one expert shared the opinion that it was not a necessary item. Therefore, it was decided that it would be more appropriate to remove this controversial item from the scale form. In addition, various correction suggestions were made for 5 items and changes were made in the items in line with these suggestions by the researcher. As a result, a 5-point Likert type Multiple Screen Addiction Scale form consisting of 16 items was created.

2.3. Data Collection

With the data collection tool consisting of personal information form and MSAS, data from university students were collected online voluntarily. A “Participant Consent Form” was presented before the data collection tool to ensure voluntary participation and provide detailed information to the participants regarding attendance and leaving the study. If the participant approves this form, the data collection tool was automatically sent to her/him. Otherwise, no data collection tool was sent to the participant, and it was provided to leave the implementation process. The implementation of the data collection tool covers 3-5 minutes. 227 students continuing their education at different universities responded to the data collection tool consisting of 22 items, 6 in the personal information form and 16 in the MSAS scale. For various reasons (having extreme values or giving the same answer to all items) 11 participants' data were extracted and analyzed were carried out with data collected from 216 participants.

2.4. Data Analysis

In this study, the scope and construct validity of the multi-screen addiction scale were tried to be determined. For this purpose, exploratory and confirmatory factor analyzes were conducted. In addition, 3 field experts, who have at least a doctorate and experience in scale development and problematic technology use, were examined the scale in terms of content validity. Cronbach alpha reliability coefficient was calculated to determine the reliability level of the final scale form created with EFA and CFA. The prevalence of multiple screen addiction among the participants was determined within the framework of polythetic and monothetic criteria.

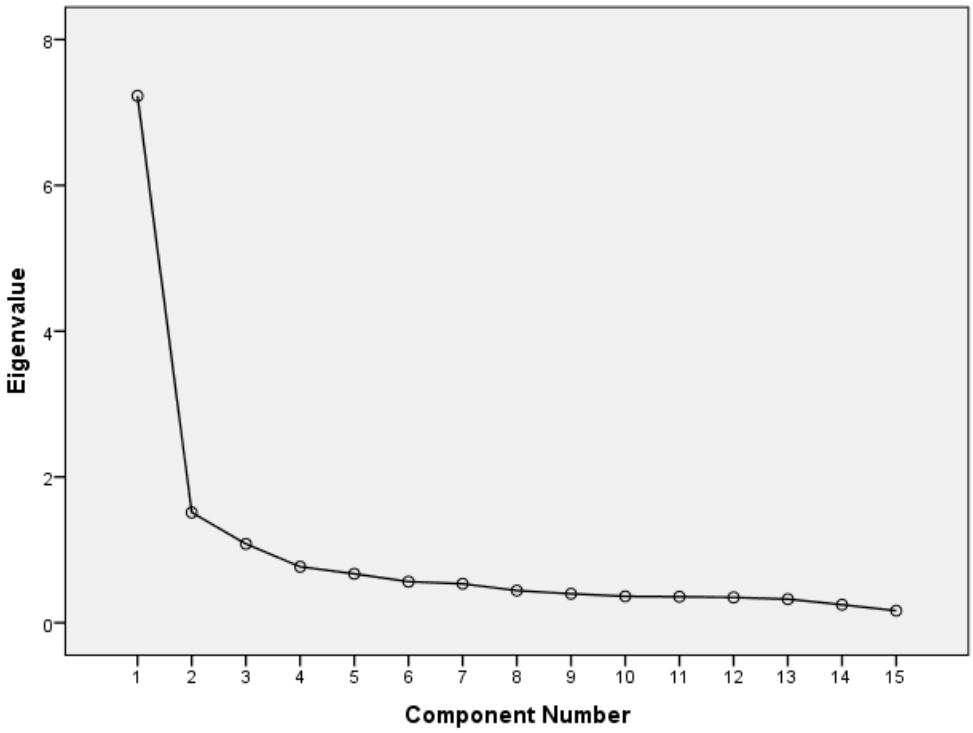
3. Result

3.1. Multiple Screen Addiction Scale (MSAS) Exploratory Factor Analysis

The Kaiser Meyer Olkin coefficient of the data collected for MSAS was calculated as .92 and this value is above the acceptable value of .6 (Field, 2009; Tabachnick, Fidell, & Ullman, 2007), and Bartlett's Test of Sphericity is significant at the p <.01 level (x^2=1874.02, p=.00). Accordingly, it can be said that the MSAS data set is suitable for EFA (Cohen, Manion, & Morrison, 2007). To determine the 16-item MSAS factor structure, factors with an eigenvalue greater than 1 and at least 5% (Seçer, 2013) were taken into account within the framework of the Kaiser-Guttman principle. In addition, the lower limit of item factor load was determined as .30. It was decided to exclude items with a factor loading of less than .30 from the scale (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2017). In determining the construct validity with EFA, starting from the prediction that possible factors of the MSAS scale would be related, the direct-oblimin rotation technique was used. The reason for using direct-oblimin as rotation technique is the prediction that the factors that made up the multiple screen dependency will be related (Büyüköztürk, 2002; Saritepeci, 2018). As a result of the analysis, it was determined that there are three factors (Factor 1: 7.63, Factor 2: 1.48; Factor 3: 1.07) with an eigenvalue greater than 1 and at least 5% explanation. According to the factor analysis result, item-7 overlapped in two factors (Factor 2 and Factor 3). Therefore, this item was removed from the scale, and EFA was repeated. When examined to the line chart presented in Figure 1 regarding the factor eigenvalues of the MSAS scale, it is understood that there are 3 factors (Factor1: 7.12, Factor2: 1.44, Factor3: 1.04) with an eigenvalue higher than 1.

Figure 1.

Line Chart of MSAS Factor



Detailed findings of EFA are presented in Table 2. As a result of the analysis, the factor load values of the items in the scale vary between .48 and .86. Factor 1 was named as "Compulsive Behavior", Factor 2 as "Loss of Control" and Factor 3 as "Excessive Screen Time", considering the factors that emerged as a result of EFA. There are 8 items in the Compulsive Behavior sub-dimension, explaining 47.47% of the total variance. The Loss of Control factor has 9.62% explanatory and contains 3 items. There are 4 items in the Excessive Screen Time factor and the contribution of this factor to the total variance was found to be 6.94%. Accordingly, the total explanatory of the 3-factor structure is 64.03%.

Table 2.

Multiscreen Addiction Scale Factor Load Values

Item Number	Factor1: Compulsive Behavior	Factor2: Loss of Control	Factor3: Excessive Screen Time
i06	**.81**		
İ08	**.81**		
İ15	**.74**		
i09	**.69**		
i05	**.68**		
i10	**.66**		
i11	**.60**		
i13	**.48**		
i14		**.86**	
i16		**.64**	
i12		**.61**	
i03			**.82**
i02			**.77**
i01			**.59**
i04			**.55**
Eigenvalues	7.12	1.44	1.04
Variance Explained	%47.47	%9.62	%6.94
Total Variance Explained	%64.03		

Descriptive findings obtained regarding the sub-dimensions and items of the MSAS scale are presented in Table 3 and Table 4. According to Table 3, the average of the items varies between 1.57-3.02. On the MSAS scale, item-8 ("I control the screen of my mobile devices (phone, tablet, PDA, etc.) even though I do not receive any notification.") has had the highest score average (3.02), and item-14 ("I lie to my relatives (family members, friends, etc.) about the time I spend on a screen.") has had the lowest average score (1.57).

Table 3.

Multiple screen addiction scale items descriptive findings

		$\bar{x}$	Sd	Min	Max	Skewness	Kurtosis
İtem	**Excessive Screen Time**	**10.93**	**4.00**	**4.00**	**20.00**		
i01	My mind is constantly busy with one or more screens of the television, phone, tablet, computer, etc.	2.87	1.21	1.00	5.00	.11	-.88
i02	I often spend more time with any screen (TV, computer, tablet, phone, etc.) than I planned.	2.97	1.13	1.00	5.00	.05	-.80
i03	I cannot control the time I spend in front of any screen.	2.47	1.16	1.00	5.00	.44	-.59
i04	I keep without sleep deprived because I control any screen or watch something on that screen.	2.54	1.26	1.00	5.00	.37	-.95
İtem	**Compulsive Behavior**						
i05	I cannot tolerate not having access to any screen.	2.61	1.27	1.00	5.00	.28	-1.00
i06	I check the screens of the television, phone, tablet, etc. even though I do not have any work or purpose (such as watching a program on TV, writing a message on the phone).	2.86	1.18	1.00	5.00	.05	-.77
i08	Even though I don't get any notifications, I check the screen of my mobile devices (phone, tablet, PDA, etc.).	3.02	1.32	1.00	5.00	-.05	-1.12
i09	I feel the need to constantly interact with any screen.	2.55	1.26	1.00	5.00	.48	-.71
i10	The most common thing I do during the day is looking at or checking any screen.	2.70	1.35	1.00	5.00	.16	-1.20
i11	I need to turn on the screen of a TV or phone-like device, even if there is no program I watch or an activity I need to do.	2.72	1.31	1.00	5.00	.23	-1.10
i13	Staying away from or not being able to access or screens of one or more my devices (mobile device, computer or TV etc.) during the day makes me feel uneasy.	2.50	1.24	1.00	5.00	.29	-1.02
i15	During the time I spend with the screens, I feel that the negative emotions I experience decrease.	2.44	2.44	1.00	5.00	.47	-.61
İtem	**Loss of Control**						
i12	Although I tried to control, limit or reduce the amount of time I spent with any screen, I was unable to do so.	1.99	1.99	1.00	5.00	.68	-.55
i14	I lie to my relatives (family members, friends, etc.) about the time I spend with any screen.	1.57	1.57	1.00	5.00	1.45	1.17
i16	I jeopardize various opportunities for my education (inability to prepare for the exam, etc.) or career because of the time I spend on any screen.	2.04	2.04	1.00	5.00	.88	-.11

According to Table 4, the MSAS average score of the participants is 37.85. Accordingly, it can be said that the participants' scores indicate a relatively low level of multi-screen addiction. When the situation is examined in

terms of scale sub-dimensions, the highest mean score is Excessive Screen Time (M / k = 2.71), while the lowest average score belongs to the Loss of Control (M / k = 1.87) sub-dimension.

Table 4.

Descriptive Findings of MSAS and its Subscales

Factor	k*	M	M/k	Sd	Min	Max	Skewness	Kurtosis
Excessive Screen Time	4	10.84	2.71	3.87	4.00	20.00	.33	-.57
Compulsive Behavior	8	21.40	2.68	7.77	8.00	40.00	.17	-.89
Loss of Control	3	5.61	1.87	2.42	3.00	12.00	.68	-.56
MSAS	15	37.85	2.52	12.38	15.00	69.00	-.80	.33

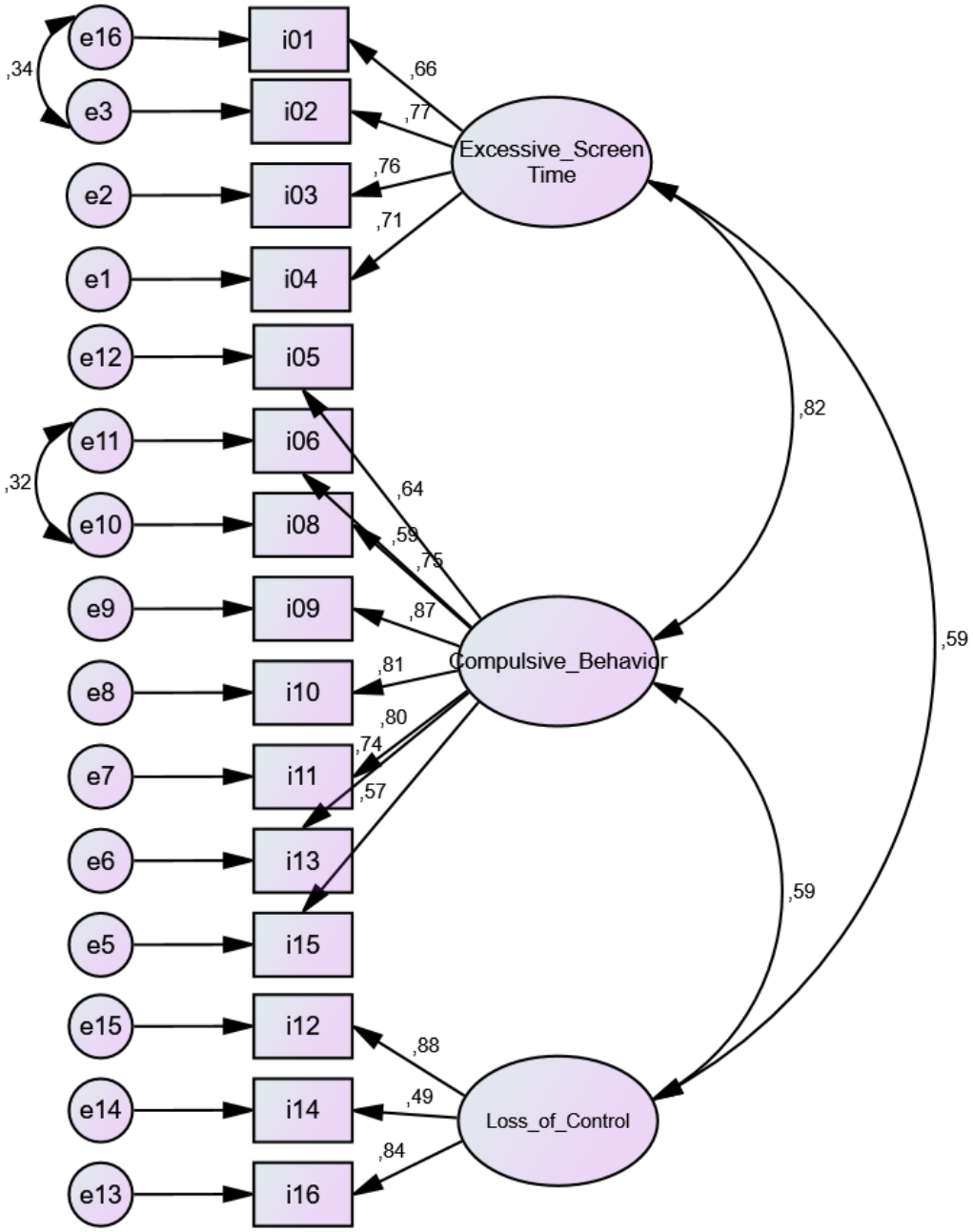
**k: number of items*

3.2. MSAS Confirmatory Factor Analysis

As a result of EFA, the construct conformity of the 3-factor 15-item MSAS scale was tested with CFA using AMOS 24.0 application. Due to the "normal distribution" of the data, the "maximum likelihood" method was used (Gürbüz & Şahin, 2016). As a result of the analysis, it was observed that some goodness of fit values were outside the reference range (x^2 / df=2.552, RMSEA=.085, GFI=.882, CFI=.919). Thereupon, the modification suggestions were examined, and the analysis was repeated by combining the i01-i02 and i06-i08 error variances (See Figure 2). According to the goodness of fit values (x^2 / df=2.206, RMSEA= .075, GFI=.901, CFI=.938) obtained as a result of CFA, the structure of the 3-factor multiple screen dependency scale has an acceptable fit. According to Figure 1, the standardized factor loads of MSAS items vary between .49 and .88.

Figure 2.

Measurement Model of Multiscreen Addiction Scale Factor Structure



3.3. Reliability

After the construct validity of the scale was checked with CFA, the internal consistency coefficients of the final format of the multiple screen addiction scale consisting of three dimensions and 15 items and its sub-dimensions were calculated. Accordingly, the internal consistency coefficient of the MSAS scale was calculated as .92.

Reliability coefficients in the subscales were calculated as Excessive Screen Time .83, Compulsive Behavior .90, and Loss of Control .71. The fact that the Cronbach alpha internal consistency coefficient is above .70 in the MSAS scale, and its sub-dimensions (Büyüköztürk, 2018) indicates that the scale and its sub-dimensions have a reliable structure. After determining the internal consistency coefficients for the scale and its sub-dimensions, item analyzes were carried out and the obtained findings are presented in Table 5. According to Table 5, corrected item - total correlation values are above .30. This situation indicates that the substances have good compatibility with other substances (Büyüköztürk, 2018). In all of the item distinctiveness comparisons presented in Table 5, it is seen that there was a significant difference in favor of the upper group. Accordingly, it can be said that the items have high distinctiveness.

Table 5.

Item Analysis

Factor	Items	Corrected Item-Total Correlation	Item Distinctiveness (%27 lower group - %27 upper group)	
			t	p
Excessive Screen Time	i01	.75	18.15	.000
	i02	.83	22.22	.000
	i03	.79	15.64	.000
	i04	.73	16.05	.000
Compulsive Behavior	i05	.73	14.05	.000
	i06	.75	12.76	.000
	i08	.85	18.93	.000
	i09	.88	20.91	.000
	i10	.87	20.25	.000
	i11	.83	19.49	.000
	i13	.81	15.06	.000
	i15	.70	10.30	.000
Loss of Control	i12	.57	17.22	.000
	i14	.60	11.49	.000
	i16	.66	18.59	.000

3.4. Addiction Criterion

The final form of the three-factor structure of the MSAS scale exhibited acceptable reliability and validity. Both monothetic and polythetic formats were used as addiction criteria. In the monothetic criterion, all criteria related to multi-screen dependency must be met. In the polythetic criterion, at least half of the addiction indicators must be met. In this study, the 5-point Likert type was determined as 3 (sometimes) cut-off point on this scale and it

was accepted that the item related to this cut-off point and the answers above it was met. Accordingly, responding to all items within the scope of the monothetic criterion and to at least 8 items within the scope of the polythetic criterion in MSAS, which consists of 15 items, is defined as an indicator of dependence. Accordingly, it was determined that 4.63% of the participants within the scope of the monothetic criterion and 50% of the participants within the framework of the polythetic criterion were multiple screen addicts.

4. Discussion and Conclusion

This study aims to develop a valid and reliable scale to measure the multi-screen addiction level of university students. In this context, an item pool was constituted by examining (1) studies in the literature on multi-screen addiction and screen addiction, (2) APA DSM-V Internet Gaming Disorder indicators, which are thought to be closely related to multi-screen addiction, (3) developed scales and research on issues such as internet addiction, mobile game addiction, problematic social media use. After various pre-examination and structuring activities, a 16-item scale form was constituted.

EFA was applied to determine the factor structure of the scale, and as a result, it was found that one item overlapped in more than one factor. This item was removed from the scale form and EFA was repeated, and a three-factor structure with an eigenvalue greater than 1 was formed. The Compulsive Behavior sub-dimension alone explains 48.19% of the total variance. The Loss of Control explains 10.08% of the total variance and 7.21% of Excessive Screen Time. It has been determined that the structure created because of EFA has an acceptable harmony with the performed CFA. When the internal consistency of the final format of the scale was examined, it was determined that the Cronbach Alpha value in the overall and sub-dimensions of the scale was between .71 and 92.

Each item in the scale created within the scope of this study was scored from 1 (Never) to 5 (Always). Responses of 3 (sometimes) and above to items in the scale were considered to be met in terms of addiction. Monothetic and polythetic formats were used together to determine the addiction criteria. It has been determined that 4.63% of the participants according to the monothetic format (participants who gave at least 3-sometimes answers to all 15 items) are multi-screen addicts, while according to the polythetic format 50% of the participants (participants who answered at least 8 of the 15 items 3-sometimes) are multi-screen addicts. Supporting this finding, the digital-2020 report prepared by the We Are Social (2020), individuals in the 16-65 age range in Turkey daily 7H as 29M Internet use, 3H 4M television and 58M gaming average, including console 11H 31M has been reported that spent

time with several screens. Accordingly, it can be said that a significant portion of the individuals in society carry various risks in the context of screen addiction and excessive time spent in front of the screens.

4.1. Implications of Research

In this study, a three-dimensional scale with proven validity and reliability was developed to determine the multiple screen addiction levels of university students. In future studies, screening studies can be conducted to determine the variables that affect the multiple screen addiction levels of university students. In addition, qualitative and mixed studies can be organized to examine in more depth the causes of screen addiction and what the consequences of it may be for the individual and society.

MSAS scale was developed for university students. On the other hand, screen addiction is not only a significant threat for university students, but it also concerns a significant part of society. Therefore, it is important to conduct studies to adapt the MSAS scale in different age groups.

In this study, it was determined that 50% of the participants showed multi-screen addiction according to the polythetic format. In this case, it can be said that a significant number of individuals are connected to screens, especially mobile device screens, in a long and obsessive manner during the day. In the context of this study, it is recommended to organize various activities that will raise awareness about the time spent by university students in front of screens and that screens dominate their lives.

4.2. Limitations

It is generally recommended that EFA and DFA be carried out with different working groups in scale development studies. In this study, data obtained from a single group in EFA and CFA studies were used, and this is seen as an important limitation. Since the data collection process came to summer with the Covid-19 outbreak, participation in the study was limited and the data collection process took much longer than expected. In addition, it is thought that differences in the interaction of individuals with screens during the epidemic period may cause higher scores for multiple screen addiction. In this case, it is seen as a factor that limits the generalizability of this study.

Conflict Interest and Author Contributions

All stages of the study were organized and conducted by the author. In addition, the authors declare that they have no conflict of interest.

Ethics

In this study, all scientific ethical rules were followed. For the study, 2020-SBB-0114 ethics committee approval was obtained from Bartın University Social Sciences and Humanities Ethics Committee.

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Appendix

Multiple Screen Addiction Scale

	In Turkish (Original form)	In English
İtem	**Aşırı Ekran Süresi**	**Excessive Screen Time**
i01	Televizyon, telefon, tablet, bilgisayar vb. ekranlarından biri ya da birkaçı ile zihnim sürekli meşguldür.	My mind is constantly busy with one or more screens of the television, phone, tablet, computer, etc.
i02	Herhangi bir ekranla (TV, bilgisayar, tablet, telefon vb.) sıklıkla planladığımdan daha fazla zaman geçiririm.	I often spend more time with any screen (TV, computer, tablet, phone, etc.) than I planned.
i03	Herhangi bir ekran karşısında geçirdiğim süreyi kontrol edemem.	I cannot control the time I spend in front of any screen.
i04	Herhangi bir ekranı kontrol ettiğimden ya da o ekranda bir şeyler izlediğimden dolayı uykusuz kalırım.	I keep without sleep deprived because I control any screen or watch something on that screen.
İtem	**Zorlayıcı Davranış**	**Compulsive Behavior**
i05	Hiçbir ekrana erişimimin olmamasına tahammül edemem.	I cannot tolerate not having access to any screen.
i06	Televizyon, telefon, tablet vb. ekranlarını herhangi bir uğraşım (TV'de takip ettiğin bir program izleme, telefondan mesaj yazma gibi) olmadığı halde kontrol ederim.	I check the screens of the television, phone, tablet, etc. even though I do not have any work or purpose (such as watching a program on TV, writing a message on the phone).
i08	Herhangi bir bildirim almasam da mobil cihazlarımın (telefon, tablet, PDA vb.) ekranını kontrol ederim.	Even though I don't get any notifications, I check the screen of my mobile devices (phone, tablet, PDA, etc.).
i09	Sürekli herhangi bir ekranla etkileşim halinde olma gereği duyuyorum.	I feel the need to constantly interact with any screen.
i10	Gün içinde en sık yaptığım şey herhangi bir ekrana bakmak ya da kontrol etmektir.	The most common thing I do during the day is looking at or checking any screen.
i11	Herhangi takip ettiğim program ya da yapmam gereken bir etkinlik olmasa da TV, telefon benzeri bir ekranı açma ihtiyacı duyarım.	I need to turn on the screen of a TV or phone-like device, even if there is no program I watch or an activity I need to do.
i13	Gün içerisinde mobil cihazım, bilgisayarım ya da TV ekranlarından bir ya da birkaçına erişimimin olmaması ya da uzak kalmam huzursuz hissetmeme sebep olur.	Staying away from or not being able to access or screens of one or more my devices (mobile devices, computer, or TV etc.) during the day makes me feel uneasy.
i15	Ekranlarla geçirdiğim zaman süresince yaşadığım olumsuz duyguların azaldığını hissederim.	During the time I spend with the screens, I feel that the negative emotions I experience decrease.
İtem	**Kontrol Kaybı**	**Loss of Control**
i12	Herhangi bir ekranla geçirdiğim süreyi kontrol etme, sınırlandırma ya da azaltmak için çaba göstermeme rağmen bunu başaramadım.	Although I tried to control, limit, or reduce the amount of time I spent with any screen, I was unable to do so.
i14	Herhangi bir ekranla geçirdiğim süreyle ilgili yakınlarıma (aile üyeleri, arkadaş vb.) yalan söylerim.	I lie to my relatives (family members, friends, etc.) about the time I spend with any screen.
İ16	Herhangi bir ekranda geçirdiğim süre nedeniyle eğitimim (sınava hazırlanamama vb.) veya kariyerim için çeşitli fırsatları tehlikeye atarım.	I jeopardize various opportunities for my education (inability to prepare for the exam, etc.) or career because of the time I spend on any screen.