Journal of Teacher Education and Lifelong Learning (TELL)

Volume: 4 Number : 2 Year: 2022 | Research Article | ISSN: 2687-5713

Digital Well-Being Scale Validity and Reliability Study

Veysel Bilal Arslankara[1] Aylin Demir[2]
Ömer Öztaş[3] Ertuğrul Usta[4]

[1]Akyazı Ali Altıparmak Middle School Manager, Sakarya, Türkiye
vbilalarslankara@gmail.com

[2]Sancaktepe Yenidoğan Fatih Middle School Teacher, İstanbul, Türkiye
aylindhocam@gmail.com

[3]Akyazı Kuzuluk Dr. Enver Ören Middle School Manager, Sakarya, Türkiye
oztas54omer@gmail.com

[4]Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education, CEIT, Konya, Türkiye
ertugrulusta@gmail.com

Article Information

Article History
Received: 01/09/2022
Accepted: 21/11/2022
Published: 31/12/2022

Keywords:
digital well-being, digital competence, a state of well-being.

ABSTRACT

This study aims to develop a reliable and valid scale that measures the hedonic and eudonomic state of happiness of individuals who use digital environments and technologies while using these environments and arising from their use. Digital well-being describes the subjective well-being of individuals in a social environment where digital media and technology are ubiquitous. In this context, a general framework for the link between digital media and technology use and well-being is presented. This framework attempts to identify three important constructs and their interconnections: digital media and technology tools, harms/hedonic happiness and eudonomic happiness. Individuals' digital use story emerges within socio-cultural and technical conditions, shaping environmental conditions. However, this usually causes simultaneous or prolonged harm and benefit. By analyzing the studies in domestic and foreign literature, 140 antecedent items were prepared, grouped and transformed into scale statements and 21 items were determined. The scale was applied to 367 digital technology users. Because of the exploratory factor analysis, 12 items grouped into 3 factors and having sufficient factor loadings (>.40) were selected. The construct validity test for whether the scale consisting of 12 items measures a general construct (digital well-being) and three sub-dimensions named by experts (digital satisfaction, safe and responsible behavior and digital wellness) was conducted using confirmatory factor analysis. Spearman Brown, Guttmann Split Half and Cronbach Alpha values were calculated for the reliability of the whole scale and its sub-dimensions. The Digital Well-Being Scale (DWBS), which was determined to be valid and reliable in the analyses, consists of three sub-factors and 12 items, is intended to be a scale that fills the gaps in the literature, can be developed and used. It is important that future studies on digital well-being prioritize identification, measurement and theory development.

Citation: Arslankara, V. B., Demir, A., Öztaş, Ö. & Usta, E., (2022). Digital well-being scale validity and reliability study. *Journal of Teacher Education and Lifelong Learning*, *4*(2), 263-274.

INTRODUCTION

In this study, a scale that would raise awareness about reduced emotional discomfort and emotion regulation, the lack of negative effects, the presence of positive effects on the well-being of individuals who exhibit competence, competent and correct behaviors after and during the use of digital media and technologies was put forward. Well-being generally includes a general assessment of life satisfaction and emotions ranging from depression to happiness (Frey & Stutzer, 2002; Mahon, Yarcheski, & Yarcheski, 2005). Well-being is a positive outcome that is important for many segments of society. Because it tells us that people perceive that their lives are going well. Good living conditions (housing, employment, health) are essential elements for well-being. While studies in the field of psychology have focused on negative emotions such as depression, anxiety and worry in the first century, positive emotions such as satisfaction and happiness have gradually been emphasized (Myers & Diener, 1995).

The feeling of happiness is one of the important factors that affect human life extremely. Therefore, the concept of happiness is discussed in depth in many studies. In this context, Diener proposed the hedonic approach as a modern subjective well-being theory (Diener & Chan, 2011). Hedonism is a philosophical view that explains the meaning of life as being satisfied with pleasure. Although there are different definitions, in general, it is an approach that argues that pleasure is better than all other emotions and that the importance of enjoying all actions that lead to the goal, as well as the effectiveness and accuracy of behavior is directly proportional to the pleasure received (Tilley, 2012). According to Diener and colleagues (2018), subjective well-being is people's self-evaluation of happiness in their own lives. However, Aristotle mentioned that hedonic happiness is a crude ideal and said that true happiness is in virtue. Aristotle says that actions worthy of virtue are already good and beautiful in themselves. Therefore, the idea that happiness is the "best and most beautiful" thing, and that the best and most beautiful is contained in the best activities are accepted (Aristotle, Nicomachean Ethics 19–20). The role of the external environment (political, social, family, relationships, etc.) in creating happiness is considered important. Such a theory differs from the hedonic theory. This is because they argue that behaving only according to their desires is not a requirement for happiness and/or does not always result in well-being. In the eudonomic theory, good life and therefore long-term happiness and well-being are objective rather than subjective. In this research, we adopt an understanding of well-being that is based on both hedonic and eudonomic theories and that is felt during and through the use of digital media and technology or the presence of such media and tools.

Today, the transfer of public and private services such as education, shopping, banking and communication to digital environments has gradually increased the access and interaction of individuals with these environments. Individuals feel free to a great extent in these environments, know almost no boundaries in sharing and normalize sharing the information they encounter without questioning (Kalaman, 2017). When scientific evidence on the problems in the management of the use of digital media and technology in people's daily lives is examined, it is possible to reveal two main thematic concerns. Some studies focus on the concept of "overconsumption" and others focus on the concept of "multi-tasking" (Frey, Benesch & Stutzer, 2007). Overconsumption analyses how and why people consume more digital consumption than they want. On a social media platform, content is constantly encountered and there is no limit to this situation. This situation reveals the problem of digital overconsumption. Multitasking, on the other hand, describes the situation of constantly switching between different foci of attention, which is specific to digital media. For example, while dozens of tabs open in a web browser are for research related to a subject area, a film/music is playing in the other web browser window, and social media notifications are coming from one side; therefore, simultaneous navigation and getting lost between different subject areas or jobs in different dimensions. This situation is referred to as multitasking. Such situations are integrated with each other and cause many emotional or physiological problems due to the use of digital media or technology. At this point, it can be stated that a variable that comes into play is self-control. Under all circumstances, it is in the position of an auditor of human activities, and in the absence of subjective, psychological, or digital well-being, it would be extremely incomplete to state that this is a lack of self-control. The existing complexity

and multidimensionality of the digital media environment are beyond a simple lack of self-control. In the period before digitalization, self-control was considered to play a key role in success and happiness (Mischel, Ayduk, Berman, Casey, Gotlib, Jonides & Shoda, 2011). However, we continue to witness many unprecedented functions of ICT tools. Regardless of the characteristics of individuals, we argue that digital media and technologies push everyone to systematic, fast, intensive and non-linear consumption of information and communication. The developing and updated possibilities of digital environments and technologies trigger individuals to adopt certain behaviors (Heersmink, 2015). Therefore, stimuli and responses in digital environments are highly complex and specific. Here, it is important to have special skills and competencies or to receive support to maintain the well-being of individuals. For this reason, the unique structure of digital environments and technologies and self-control toward them cause a new area of discussion. We care about the features of the digital environment, such as the abundance of possibilities and options offered; the quick and easy transition from focus to focus; the ability to do more than one task with a single device or environment; and the 24/7 continuity of all these. Therefore, it is important to talk about digital well-being and skills.

We define digital well-being as a state in which subjective well-being is maintained in a virtual and technological environment characterized by an excessive increase in media communication. We argue that digital well-being makes an increasing contribution to an individual's overall well-being with both hedonic and eudemonic dimensions (Ryan & Deci, 2001). When evaluated from a broad perspective, digital well-being should be considered not only to reduce the negative effects of digital media and technology or to obtain pleasure, but also to add meaning to the individual's daily life and to ensure self-actualisation. When examined from this aspect, it can be said that at a short-term superficial level, digital well-being only addresses technostress and physiological problems arising from the use of digital media or points to the state of pleasure provided by digital tools and technologies. However, with a more in-depth perspective, in the long term, it points to directing individuals toward their personal and professional goals and reaching the level of self-actualisation in life (Ryff & Singer, 2013).

Advances in psychology, neuroscience and measurement suggest that well-being should be measured with some degree of precision (Kahneman, 1993). However, many indicators that measure living conditions may be insufficient to measure what people think and feel about their lives, such as the quality of their relationships, their positive emotions and resilience, their fulfillment of their potential, or their overall life satisfaction, i.e., their "well-being" (Diener & Seligman, 2004; Diener, 2009). In this context, this study aims to develop a valid and reliable measurement tool that can measure digital well-being.

Well-being in the use of digital media and technology is central to the physical, mental and emotional health of the individual and society. Since digital media and technologies are in active use by all individuals from infancy to old age, it is important to investigate digital well-being states to improve the quality of life. Therefore, this study aimed to examine the digital well-being of individuals. Depending on this purpose, the following sub-objectives will be sought:

- ➔ How is the construct validity of the digital well-being scale?
- ➔ What is the reliability status of the digital well-being scale?
- ➔ What is the level of the participants' digital well-being?

METHOD

Research Design

This study, which develops a valid and reliable scale to determine the level of well-being in digital environments for all individuals using digital technologies, was conducted in a descriptive survey model. The descriptive survey model is a research model that serves to describe the situations experienced or are being experienced as they are (Karasar, 2007) and summarizes the characteristics of the collected data (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2017). For this reason, the survey model was used in this study.

Study Group

While creating the scale item pool, 140 sentences were written separately by the researchers, and 29 items agreed to be included in the item pool, considering situations such as overlapping, distancing from the definition framework, etc. Because of the opinions of educational technology, psychological counseling and guidance and language experts, it was decided to include 21 items in the pilot study. In scale development studies, it is recommended that it would be correct to reach at least 10 times the number of participants in the item pool (Çepni, 2001; Korkmaz, Usta, & Kurt, 2014). Research data were obtained from 367 people who stated that they had used digital technologies in the second half of 2022. The demographic information of the participants is presented in the table below.

Table 1. *Demographic details*

Gender	**Male**	**Female**	**Total**
<14 age	20	23	43
15–24 age	27	42	69
25–34 age	33	73	106
35–44 age	60	42	102
45–54 age	24	16	40
55 age>	6	1	7
TOTAL	**170**	**197**	**367**
Primary School	5	7	12
Middle School	25	42	67
High School	18	20	38
Associate Degree	4	8	12
Graduate	86	101	187
Post Graduate	29	21	50

Establishing the Item Pool

In the first step of the scale development process, the literature on digital skills, competencies (Ertan Özen & Duran, 2017; Yılmaz & Dogusoy, 2020; Tapscott, 1998; Ribble, 2015; Krumsvik, 2008), subjective well-being, psychological well-being (Ryff & Keyes, 1995; Larson & Chastain, 1990), virtual risk (Arslankara & Usta, 2018; Ólafsson, Livingstone & Haddon, 2013), virtual loneliness (Korkmaz, Usta & Kurt, 2014), technostress (Çoklar, Efilti & Şahin, 2017). Some items were written for the basic digital skills analyzed. While creating the items, digital competence, virtual risk, technostress, etc. scales were considered. Many dimensions, especially the items in the scales, were considered and an item pool was started to be created. The researchers wrote 140 sentences for all dimensions. The item pool included 29 items, and 21 items were kept in the pool because of the pilot study and new expert opinion. After the necessary arrangements were made, the scale form with 21 items (15 positive and 6 negative items) was made ready for the actual application. The scale was coded on a 5-point Likert scale with the premises of fully reflects (5), reflects a lot (4), reflects moderately (3), reflects a little (2) and does not reflect at all (1) for positive items; negative items were coded in the opposite way.

Data Analysis

SPSS and AMOS software was used to analyze the data obtained during the development of the scale. Basic component analysis was used to determine the construction validity and factor loads of the scale developed to measure the digital well-being of digital technology users (Büyüköztürk, 2002). In case of suitability for factor analysis, Kaiser- Meyer- Olkin (KMO) coefficient and Barlett Sphericity test results were examined. In the exploratory factor analysis (EFA), 21 items, 6 of which were negative, were coded and the conditions that the variance ratio shared with other items should be 0.30 and the factor loadings should be 0.40 and above were applied to examine the suitability of the items to the selected model. Although the general acceptance value is 0.30 and above, it is stated that 0.50 and above is a better result (Büyüköztürk, 2002). Therefore, this lower limit was determined as 0.40 in this study. Eigenvalue and scree plot was analyzed to determine the number of factors. Because of the factor analysis, item discrimination was

evaluated with an independent sample t-test with 12 items. Additionally, to see how the scale items affect the levels of digital users, the significance of the 27% lower and upper group item scores was analyzed. The validity of the scale, consisting of 12 items was ensured. After the exploratory factor analysis, and s confirmatory factor analysis was conducted. Some value ranges (CFI, GFI, RMSEA, SRMR, NNFI, AGFI, NFI) were considered to verify the acceptability of the scale.

Data Collection

The scale form prepared by the researchers was carried out with the participation of individuals using digital technologies in Sakarya province voluntarily in line with the purpose. With the pilot application, the average response time of the scale was determined as 10 min.

FINDINGS

Findings Related to Validity

Construct validity and item discrimination values were calculated to verify the digital well-being scale. The results obtained are given below.

Construct Validity

Findings Related to Exploratory Factor Analysis (EFA): The KMO coefficient and Barlett's test are used to determine whether exploratory factor analysis should be performed using the data obtained. A KMO coefficient greater than 0.60 and Barlett's test being significant ($p<0.05$) indicate that the data are suitable for factor analysis (Büyüköztürk, 2002; Hair, Black, Babin & Anderson, 2010). KMO= 0.733 and Barlett test $\chi 2$= 900.800 sd= 120 (p= 0.000). Accordingly, it was decided that factor analysis could be performed using the data obtained. Accordingly, factor analysis was conducted to reveal the dimension structure of the scale. Because of the analysis, a structure consisting of 3 dimensions was obtained. Item loadings were analyzed and 4 items with loadings lower than 0.40 were removed from the scale. At this point, the relevant field experts have consulted again in order not to disturb the content validity. In the next stage, for the overlap control, the factor loadings were re-examined according to the difference of 0.1 between the factor loadings and 2 more items were excluded. Therefore, 9 items were removed from the scale, 12-item final scale was obtained. As a result, it was determined that the items were gathered under 3 factors and explained 49.36% of the total variance. In the last stage, the naming of the factors was done with the support of the literature:

- ➔ Factor1: "Digital Satisfaction" 4 items,
- ➔ Factor2: "Safe and Responsible Behavior" 4 items
- ➔ Factor3: "Digital wellness" 4 items. Accordingly, the distribution of factor eigenvalues is given in Graph 1.

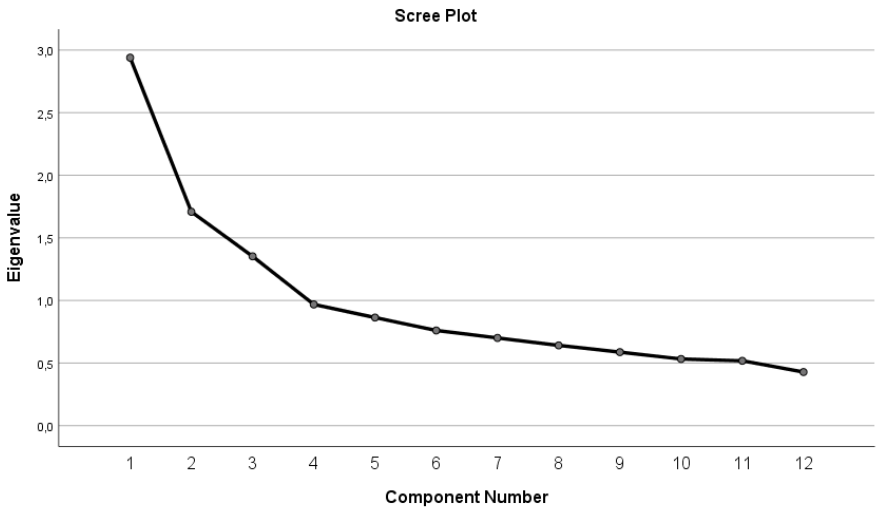

Figure 1. *Slope graph*

Table 2 shows the exploratory factor analysis. As seen in the table, a three-factor structure dimension was analyzed. Item loadings and variance explanation amounts are shown in the table.

Table 2. *Results of exploratory factor analysis*

	Items	F1	F2	F3
1	I can easily adapt to new technologies.	.797		
2	I enjoy spending time with digital technologies.	.814		
3	I care about new digital experiences that can bring different experiences.	.690		
4	In digital skills, I feel in harmony with the people around me.	.514		
5	I care about my digital reputation when using online platforms.		.725	
6	I take care not to exhibit behavior that disturbs other users on social media.		.715	
7	I use digital technology in purposeful meaningful ways.		.541	
8	I always act cautiously against any harm that may come to me in the digital world.		.522	
9	I feel comfortable knowing that someone will see my social media posts.			.745
10	It makes me happy if the posts/stories/statuses I share are liked.			.647
11	A technological problem that I cannot solve makes me angry. (-)			.498
12	If I express myself freely on social media, I think that I will be ostracized by some people in my social networks (-)			.690
	Eigenvalue	2.939	1.708	1.352
	Explained variance	24.491	14.236	11.268

As shown in Table 2, the "digital satisfaction" dimension of the scale includes 4 items and the factor loadings are in the range of 0.514–0.797. When the whole scale is analyzed for this factor, it is seen that the eigenvalue is 2.939. It is seen that it has the power to explain 24.491% of the overall variance. The "safe and responsible behavior" factor of the scale consists of 4 items. Factor loadings are in the range of 0.522–0.725 and the eigenvalue is 1.708 and the variance is 14.236. When the "digital wellness" factor is examined, it is seen that it consists of 4 items. Factor loadings are in the range of 0.498–0.745. The eigenvalue of the factor is 1.352 and its variance is 11.268%.

Findings Related to Confirmatory Factor Analysis (CFA): because of the exploratory factor analysis, a scale consisting of 12 items with 3 factors was obtained. Confirmatory factor analysis was performed using AMOS software with the data obtained from the analysis. Confirmatory factor analysis is used to determine the relationship between factors, the relationship between variables and factors, and the level of explanation of factors to the model (Brown, 2015).

Table 3. *Comparison of research results with standard goodness-of-fit measures*

Fit Dimensions	Perfect Fit	Acceptable Fit	Research Data
$\chi 2$/sd	$0 \leq \chi 2/sd \leq 2$	$2 \leq \chi 2/d<5$	2.298
RMSEA	$0 \leq$ RMSEA $\leq .05$	$.05 \leq$ RMSEA $\leq .08$	0.060
S-RMR	$0 \leq$ S-RMR $\leq .05$	$.05 \leq$ S-RMR $\leq .10$	0.072
GFI	$.95 \leq$ GFI ≤ 1	$.90 \leq$ GFI $\leq .95$	0.954
AGFI	$.95 \leq$ AGFI ≤ 1	$.90 \leq$ AGFI $\leq .95$	0.923
CFI	$.97 \leq$ CFI ≤ 1	$.95 \leq$ CFI $\leq .97$	0.909
NFI	$.95 \leq$ NFI ≤ 1	$.90 \leq$ NFI $\leq .95$	0.853
IFI	$.95 \leq$ IFI ≤ 1	$.90 \leq$ IFI $\leq .96$	0.911

Source: Schermelleh-Engel-Mooesbrugger-Müler (2003); Byrne (2011); Çokluk (2014).

Confirmatory factor analysis results are given in Table 3. According to these results, it was determined that the NFI value was not within the specified value range, while the RMRSEA, SRMR, GFI, AGFI, CFI, NFI and IFI values were at acceptable fit values. The factorial model and factor-item structure of the scale are given in Figure 2.

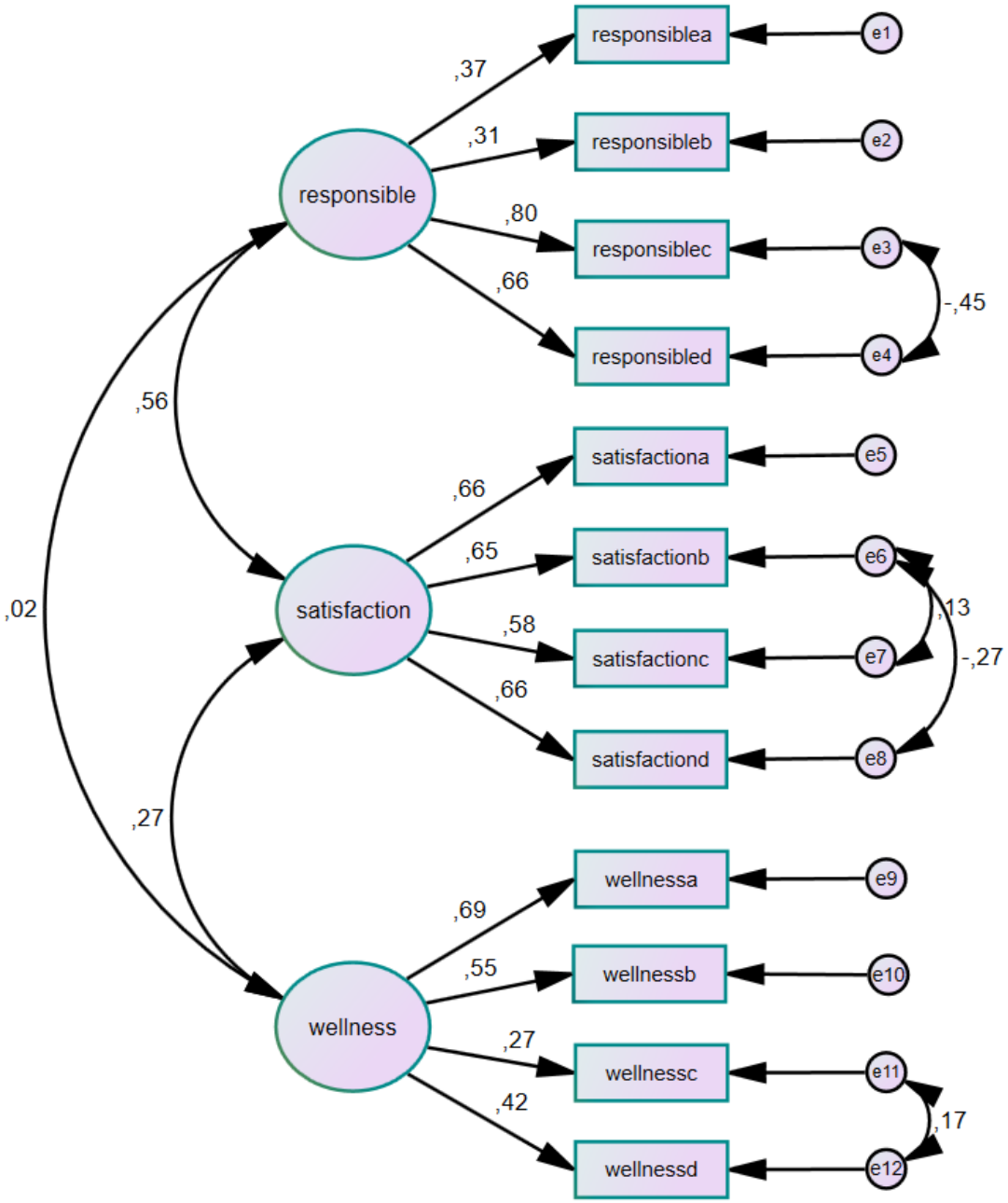

Figure 2. *Confirmatory factor analysis link graph of the scale*

Item Factor Correlations

Item-total correlation method was used to determine the degree to which the items serve the purpose. In this method, the correlations between the item scores and factor scores were determined and the degree of usefulness was determined. The item-factor correlation values of the items are shown in Table 4.

Table 4. Item factor correlations

F1 Digital satisfaction		F2 Safe and responsible behavior		F3 Digital wellness	
Item	**r**	**Item**	**r**	**Item**	**r**
S1	.791(**)	**B1**	.709(**)	**W1**	.456(**)
S2	.659(**)	**B2**	.543(**)	**W2**	.733(**)
S3	.685(**)	**B3**	.706(**)	**W3**	.385(**)
S4	.730(**)	**B4**	.695(**)	**W4**	.660(**)

When the item-factor correlation coefficients given in Table 4 are examined, it is observed that the values between 0.659 and 0.791 in the digital satisfaction factor; between 0.543 and 0.709 in the safe and responsible behavior factor; and between 0.385 and 0.660 in the digital wellness factor. Each item was found to have a positive and significant relationship with the whole scale ($p<0.001$). According to this result, when the item-factor correlation values are considered, it is seen that each item in the scale serves the purpose.

Item Discrimination

With the calculation of the discrimination power of the items prepared to develop the scale, the results obtained from the individual items are ranked from the largest to the smallest. Lower 27% and upper 27% groups are found. Independent sample t-test analysis was applied to the lower and upper groups. The t-values indicating the discrimination power are shown in Table 4.

Table 5. Item discrimination

F1 Digital satisfaction		F2 Safe and responsible behavior		F3 Digital wellness	
Item	**t**	**Item**	**t**	**Item**	**t**
S1	-15.456	**B1**	-10.773	**W1**	-4.430
S2	-9.749	**B2**	-5.228	**W2**	-7.598
S3	-10.222	**B3**	-16.016	**W3**	-3.677
S4	-16.016	**B4**	-13.776	**W4**	-8.584
Total (F)	-21,431		-20,526		-13,016
Total Scale	-35,016				

When Table 5 is analyzed, it is seen that the values found by the independent sample t-test for the 12 items, factors and factor total are between -3.677 and -16.016. The total t-value of the scale is -35.016 and all results are significant ($p<0.001$). Accordingly, it can be said that the discrimination level of the scale is high.

Findings Related to the Reliability of the Scale

To calculate the reliability of the scale, the analyses were examined.

Internal Consistency Level

Considering the factors and the whole scale, Spearman Brown, Cronbach Alpha and Guttmann Split-Half reliability coefficients were analyzed. Reliability coefficients are given in Table 6.

Table 6. Factor reliability coefficients

Factors	Item Number	Spearman Brown	Gutt-mann Split-Half	Cronbach's Alpha
F1: Digital satisfaction	4	.817	.816	.808
F2: Safe and responsible behavior	4	.676	.741	.730
F3: Digital wellness	4	.571	.570	.663
Total	**12**	**.728**	**.751**	**.791**

When Table 6 is analyzed, Spearman Brown coefficient of the scale consisting of 12 items and 3 factors is 0.728; Guttmann Split-Half is 0.751; Cronbach's alpha value is 0.791. Spearman Brown coefficient of the "Digital Satisfaction" factor is 0.817; Guttmann Split-Half is 0.816; Cronbach's alpha value is 0.730. The Spearman Brown coefficient of the "Safe and Responsible Behavior" factor is 0.676, Guttmann Split-Half is 0.741 and Cronbach's alpha is 0.730. The Spearman Brown coefficient of the "Digital Wellness" factor is 0.571, Guttmann Split-Half value is 0.570; Cronbach's alpha value is 0.663.

Therefore, it can be said that the reliability coefficient of the sub-factors of the scale is good (Eroğlu, 2008; Kline, 1994). Accordingly, it was concluded that the scale items and the whole scale made reliable and consistent measurements.

DISCUSSION, CONCLUSION, RECOMMENDATIONS

The current study develops a valid and reliable scale to determine the digital well-being of individuals who use digital technology environments and tools for to use of these environments. Because of the study conducted for this purpose, the Digital Well-Being Scale consisting of 3 factors and 12 items was developed.

The factors of the scale are named as follows.

- ➔ The first factor is "Digital Satisfaction" consisting of 4 items,
- ➔ The second factor is "Safe and Responsible Behavior" consisting of 4 items,
- ➔ The third factor is "Digital Wellness" consisting of 4 items,

When naming the factors, the concept of satisfaction was used as they are items that reflect the harmony, pleasure and positive feelings provided by digital technology, tools and environments. According to the Turkish Language Association (2022), satisfaction means "achieving the realization of something desired, reaching contentment, fulfillment". Therefore, this factor was named as "digital satisfaction" when it was considered to be enjoying and feeling pleasure while being intertwined with digital skills. The second factor was named safe and responsible behavior. Schuler (1992) mentions 4 types of behavior in communication with people. These are avoidance, attack, redirection and safe behavior. Safe behavior includes protecting one's own rights by respecting the rights of others, protecting one's personal life and wishes, and establishing good relations with the environment. In addition, using digital technologies in a meaningful and correct way is also a requirement of a sense of responsibility. Therefore, the behavior should be both safe and responsible. Acting responsibly is a basic skill that should be acquired at an early age (Sürücü, 2007). Since the items in the second factor are thought to indicate the behaviors mentioned above, it was deemed appropriate to name this factor as safe and responsible behavior. The third factor was named as digital wellness. When we look at the action expressions in the items, we see that there are expressions of relaxation, happiness, anger (negative item). The concept of wellness is defined as "making people feel healthier and happier" (Cambridge Dictionary, 2022). For this reason, it was thought that feeling relaxation and happiness with digital environments and technologies could be better explained with this concept.

The scale was prepared as a 5-point Likert scale. Positive items were coded with the premises of fully reflects (5), reflects a lot (4), reflects moderately (3), reflects a little (2) and did not reflect at all (1); negative items were coded oppositely. The results of the exploratory factor analysis revealed a four-dimensional scale. In the distribution of the dimensions, values with item factor loadings greater than 0.40 were selected for the dimensions. Because of the construct validity analysis, factor loadings, variance explanatory power and eigenvalues were analyzed, and it was seen that the construct validity of the scale was at an appropriate level. After the exploratory factor analysis revealed that the scale consisted of four factors, confirmatory factor analysis was conducted to confirm the factor structures. Confirmatory factor analysis showed that the scale model was confirmed by the data. The reliability results of the scale were determined using Spearman Brown, Guttman split-half and Cronbach's alpha values. These values show that the scale can provide reliable measurements. A reliability coefficient greater than 0.60 has a significant effect on reliability (Büyüköztürk, 2002). Because of the independent samples t-test conducted to determine the difference between the upper and lower 27% groups in item discrimination, the discrimination of the scale items and the entire scale was found to be high. The item factor correlation value was found to be good. As a result, it can be said that the digital well-being scale can be used as a valid and reliable measurement tool to measure the positive and negative emotional-psychological-physiological bonds of individuals using digital technologies with digital environments.

When the literature is examined, there are several scale studies on digital environments. For example, the Digital Well-Being Scale study conducted by Öztürk (2018) consists of 2 factors and 12 items. The factor names are "ability to manage digital platforms" and "sharing personal information for official purposes". It can be said that the scale statements were created within the framework of eudaimonomism. The subjective well-being of individuals towards digital skills or the use of digital technologies is emphasized. Kara (2019)

conducted a Digital Well-Being Scale study with university students. There are 12 items in total as 4 factors. It is seen that the scale is within the framework of hedonism, which is equivalent to the practices and strategies that Google company shares with users under the name of "digital balance". We carry the idea that this point should be differentiated from the concept of digital well-being. Digital well-being is much more than digital tools or applications based solely on pleasure interaction. Arslankara and Usta (2018) developed the Virtual World Risk Perception Scale. Consisting of 5 factors and 25 items, the scale measures threat and opportunity perceptions of virtual environments. The factor names are "Virtual Corruption", "Virtual Fraying", "Virtual Offer", "Virtual Facility" and "Virtual Awareness". In the Online Privacy Awareness Scale study by Korkmaz, Vergili, and Karadaş (2021), there are 3 factors and 17 items, and the factor names are "Attention", "Security" and "Communication". The scales in the literature were analyzed in terms of the number of factors and items. As can be seen, these scales developed in the literature focus on happiness, threat and opportunity perception related to digital technology and environment, and online privacy. In the scale developed in this study, the concept of Digital Well-Being was tried to draw a more general and inclusive framework with both the pleasure arising from the use of technology and the state of peace that it adds to the individual's daily life. In this respect, it can be said that the scale differs from other scales and will contribute to the literature.

When the relevant literature is examined, among the basic skills, competencies and qualities expected to be in individuals who are intertwined in digital technology and environments, there are the following indicators: having digital competence, following situations such as health and sports with digital platforms and tools, showing safe and responsible use behaviors when using digital services, managing digital workload appropriately, considering concerns about other people and the environment when using digital tools. One of the first sources to address the concept of digital well-being was a report published by the Royal Society for Public Health (RSPH) in 2017. While the report provided detailed data on how young people are affected by social media, it also began drawing attention to digital well-being skills. Additionally, the skill areas of information and data literacy, communication and collaboration, digital content creation, digital safety and problem solving through the creative use of digital technologies are also considered within the scope of digital well-being, as outlined in the European Commission's (2016) 'Digital Skills Framework for 21st-Century Citizenship'.

In a study conducted in the UK, it was found that young people use their mobile phones even during classes, do not leave home without their mobile phones and more than half of them even worry about losing their mobile phones (Pavithra & Madhukumar, 2015). In another study, it was found that nine out of every ten people had sleep problems because they stayed up late due to activities such as browsing social media, chatting, and playing games. About 78% of these people check their mobile phones before going to bed, and this rate increases to 91% among people aged 18–24 (Singh & Yadav, 2015).

With this scale, it is thought that a measurement tool that can measure the competence, skills and emotional well-being of individuals using digital technology and environments has been introduced to the literature. The validity and reliability studies of the scale were conducted with 367 individuals aged 14–62. When the reliability of the sub-factors in this scale was evaluated, it was found that the digital wellness sub-factor had the lowest reliability. It is thought that the reason for this may be that the tasks in this section contain negative items and students may not be able to understand them. For this reason, it is recommended not to use negative items in scale development studies, especially when creating items for younger students.

Limitations

There are findings in the literature that EFA and CFA cannot be conducted with the same data set. However, since a different data set could not be created in this study, both EFA and CFA were conducted using the same data set.

REFERENCES

Aristoteles (1998). Ethics for nicomachus, (trans. Saffet Babür), Ayraç Publications, Ankara.

Arslankara, V. B. & Usta, E. (2018). Development of virtual world risk perception scale (VWRPS). *Bartın University Journal of Faculty of Education*, 7(1), 111-131.

Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. New York: Guilford Publications.

Büyüköztürk, Ş. (2002). *Data analysis handbook for social sciences,* Ankara: Pegem Publishing.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2017). *Scientific research methods.* Pegem Citation Index, 1-360.

Byrne, B. M. (2011). *Structural equation modeling with AMOS Basic concepts, applications, and programming (Multivariate Applications Series)*. Routledge, New York.

Cambridge Dictionary (2022). *Dictionaries.* retrieved november 2022 from https://dictionary.cambridge.org/tr/

Çepni, S. (2001). *Introduction to research and project studies.* Erol Ofset Printing. Trabzon.

Çoklar, A. N., Efilti, E., & Sahin, L. (2017). Defining teachers' technostress levels: a scale development. *Journal of Education and Practice*, 8(21), 28-41.

Diener, E. & Chan, M. Y. (2011). Happy people live longer: subjective well-being contributes to health and longevity. *Applied Psychhology: Health and Well-Being*, 3(1), 1-43.

Diener, E. & Seligman, M.E. (2004). Beyond money: toward an economy of well-being. *Psychological Science in the Public Interest*, 5(1), 1-31.

Diener, E. (2009). *Assessing well-being: the collected works of Ed Diener*. New York: Springer.

Diener, E., Oishi, S. & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behavior*, 2, 253-260.

Ertan Özen, N. & Duran, E. (2017). Digital stories and their use in Turkish education. *Eurasian Journal of Language Education and Research*, 1(1), 76-105.

Frey, B. S. & Stutzer, A. (2002). *Happiness and economics.* Princeton, N.J.: Princeton University Press.

Frey, B. S., Benesch, C., & Stutzer, A. (2007). Does watching tv make us happy? *Journal of Economic Psychology*, 28(3), 283-313. https://doi.org/10.1016/j.joep.2007.02.001

Hair, J. F. J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis.* Seventh Edition Prentice Hall.

Heersmink, R. (2015). Extended mind and cognitive enhancement: Moral aspects of cognitive artifacts. *Phenomenology and the Cognitive Sciences*, 1-16.

Kahneman, D. (1999). Objective happiness. In: D Kahneman, E Diener, and N Schwartz (eds.) *Well-being: the foundations of hedonic psychology*. New York: Russell Sage Foundation.

Kalaman, S. (2017). New media and the transformation of privacy: the case of facebook Türkiye. *International Refereed Journal of Communication and Literary Studies*, 14(1),1-19.

Kara, D. N. (2019). Assessment of university students' digital well-being. Near East University, Doctoral Dissertation.

Karasar, N. (2007). *Scientific research method*, Nobel Publication Distribution.

Korkmaz, Ö., Usta, E., & Kurt, İ. (2014). A validity and reliability study of the virtual environment loneliness scale (VELS). *Hacettepe University Journal of Faculty of Education*, 29(2), 144-159.

Korkmaz, Ö., Vergili, M. & Karadaş, E. (2021). Development of Online privacy awareness scale: reliability and validity study. *Turkish Journal of Scientific Research*, 6(2), 297-311.

Krumsvik, R. J. (2008). Situated learning and teachers' digital competence. *Education and Information Technologies*, 13(4), 279-290.

Larson, D. G., & Chastain, R. L. (1990). Self-concealment: Conceptualization measurement and help implications. *Journal of Social and Clinical Psychology*, 9, 439-455.

Mahon, N. E., Yarcheski, A., & Yarcheski, T. J. (2005). Happiness as related to gender and health in early adolescents. *Clinical Nursing Research*, 14 (2), 175-190.

Meriç, A., & Özyürek, A. (2018). Investigation of preschool children's knowledge of moral and social rules. International Journal of Social Research, 8(4), 139-166.

Mischel, W., Ayduk, O., Berman, M. G., Casey, B. J., Gotlib, I. H., Jonides, J., & Shoda, Y. (2011). 'Willpower' over the life span: decomposing self-regulation. *Social Cognitive and Affective Neuroscience*, 6(2), 252-256.

Myers, D. G., & Diener, E. (1995). Who is happy? *Psychological Science*, 6(1), 10-19.

Ólafsson, K., Livingstone, S., & Haddon, L. (2013). Children's use of online technologies in Europe: A review of the European evidence base. *EU Kids Online*. London, UK.

Öztürk, E. (2018, September 12-14). Is digital well-being one of the current concepts of the digital revolution? (A scale development study) [Paper presentation]. 6th International Symposium on Instructional Technologies and Teacher Education, Edirne, Türkiye.

Pavithra, M. B. & Madhukumar, S. (2015). A Study on nomophobia-mobile phone dependence, among students of a medical college in bangalore. *National Journal of Community Medicine*, 6(3), 340-344.

Ribble, M. (2015). Digital citizenship in schools, nine elements all students should know. (3rd ed.) Washington DC: *International Society for Technology in Education.*

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52(1), 141-166.

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69 (4), 719.

Ryff, C. D., & Singer, B. H. (2013). *Know thyself and become what you are: A eudaimonic approach to psychological well-being*. In The exploration of happiness (pp. 97-116). Springer Netherlands.

Schuler, E. (1992). *Comment s'affirmer*, Editions d'organisation, Paris.

Singh, J. D. & Yadav, R. A. (2015). Health complications caused by excessive use of smartphones. *Global Journal of Multidisciplinary Studies*, 4(2).

Tapscott, D. (1998). *Growing up digital: The rise of the net generation*. New York: McGraw-Hill.

Tilley, J.J., (2012). *Hedonism, encyclopedia of applied ethics.* San Diego: Academic Press.

Turkish Language Association (2022). Turkish language association dictionaries: current turkish dictionary, online dictionary of proverbs and idioms, compilation dictionary: Retrieved November 2022 from https://sozluk.gov.tr/.

Yılmaz, M. & Dogusoy, B. (2020). Determining the digital citizenship levels of prospective teachers. *Kastamonu Journal of Education*, 28 (6), 2362-2375. doi: 10.24106/kefdergi.692492