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Validity and reliability study for the Turkish adaptation of the e-learning readiness scale

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Abstract

This study aims to adapt the E-Learning Readiness Scale developed by Alem, Plaisent, Zuccaro, and Bernard (2016) to Turkish culture and to test its validity and reliability according to data obtained from elementary school students. The research was designed in survey model. For this reason, the descriptive method was applied, and quantitative data analysis techniques were used. The study group of this research consists of 498 elementary school fourth-grade students studying in Tokat in the 2019-2020 academic year. When analyzing the scale's reliability, Cronbach's alpha reliability coefficient was calculated to determine the level of internal consistency. As a result of the analysis of the data obtained during the study, the scale's overall Cronbach Alpha reliability coefficient was found to be α =. 829. The Cronbach Alpha reliability coefficient for the factors in the scale was calculated as α=.751 for the first factor, a=.900 for the second factor, α=.783 for the third factor, α=.762 for the fourth factor, and α=.623 for the fifth factor.- As a result of the confirmatory factor analysis, goodness of fit values obtained were as follows: χ2nd (sd=105)= 391.469, p<.000; RMSEA=.075, GFI=.92, CFI = .91, and RMR =.06. These values were within acceptable criteria. In this study, which examined the adaptation of the E-Learning Readiness Scale into Turkish and analyzed its validity and reliability, the scale was found to be a valid and reliable scale compatible with Turkish culture. All the findings obtained in the study show that the Turkish version of the E-Learning Readiness Scale, which consists of 17 items, is a valid and reliable scale compatible with the Turkish language. It is believed that the E-Learning Readiness Scale, which analyzes were carried out in this study, will serve as a guide for further research.

1 Introduction

As technology rapidly changes in the world, massive change and transformation is experienced in each field. One of the most substantial factors contributing to this change is the upheavals in information processing technologies and their rapid spread. New technology-based operating models have emerged in many areas due to the proliferation and increasing Internet utilization.

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Among those emerging models, such as remote working in business, autonomous production in the industry, and distance learning or e-learning in the education field, can be cited. Notably, the pandemic, caused by the worldwide spread of the COVID-19 virus, has placed those models at the forefront and indicated how valuable they are during this period.

Today, information and communication technologies are developing and transforming rapidly. This change and transformation affect many areas of life, especially trade, finance, and education. Many concepts, especially trade and education, gained new meanings by having the first letter of the word 'electronic' at their front. Various formal government structures develop electronic applications, especially using the Internet infrastructure, and offer e-government, e-banking, or e-learning services/opportunities to their citizens. Services offered among those, such as distance learning and e-learning, provide citizens with the opportunity to learn anytime and anywhere (Gökdaş & Kayri, 2005).

E-learning is a way of learning which has emerged because of the developments in information and communication technologies, including the Internet (Aslan, 2006). Aytaç (2000) defined e-learning as a web-based education system offered through the Internet or a computer network platform. In other words, e-learning is a learning activity carried out by presenting learning content and materials in an electronic environment (Yılmaz, Sezer, & Yurdugül, 2019). Gülbahar (2012) defines e-learning as 'conducting educational activities in electronic environments or transferring knowledge and skills through electronic technologies.' E-learning is a form of learning that offers students and teachers the opportunity to communicate, synchronously or asynchronously, using communication technologies and learn at their own pace, even though they are physically in separate environments (Clark & Mayer, 2011). E-learning ensures equal opportunity in education by allowing learning anytime, anywhere (Biçer & Korucu, 2020); provides students with the opportunity to access content and materials with no restriction of time and place and interact with other students and their teachers (Yılmaz et al., 2019). Thus, e-learning provides students with a flexible learning environment without time and place restrictions (Emrecik & Ozan, 2019).

Some variables in the e-learning process enable learners to achieve the desired success and are pleased with the process (Arpaci, 2017; Arpaci, Al-Emran, & Al-Sharafi, 2020; Ayere, Odera, & Agak, 2010). One of these variables is readiness for the e-learning process. Senemoğlu (2009) defines readiness as 'having prerequisite knowledge and skills of the education process.' E-learning readiness is defined as the degree of having the preliminary knowledge, skills, and affective characteristics that the individual must have to benefit from the e-learning process most effectively (Yurdugül & Demir, 2017). To enhance the effectiveness and efficiency of the e-learning process, finding out the e-learning readiness of the students before starting the process will positively affect the achievement of the determined goals and success (Yılmaz et al., 2019). Yurdugül and Alsancak-Sırakaya (2013) stated that e-learning has numerous benefits, but individuals need to be ready for e-learning to utilize those benefits. In addition, Kaur and Abas (2004) said that determining the individuals' e-learning readiness will guide policymakers and institutions which provide those opportunities to achieve the most effective result through this method. Therefore, many researchers mention the necessity of measuring students' e-learning readiness quality for the effective implementation of e-learning (Hung et al., 2010; Moftakhari, 2013; Oliver, 2001).

When the relevant literature was reviewed, many studies on e-learning readiness appeared. For example, pertinent several studies were conducted to investigate; the effects of distance education university students' e-learning readiness and e-learning satisfaction on academic success (Korkmaz, Çakır, & Tan, 2015), the e-learning readiness of pre-service teachers attending undergraduate teacher training programs (Yurdugül & Demir, 2017), the expectations, readiness, and satisfaction with e-learning in engineering (Adnan & Boz-Yaman, 2017), the readiness levels of pre-service teachers for online learning with respect to various variables (Çakır & Horzum, 2015), as well as determining the e-readiness levels of university students and academic staff (Demir, 2015).

When the national literature is reviewed, it is noticed that there is no relevant research examining the e-learning readiness levels of primary, secondary, and high school students. That can be ascribed to the fact that any scale measuring the e-learning readiness of primary, secondary, or high school students has not yet been developed or adapted. The present scales have been developed for university students or adults (Biçer & Korucu, 2020; Çetin & Ilhan, 2013; Haznedar & Baran, 2012; Gülbahar & Alper, 2014). In Turkey, e-learning is widely applied at mostly associate and undergraduate education levels. With the COVID-19 epidemic, this learning method has been commenced to be used for primary, secondary, and high school students, by the Ministry of National Education, within the scope of remedial training, through EBA (Education Information Network), EBA TV, and the Web TVs (established by the provincial directorates of national education). Therefore, it is substantial to ensure primary school students benefit from the conducted training programs at the highest level and that their satisfaction level can be identified; for the latter, it is of great importance to prepare an e-learning readiness scale. This study aimed to adapt the E-Learning Readiness Scale developed by Alem, Plaisent, Zuccaro, and Bernard (2016) to Turkish culture and test the scale's validity and reliability by the data collected from primary school students.

2 Method

2.1 Research method

This study is a descriptive study that investigates the current situation. The data was collected from primary school students. In the validity study, the analysis of the language's validity was conducted first, followed by confirmatory factor analysis.

2.2 Research group

Attending the 2019-2020 academic year in Tokat, 498 students in primary school fourth grade comprised the sample of the research. The study group consisted of 224 female and 274 male students, selected from the population through convenience sampling. Convenience sampling allows the researcher to reach the eligible sample in a shorter time (Patton, 1990). The original scale was created for university students. This study's scale targeting the primary school fourth graders was adapted to Turkish.

2.3 Data collection tool

The E-Learning Readiness Scale devised by Alem et al. (2016) was used to collect data in the research. The original scale was developed to measure the pre-service teachers' e-learning readiness levels. The scale consisted of five sub-dimensions: self-competence, self-directed learning, motivation, perceived usefulness, and financial competence. The Cronbach Alpha coefficients for the sub-dimensions of the scale are as follows: 0.96 for self-competence, 0.91 for self-directed learning, 0.76 for motivation, 0.94 for perceived usefulness, and 0.75 for financial competence.

2.4 Procedure

The developer initiated a scale adaptation study by obtaining the required permissions. For the adaptation of the scale to Turkish and its validity and reliability studies, in Figure 1, stages were taken into consideration (Seçer, 2015). In this study, which started with reviewing the studies related to e-learning readiness first, the studies on this subject, and the revealing of the missing ones, the other adaptation stages were started after obtaining the necessary permissions from the developer. The scale, created in English to measure the e-learning readiness of pre-service teachers, was translated to Turkish by two field experts; subsequently checked by two language experts; then translated back into English, and ensured to have language validity following relevant comparisons. Afterward, to receive feedback on whether the narrative language was conforming to the student's comprehension level, the opinion of a primary school teacher on the translated scale was asked. Additionally, two primary school fourth graders were asked to read

the scale items one by one and requested to rephrase what they understood from each item; subsequently, it was concluded that the students could easily understand all the items on the scale. After those proceedings, the scale was uploaded to Google Forms; the link was shared with the school parent groups, and the data were collected online.

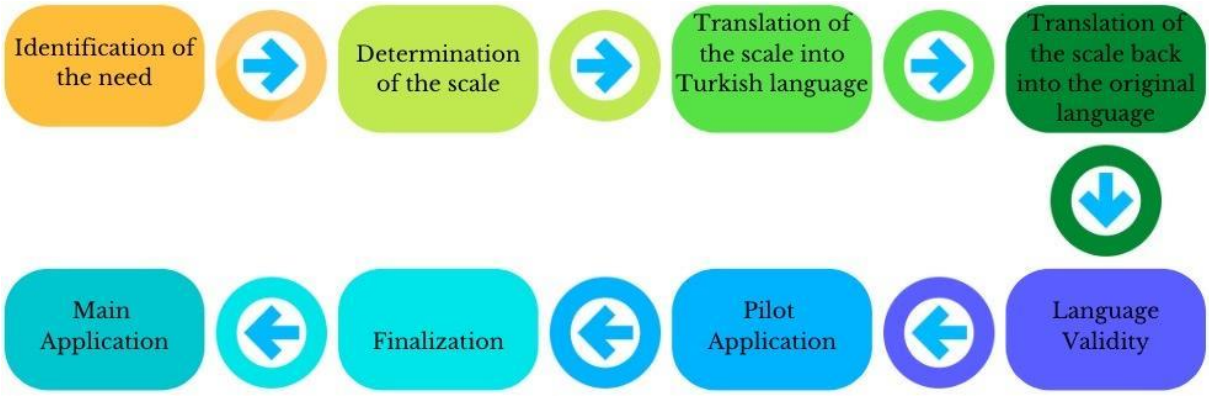

Figure 1 The stages of scale adaptation

2.5 Data analysis

After the data collection, the data obtained were transferred into the SPSS software, and the analysis of these data commenced. In data analysis, confirmatory factor analysis was applied, and the validity and reliability of the scale were computed. Within that process, Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests were used to determine the construct validity. Principal component analysis and the Varimax vertical rotation technique were used to identify the factor loadings of the scale. In the confirmatory factor analysis, the fit index values of the factors were analyzed. In addition, to determine the validity levels of the scale, the relationship between the items and the factors covering the items and the corrected correlation values were checked. The independent sample t-test and Pearson correlation test were used at this stage. In the analyses performed for the scale reliability, Cronbach's alpha reliability coefficient was computed to determine the internal consistency level.

3 Findings

The findings obtained in the direction of the research questions are given below, respectively.

3.1 Validity

To test the construct validity of the e-learning readiness scale and to determine whether the scale allows the use of factor analysis, the Turkish version of the initial scale with 17 items was applied to the participants, then Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests were performed on the obtained data. As a result of those tests, the KMO value was found as 0.813, while the Bartlett test value was $\chi 2 = 3281.69$ and SD=136 ($p<.000$). Within the framework of these values, the 17-item scale was inferred to be suitable for factor analysis. The original scale consisted of five factors, and those factors were named 'Self-Competence' (F1), 'Perceived Usefulness' (F2), 'Self-directed Learning' (F3), 'Motivation' (F4), and 'Financial Competence' (F5). The factor loads of the items are seen in Table 1.

Table 1 Factor load and descriptive statistics for the scale items

Items	Explained Common Variance (ECV)	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Item 1	.812				.880	
Item 2	.808				,884	
Item 3	.523				.444	
Item 4	.812	.879				
Item 5	.793	.869				
Item 6	.807	.870				

Item 7	.558	.641			
Item 8	.544	.580			
Item 9	.613	.754			
Item 10	.685	.827			
Item 11	.550	.520			
Item 12	.682		.765		
Item 13	.751		.819		
Item 14	.506		.550		
Item 15	.688				.810
Item 16	.727				.837
Item 17	.305				.469

Comrey and Lee (1992) argued that the following ranges should be considered for factor loading values: 0.70 and above=excellent, from 0.63 to 0.70 = very good, from 0.55 to 0.62 = good, from 0.45 to 0.54 = normal (acceptable), and from 0.32 to 0.44 = bad (unacceptable). When the factor load values were scrutinized, the items were detected to have sufficient factor load. Table 2 below presents the data relevant to the items' loading factors and those factors' variances. The five factors were ascertained to explain approximately 65.67% of the total variance.

Table 2 Variance results for the dimensions

Factors	Number of Items	Items	Eigenvalue	Explained Variance
Factor 1	3	1-3	5.158	17.589
Factor 2	3	4-6	2.056	15.476
Factor 3	5	7-11	1.628	12.335
Factor 4	3	12-14	1.237	11.272
Factor 5	3	15-17	1.085	8.998

3.2 Reliability

Cronbach's alpha reliability coefficients for the tests to determine the scale's reliability, by factors and in general, are given in Table 3.

Table 3 Reliability analysis results

Factors	Item numbers	Cronbach's alpha
Factor 1	3	.751
Factor 2	3	.900
Factor 3	5	.783
Factor 4	3	.762
Factor 5	3	.623
Total	**17**	**.829**

In Table 3, the scale's overall Cronbach's alpha reliability coefficient, consisting of five factors and a total of 17 items, was found to be α=.829. It is also seen that these values were found to be computed consecutively as α=.751 for the first factor, a=.900 for the second factor, α=.783 for the third factor, α=.762 for the fourth factor, and α=.623 for the fifth factor.

Table 4 Pearson correlation coefficients between factors

Factors		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	r	1				
	p					
Factor 2	r	.425	.1			
	p	.000				
Factor 3	r	.329	.460	1		
	p	.000	.000			
Factor 4	r	.207	.164	.050	1	
	p	.000	.000	.274		
Factor 5	r	.148	.183	.196	.266	1

P	.001	.000	.000	.000

In Table 4, the results of the Pearson Correlation analysis performed to calculate the level of relationship between the factors are given. There was a positive and significant relationship between all the factors.

3.3 Confirmatory factor analysis

In the confirmatory factor analysis (CFA), various fit index values for each factor, obtained with the maximum likelihood technique, and applied with no restriction, are given in Table 5.

Table 5 Fit indexes and acceptable values

Fit index	Normal Value	Acceptable Value	Research- Values
$\chi 2$	p <.05	p <.05	.000
$\chi 2$/SD	< 2	< 5	3.73
Number of samples	>200	>200	482
GFI	> .95	> .90	.92
CFI	> .95	> .90	.91
RMR	< .05	< .10	.06
RMSEA	< .05	< .10	.075

The goodness-of-fit values were: $\chi 2(SD=105) = 391.469$, p<.000; RMSEA= 0.075, GFI=0.92, CFI= 0.91, RMR= 0.06, and all these values were at an acceptable fit level. Moreover, the diagram regarding the correlation of the item loads with the load coefficients of the factors with reference to the CFA is given in Figure 2.

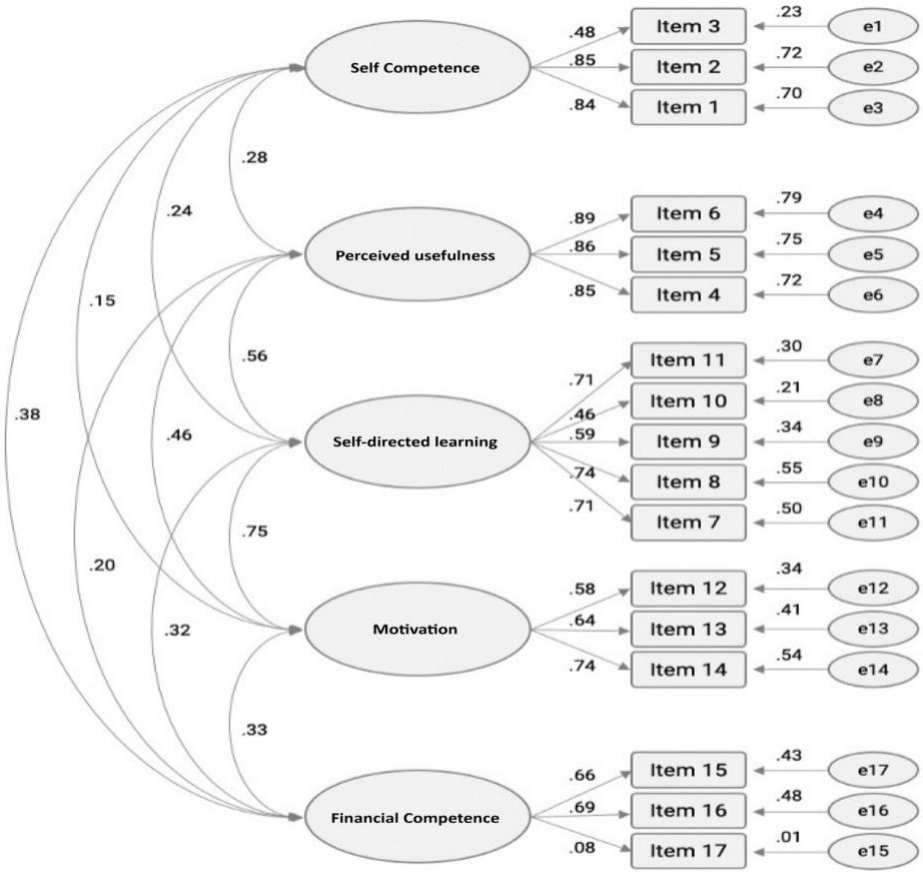

Figure 2 CFA results

4 Discussion

This study's validity and reliability study was carried out through the Turkish adaptation of the E-Learning Readiness Scale. The original scale, developed in English to measure students' e-learning readiness levels, was translated into Turkish by two field experts with foreign language proficiency. The translated version went through proofreading by two language experts. Then, it was translated into English again, comparisons were performed, and language validity was ensured.

The scale was disseminated through Google Forms. To test the scale's construct validity and determine whether it is compatible with factor analysis, the initial version of the scale, adapted into Turkish and included 17 items, was applied to the participants in a digital environment. The overall Cronbach's alpha reliability coefficient of the scale was determined to be α=.829. The reliability coefficients for the dimensions of the scale were calculated consecutively as α=.751 for the first factor, a=.900 for the second factor, α=.783 for the third factor, α=.762 for the fourth factor, and α=.623 for the fifth factor. Consequently, to confirmatory factor analysis performed, goodness-of-fit values were determined as $\chi 2(SD=105) = 391.469$, $p<.000$, RMSEA=.075, GFI=.92, CFI=.91, and RMR=.06. All those values were within acceptable criteria.

In this research, through which the validity and reliability analyses of the adaptation of the E-Learning Readiness Scale adaptation into Turkish were carried out, it was determined that the scale is valid and reliable, compatible with the Turkish language. However, there are also some limitations that should be taken into consideration. The validity and reliability data of the e-Learning Readiness Scale were applied to the primary school fourth graders. Therefore, to strengthen the data obtained on validity and reliability, it is recommended to apply the scale to sample groups comprising students studying in different provinces and having various characteristics. It is considered that the E-Learning Readiness Scale, whose validity and reliability analyzes were performed within the scope of this study, will guide further research. All the findings obtained through the research indicate that the Turkish version of the E-Learning Readiness Scale, which consists of 17 items, is a valid and reliable scale and compatible with Turkish in terms of language.

4.1 Limitations and future directions

The research was conducted with 498 students studying at the center of just one province. In future studies, comparative studies can be carried out by increasing the number of participants.

5 Statement of researchers

5.1 Researchers' contribution rate statement: The researchers contributed equally to the research. Decisions were taken together at every stage of the research, and the study was carried out.

5.2 Conflict statement: There is no conflict of interest to declare. The publication rights of the article have been transferred to the Pedagogical Perspective Journal.

5.3 Support and thanks: We thank the participants who voluntarily participated in our research for their support and contribution.

References

Adnan, M., & Yaman, B. B. (2017). Profile of engineering undergraduates on readiness and satisfaction for e-learning. *Turkish Journal of Computer and Mathematics Education, 8*(2), 218-243. DOI: 10.16949/turkbilmat.280165

Alem, F., Plaisent, C., Zuccaro, C., & Bernand, P. (2016). Measuring e-learning readiness concept: scale development and validation using structural equation modeling. *International Journal of E-Education, E-Business, E-Management and E-Learning, 6*(4), 193-207. DOI: 10.17706/ijeeee.2016.6.4.193-207

Arpaci, I. (2017). The role of self-efficacy in predicting use of distance education tools and learning management systems. *Turkish Online Journal of Distance Education, 18*(1), 52-62. DOI: 10.17718/tojde.285715.

Arpaci, I., Al-Emran, & Al-Sharafi, M. A. (2020). The impact of knowledge management practices on the acceptance of Massive Open Online Courses (MOOCs) by engineering students: A cross-cultural comparison. *Telematics and Informatics,* 54, 1-12. DOI: 10.1016/j.tele.2020.101468.

Aslan, Ö. (2006). New way of learning: e-learning. *Fırat University Journal of Social Science, 16*(2), 121-131. Retrieved from https://search.trdizin.gov.tr/yayin/detay/59141/ogrenmenin-yeni-yolu-e-ogrenme

Ayere, M. A., Odera, F. Y., & Agak, J. (2010). E-Learning in secondary schools in Kenya: A case of the NEPAD e-schools. *Educational Research and Reviews, 5*(5), 218-223. DOI: 10.5897/ERR.9000109

Aytaç, T. (2003). The learning style of the future: E-learning. *Journal of Education in the Light of Science and Mind,* 35, Retrieved from yayim.meb.gov.tr/yayimlar/sayi35/aytac.htm.

Biçer, H., & Korucu, A. T. (2020). The adaptation of the attitude scale towards e-learning into Turkish. *Educational Technology Theory and Practice, 10*(1), 237-256. DOI: 10.15390/EB.2014.3619

Clark, R. C., & Mayer, R. E. (2011). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. John Wiley & Sons.

Çakır, Ö., & Horzum, M. B. (2015). The examination of the readiness levels of teacher candidates for online learning in terms of various variables. *Journal of Theory and Practice in Education, 11*(1), 1-15. Retrieved from https://dergipark.org.tr/en/download/article-file/63458

Emrecik, V., & Ozan, Ö. (2019). The effects of nonverbal communication skills, which are used in video lectures, on student engagement. *Eskişehir Osmangazi University Journal of Social Sciences,* 20, 667-690. DOI: 10.17494/ogusbd.553853.

Gökdaş, İ., & Kayri, M. (2005). Problems and solution proposals in terms of e-Learning and Turkey. *Journal of Yüzüncü Yıl University Faculty of Education, 2*(1). Retrieved from dergipark.org.tr/en/pub/yyuefd.

Gülbahar, Y., & Alper, A. (2014). Development of e-learning styles scale for electronic environments. *Education and Science, 39*(171), 421-435. Retrieved from http://egitimvebilim.ted.org.tr/index.php/EB/article/view/2078/654

Haznedar, Ö., & Baran, B. (2012). Development of a general attitude scale towards e-learning for faculty of education students. *Educational Technology Theory and Practice, 2*(2), 42-59. DOI: 10.17943/etku.84225

Hung, M. L., Chou, C., Chen, C. H., & Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education, 55*(3), 1080–1090. DOI: 10.1016/j.compedu.2010.05.004.

İlhan, M., & Çetin, B. (2013). The validity and reliability study of the Turkish version of an online learning readiness scale. *Educational Technology Theory and Practice, 3*(2), 72-101. Retrieved from https://dergipark.org.tr/tr/download/article-file/71808

Kaur, K., & Abas, Z. W. (2004, November-December). An assessment of e-Learning readiness at the open university Malaysia. *International conference on computers in education* (ICCE2004), Melbourne, Australia.

Korkmaz, Ö., Çakır, R., & Tan, S. (2015). Students e-learning readiness and satisfaction levels and effects on the academic achievement. *Ahi Evran University Journal of Kirsehir Education Faculty*

(KEFAD), 16(3), 219-241. Retrieved from https://dergipark.org.tr/en/pub/kefad/issue/59449/854082

Moftakhari, M. M. (2013). *Evaluating e-learning readiness of faculty of letters of Hacettepe University*. [Unpublished master's thesis], Hacettepe University, Ankara.

Oliver, R. (2001). Assuring the quality of online learning in Australian higher education. In Wallace, M, Ellis, A, and Newton, D (eds). *Proceedings of Moving Online II Conference*, Southern Cross University, Lismore, NSW, 222-231.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Newburry Park: Sage.

Seçer. İ. (2015). *Psychological test development and application process*. Ankara: Anı Yayıncılık.

Senemoğu, N. (2009). *Development, learning, and teaching from theory to practice*. Ankara: Pegem Akademi.

Yılmaz, R., Sezer, B., & Yurdugül, H. (2019). Investigation of university students e-learning readiness: Example of Bartın University. *Ege Journal of Education, 20*(1), 180-195. DOI: 10.12984/egeefd.424614.

Yurdugül, H. & Alsancak-Sırakaya, D. (2013). The scale of online learning readiness: A study of validity and reliability. *Education and Science, 38*(169), 391-406. Retrieved from http://egitimvebilim.ted.org.tr/index.php/EB/article/view/2420

Yurdugül, H., & Demir, Ö. (2017). An investigation of pre-service teachers' readiness for e-learning at undergraduate level teacher training programs: the case of Hacettepe University. *Hacettepe University Journal of Education, 32*(4), 896-915. DOI: 10.16986/HUJE.2016022763.

Appendix A: E-Öğrenme Hazırbulunuşluk Ölçeği

		Tamamen katılıyorum	Katılıyorum	Kararsızım	Katılmıyorum	Kesinlikle katılmıyorum
1	Bilgisayar kullanma konusunda yetenekliyim.	☐	☐	☐	☐	☐
2	Bilgisayar konusunda kendime güvenirim.	☐	☐	☐	☐	☐
3	e-Öğrenme programlarını kullanmada bilgi ve becerilerime güveniyorum.	☐	☐	☐	☐	☐
4	e-Öğrenme kullanmak çalışma performansımı artırır.	☐	☐	☐	☐	☐
5	e-Öğrenme kullanmak üretkenliğimi artırır.	☐	☐	☐	☐	☐
6	e-Öğrenme kullanmak çalışmalarımdaki başarımı artırır.	☐	☐	☐	☐	☐
7	Kendi kendime öğrenebilmek için etkin bir şekilde sorumluluk alıyorum.	☐	☐	☐	☐	☐
8	Öğreneceğim konulara öncelik verme konusunda kendime güveniyorum.	☐	☐	☐	☐	☐
9	Ne öğreneceğimi kendim belirleyebiliyorum.	☐	☐	☐	☐	☐
10	Öğrenme konusunda kendi kararlarımı kendim alırım.	☐	☐	☐	☐	☐
11	Çalışma zamanımı iyi bir şekilde yönetebilir ve ödevleri zamanında tamamlayabilirim.	☐	☐	☐	☐	☐
12	Evde dikkatimi dağıtan şeyler olsa bile çalışmamı tamamlayabiliyorum.	☐	☐	☐	☐	☐
13	e-Öğrenme programında dikkat dağıtıcı şeyler olsa bile çalışmamı tamamlayabiliyorum.	☐	☐	☐	☐	☐
14	Teknik zorluklar olsa bile, e-öğrenmede sunulan konuları öğrenebileceğimden eminim.	☐	☐	☐	☐	☐
15	Ailem bana bir bilgisayar alabilir.	☐	☐	☐	☐	☐
16	Ailem eve internet bağlatabilir.	☐	☐	☐	☐	☐
17	Okulum bana bilgisayar sağlayabilir.	☐	☐	☐	☐	☐