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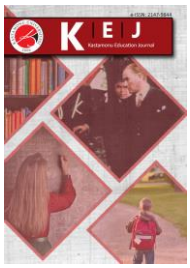

| Research Article / Araştırma Makalesi |

Effects of Lifelong Learning on the Readiness for Online Learning

Yaşam Boyu Öğrenmenin Çevrimiçi Öğrenmeye Hazırbulunuşluk Üzerindeki Etkileri1[1]

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Keywords
1. Online learning
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Abstract

Purpose: Technological advancement, which started with the Industrial Revolution, accelerated by the end of the 20th century. These developments created radical changes not only in working life but also in our social and cultural lives. The need for people to constantly learn new things in order to keep up with these changes created the concept of lifelong learning. In addition, the concept of distance education has been in our lives in various forms for many years. Especially after the 2000s, internet-based distance education, ie., online education, has become quite common. Readiness for online learning emerged as one of the important factors affecting the efficiency of online learning. In this study, the relationship between lifelong learning and readiness for online learning was examined.

Design/Methodology/Approach: For this purpose, Lifelong Learning and Online Learning Readiness scales were administered to university students. In total, 390 students from different universities and departments participated in the research.

Findings: With the data obtained, it was tried to determine if lifelong learning had a significant effect on the sub-dimensions of readiness for online learning. In addition, determining if the gender and the type of education program had a significant effect on these two concepts constitutes the sub-objective of the research.

Highlights: The findings showed that there was a significant and positive relationship between the sub-dimensions of readiness for online learning and lifelong learning. On the other hand, it was observed that women were better than men and postgraduate students were better than other students in terms of both readiness for lifelong learning and online learning.

Öz

Çalışmanın amacı: Sanayi devrimiyle başlayan teknolojik gelişmeler 20.yüzyılın sonlarında iyice hızlanmıştır. Bu gelişmeler sadece çalışma hayatında değil sosyal ve kültürel hayatımızda da köklü değişikliklere neden olmuştur. İnsanların bu değişimlere ayak uydurabilmek için sürekli yeni şeyler öğrenmeleri gerekliliği yaşam boyu öğrenme kavramını ortaya çıkarmıştır. Ayrıca uzaktan eğitim kavramı da uzun yıllardır çeşitli şekillerde hayatımızda yer almaktadır. Özellikle 2000'li yıllardan sonra internet tabanlı uzaktan eğitim bir başka deyişle çevrimiçi eğitim oldukça yaygın bir hale gelmiştir. Çevrimiçi öğrenmeye hazırbulunuşluk da çevrimiçi öğrenmenin verimini etkileyen önemli unsurlardan biri olarak ortaya çıkmıştır. Bu çalışmada yaşam boyu öğrenme ve çevrimiçi öğrenmeye hazırbulunuşluk arasındaki ilişki incelenmiştir.

Materyal ve Yöntem: Bu amaçla Yaşam Boyu Öğrenme ve Çevrimiçi Öğrenmeye Hazırbulunuşluk ölçekleri üniversite öğrencilerine uygulanmıştır. Araştırmaya farklı üniversite ve bölümlerden 390 öğrenci katılmıştır.

Bulgular: Elde edilen verilerle yaşam boyu öğrenmenin çevrimiçi öğrenmeye hazırbulunuşluk alt boyutları üzerinde anlamlı etkisi olup olmadığı belirlenmeye çalışılmıştır. Ayrıca cinsiyet ve eğitim alınan program türünün bu iki kavram üzerinde anlamlı etkisinin olup olmadığını belirlemek de araştırmanın alt amaçlarını oluşturmaktadır.

Önemli Vurgular: Bulgular yaşam boyu öğrenmenin çevrimiçi öğrenmeye hazırbulunuşluk alt boyutların arasında pozitif ve anlamlı bir ilişki olduğunu göstermiştir. Öte yandan kadınların erkeklere göre, lisansüstü eğitim görenlerin de diğer öğrencilere göre hem yaşam boyu öğrenme hem de çevrimiçi öğrenmeye hazırbulunuşluk açısından daha iyi olduğu görülmüştür.

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INTRODUCTION

Together with the rapid advancements in technology, economic, social, and cultural changes gained speed throughout the 20th century. From the aspect of individuals' adaptation to these changes, it became a necessity for learning to continue lifelong and for individuals to improve themselves constantly. This necessity caused the concept of "lifelong learning" to be discussed much in the literature.

"Lifelong learning was brought to the agenda in the last quarter of the last century and started to be discussed frequently in Turkey in the 2000s (…) Lifelong education is a regulation aiming to re-construct the current education system and improve the complete potential related to the education, besides the formal education system and it is a comprehensive concept incorporating all formal and non-formal education activities" (Güleç, Çelik, and Demirhan, 2012).

Within this context, studies were carried out in order to measure the individuals' self-efficacy to learn lifelong and to determine the factors affecting those competencies.

On the other hand, together with the advancements in technology, distance education became a concept, which is frequently discussed, in parallel with the concept of lifelong learning. "Distant learning, due to its nature, is based on a planned education process, which requires specific managerial and organizational arrangements, specific course design and teaching methods, and communication through various technologies and in which teachers and students participate from different places" (Moore and Kearsley, 2005).

Online distant learning has become the most commonly used distance education modality in recent years. Thanks to the Internet, technology-supported educational practices were introduced to educational life via synchronous and asynchronous applications. Thanks to the online distance education activities conducted through synchronous modalities, it became possible to develop new experiences and competencies for educators and students, who gather via the Internet non-spatially. In many studies, as in the present study, the distance education activities carried out through the Internet were called online learning, while some studies named them "e-learning".

Online distance education activities, differing from the traditional learning environments of students, refer to a learning process, in which students can access many different resources at the same time and interact in different ways. "In technology-based distance education programs, as online interaction instruments, the video-conference, computer conference, Internet TV, written or verbal posts, or electronic chat applications allow teachers and students to become closer" (Engin, 2013).

Online distance education, which became a very popular type of education in recent years and has been actively used in various certificate programs and associate and undergraduate programs in universities in particular, has started to be used as an alternative education medium in all the programs of universities, including the undergraduate programs, and even at all levels of education including primary schools, secondary schools, and high schools in the year 2020 after the global COVID-19 pandemic. Considering the knowledge gained through this compulsory experience and the rapid advancement in information and communication technologies (ICT), it is quite likely that online distance education would be involved in our lives at a much higher level than before even when the pandemic conditions will disappear in the future.

Within this context, infrastructure works have gained momentum to eliminate the technical deficiencies in online distance education. At the same time, pedagogical and scientific studies to measure and increase the efficiency of online education have increased. One of the factors influencing the success in distance education is the readiness level of students in online learning. In order for online learning, which offers many advantages in order to color up the course via access to various resources and multimedia, to be efficient, students should be ready to the online learning, besides teachers being capable of using these advantages effectively.

Especially for students experiencing the online learning for the first time, it is not always easy to adapt to this new learning environment. Together with the popularization of online distance learning, the number of studies examining the online learning readiness of students also increased.

Although there are studies separately related to the lifelong learning and online learning readiness concepts, no study examining the relationship between these two concepts could be found. Çavuşoğlu and Acar (2020), in their study, aimed to determine if there was a relationship between lifelong learning levels and opinions on distance education. In their study, they used the Questionnaire for Opinions on Distance Education developed by Yıldırım et al. (2014) and including 18 items under four factors (Personal Suitability, Effectiveness, Instructiveness, and Familiarity) and LLL (Lifelong Learning) scale, which was adapted to the Turkish language by Engin, Kör, & Erbay (2017). At the end of their study, considering the relationship between students' opinions on distance education, effectiveness, and familiarity and their scores on the lifelong learning scale, the authors revealed a positive relationship between these factors.

Objective and Significance of the Study

In the present study, the lifelong learning and online learning readiness scales were administered to university students at the same time. Analyzing the data obtained, it was aimed to determine if lifelong learning had any effect on the subdimensions of online learning readiness. Besides that, the other objective of the present study is to determine if the demographic variables such

as gender and the type of program, in which the participant is enrolled, have a significant effect on lifelong learning and online learning readiness.

In parallel with these objectives, the hypotheses tested in the present study are as follows:

H1: There is a significant difference between the lifelong learning mean scores by gender.

H2: There is a significant difference between online learning readiness mean scores by gender.

H3: There is a significant difference between lifelong learning mean scores by the type of program the participant is enrolled in.

H4: There is a significant difference between online learning readiness mean scores by the type of program the participant is enrolled in.

METHOD/MATERIALS

Research Pattern

In the present study, in order to determine the effects of lifelong learning self-efficacy of university students on their online learning readiness, the Online Learning Readiness Scale (Yurdugül and Sarıkaya, 2013), which is a quantitative data collection instrument, and Lifelong Learning Scale (Engin et al., 2016) were administered to the students at the same time. Quantitative studies begin with hypotheses asserting claims about the relationships between variables. They aim to prove or disprove those hypotheses. "If one wants to quantify the current diversity on any phenomenon, situation, problem, or subject, if the data are mainly collected using the quantitative variables, and if the analysis is conducted in order to determine the dimensions of the diversity, then the research is named quantitative" (Kumar, 2005).

In the present study, it was aimed to explain if there is any relationship between lifelong learning and online learning readiness. The objective of explanatory research is to understand and explain how or why some events or phenomena occur. It is aimed to determine if there are relationships between the variables related to the phenomena in such studies. Explanatory research aims to explain by establishing a cause-and-effect relationship between social phenomena.

Universe and Sample

The universe of this study consists of university students studying in associate, undergraduate, or postgraduate programs. Given the data obtained from the Council of Higher Education (YÖK), in the educational year 2021-2022, there were 8,296,959 students (3,114,623 in associate degree programs, 4,676,657 in undergraduate programs, 343,569 in master's degree programs, and 106,148 in doctoral programs) (Higher Education Information Management System, 2021).

Assuming that the universe was not homogeneous and aiming to ensure a reliability level of 95%, the sample size was determined to be 384 participants. Since it would be difficult to directly reach such a high number of individuals, the snowball sampling method was preferred. "In this method, after reaching an individual from the universe, then another member whose name was obtained from the previous member is reached and the process is continued until reaching the sufficient sample size" (Saruhan & Özdemirci, 2020:204).

As seen in Table 1, of 390 students participating in the present study, 58.2% were female and 41.8% were male. Of the participants, 24.1% were aged between 18 and 20 years, 46.7% between 21 and 25 years, 11.8% between 26 and 30 years, and 17.4% were older than 30 years. Of the students participating in this study, 7.9% were associate students, 67.2% were undergraduate students, and 24.9% were postgraduate students.

Table 1. Demographic Characteristics of Participants

Demographic Characteristic	Values	N	Percentage
Gender	Female	227	58.2
	Male	163	41.8
Age	18-20	94	24.1
	21-25	182	46.7
	26-30	46	11.8
	30+	68	17.4
Type of Education Program	Associate Degree	31	7.9
	Undergraduate	262	67.2
	Postgraduate	97	24.9

Data Collection Instruments

The measurement tool used in the present study consists of 3 parts. In the first part, there were items about the demographic characteristics of students such as gender, age, type of education program, and university. In the second section, the Turkish adaptation of the "Lifelong Learning Scale for Studying and Assessing the Education and Curriculum Efficacy" developed by Wielkiewicz and Meuwissen (2014) was used. In the literature, two Turkish adaptation studies related to this scale could be found. The first one of them was the study carried out by Boztepe and Demirtaş (2016), whereas the other one was the one carried out

by Engin, Kör, & Erbay (2017). This scale was preferred because the target audience of the present study was university students, this scale was developed by administering it to university students, and it was found to have perfect reliability. Since the reliability level of the adaptation made by Engin, Kör, & Erbay (2017) was higher than the other adaptation, it was decided to use this adaptation consisting of 15 items. The scale is rated using a 5-point Likert scale as (1) never, (2) rarely, (3) sometimes, (4) frequently, and (5) always. The items constituting the form are presented in Annex 1. In the third part, the form of Online Learning Readiness Scale (OLRS), which was developed by Hung et al. (2010) and consists of 18 items under 5 factors, adapted into the Turkish language was used. This scale, which was developed by Hung et al. (2010), became one of the most accepted and used scales in the literature. The study carried out by Yurdugül and Sarıkaya (2013) aiming to establish the Turkish form of OLRS (Online Learning Readiness Scale) developed by Hung et al. (2010) has been one of the most widely cited adaptation studies. Five different dimensions in the original form of OLRS were defined as Self-driven Learning (OzGud), Motivation for Learning (OgrMot), Learner Control (OgrKont), Computer and Internet Self-Efficacy (BI-OY), and Online Communication Self-Efficacy (CI-OY). These factors have 3, 5, 3, 4, and 3 items, respectively, and there are 18 items in total.

The scale is rated using a 5-point Likert scale: (1) I absolutely disagree, (2) I disagree, (3) I neither disagree nor agree, (4) I agree, and (5) I absolutely agree. The items are provided in Annex 2.

Data Collection Process

The process of distributing the questionnaire to university students, who were studying in different universities, different cities, different types of education programs, and different departments, via the Internet was initiated on 26th March 2022. Then, on 24th April 2022, the process was completed by obtaining the responses of 390 students.

Data Analysis

The reliability and frequency analyses of the present study aiming to determine the effects of lifelong learning competencies on online learning readiness were carried out using the IBM SPSS Statistics 26 program. Demographic characteristics were analyzed using frequency analysis. Kolmogorov-Smirnov test, Mann-Whitney-U test, Kruskal Wallis-H test, One-Way ANOVA, and t-test were used in analyzing the differences by demographic variables. The reliability values of scales were determined by calculating Cronbach's Alpha coefficients. Confirmatory factor analysis was conducted in order to determine the factor structures separately for LLS and OLRS by using Amos 24 program and path analysis was conducted to test the hypotheses.

Validity and Reliability

"The reliability of a research is expressed using the Cronbach's Alpha coefficient, which is a measure of the inner consistency of the items. Cronbach's Alpha coefficient is described as follows by stating that the items in the scale having a high Alpha Coefficient are consistent with each other and measure the same characteristic:

0 < R2 < 0.40 means not reliable

0.40 < R2 < 0.60 means low reliability

0.60 < R2< 0.80 means very reliable

0.80 < R2 < 1.00 means highly reliable" (Yıldız & Uzunsakal, 2018: 19)

Reliability analysis of the Lifelong Learning Scale revealed a value of 0.883 as presented in Table 2. It means that the data obtained from the scale have high reliability.

Table 2. Reliability Analysis of the Lifelong Learning Scale

Number of Items	Cronbach's Alpha
15	.883

Table 3 presents the results of the reliability analysis conducted for the Online Learning Readiness Scale (OLRS). Since OLRS scale has five subdimensions as Computer/Internet self-efficacy (BI-OY), self-driven learning (OzGud), student control (OgrKont), motivation for learning (OgrMot), and online communication self-efficacy (CI-OY), separate reliability analyses were conducted for these subdimensions.

Examining the reliability analysis results presented in Table 3, since Cronbach's alpha coefficients of OzGud, OgrKont, and CI-OY subdimensions were in the range 0.60 < R2< 0.80, it can be stated that the results obtained from these factors were very reliable. Since the Cronbach's alpha coefficients of BI-OY and OgrMot subdimensions were in the range of 0.80 < R2 < 1.00, it was determined that these factors offered high reliability. Moreover, it was also found that the data obtained from all 18 items of the Online Learning Readiness Scale in total had a Cronbach's Alpha coefficient of 0.907 Cronbach's Alpha, which suggests a very high level of reliability.

Table 3. Reliability Analysis of Online Learning Readiness Scale

Factor	Number of Items	Cronbach's Alpha Value
BI-OY	3	0.838
OzGud	5	0.751
OgrKont	3	0.737
OgrMot	4	0.807
CI-OY	3	0.770
Total	18	0.907

"Normality tests are a prerequisite for many statistical tests because the assumption of parametric tests such as t-test, ANOVA, and Pearson's Correlation Test is that data exhibited normality" (Ölmez, 2019). For this reason, before the factor analysis, the normality analyses were conducted. Since the scale used in this study employ a Likert-type assessment, normality analyses were conducted based on the skewness and kurtosis values.

Table 4 represents the normality analysis results for Lifelong Learning Scale and Table 5 represents the results for Online Learning Readiness Scale.

Table 4. Normality Analysis Results for Lifelong Learning Scale

Items	Mean	Skewness	Kurtosis	Min.	Max.
YBO1	4.33	-.988	.897	1	5
YBO2	4.29	-.953	.090	2	5
YBO3	4.18	-.795	-.195	1	5
YBO4	4.33	-1.222	1.156	1	5
YBO5	3.64	-.336	-.799	1	5
YBO6	2.86	.226	-.838	1	5
YBO7	3.82	-.738	-.190	1	5
YBO8	3.28	-.174	-1.157	1	5
YBO9	3.75	-.556	-.451	1	5
YBO10	3.82	-.590	-.296	1	5
YBO11	4.00	-.865	.320	1	5
YBO12	4.32	-1.068	.823	1	5
YBO13	4.11	-.788	-.191	1	5
YBO14	4.55	-1.301	1.245	2	5
YBO15	3.74	-.527	-.679	1	5

Given the results represented in Table 4, it can be seen that the kurtosis and skewness values of all the items ranged between -1.5 and +1.5.

Table 5. Normality Analysis Results for Online Learning Readiness Scale

Items	Mean	Skewness	Kurtosis	Min.	Max.
BIOY1	3.80	-.756	-.331	1	5
BIOY2	3.66	-.435	-.785	1	5
BIOY3	4.18	-.976	.416	1	5
OZGUD1	4.03	-.827	.016	1	5
OZGUD2	3.90	-.604	-.544	1	5
OZGUD3	3.41	-.325	-.725	1	5
OZGUD4	4.03	-.836	.204	1	5
OZGUD5	4.25	-1.045	.674	1	5
OGRKONT1	3.95	-.670	-.107	1	5
OGRKONT2	3.10	-.082	-1.182	1	5
OGRKONT3	3.86	-.645	-.304	1	5
OGRMOT1	4.29	-1.057	.851	1	5

OGRMOT2	4.00	-.873	.320	1	5
OGRMOT3	4.07	-.983	.769	1	5
OGRMOT4	3.72	-.519	-.662	1	5
CIOY1	3.86	-.769	-.271	1	5
CIOY2	4.04	-.876	.038	1	5
CIOY3	3.84	-.626	-.511	1	5

Given Table 5, it can be seen that the kurtosis and skewness values of the items in all the subdimensions were within the range ± 1.5. "Kurtosis and Skewness values between -1.5 and +1.5 suggests normal distribution" (Tabachnick & Fidell, 2007).

FINDINGS

This section represents the data obtained from the research, the descriptive statistics, and the results obtained from the analyses of these data.

Item and factor mean values refer to the mean values obtained by item and factor as a result of the responses of participants in accordance with the range specified in the Likert scale (between 1 and 5 for 5-Point Likert and between 1 and 7 for 7-Point Likert). This result provides some clues about the participants' tendencies by items and factors.

Table 6 represents the descriptive statistics on the items of the Lifelong Learning Scale. Accordingly, considering the averages of the responses to items with a 5-point Likert-type scale, it can be seen that they were generally higher than 3, which means they were positive. Only the average value of the responses to Item 6 (writing is one of my regular activities) was 2.86 and negative. Considering the general average of the responses to the items of the scale, the mean value was found to be 3.9337 and it suggests that participating university students' tendencies toward lifelong learning skills were positive.

Table 6. Item and Factor Averages in LLS

Items	Min.	Max.	Mean	Std. Deviation
LLS1	1	5	4.33	.763
LLS 2	2	5	4.29	.836
LLS 3	1	5	4.18	.885
LLS 4	1	5	4.33	.872
LLS 5	1	5	3.64	1.104
LLS 6	1	5	2.86	1.229
LLS 7	1	5	3.82	1.107
LLS 8	1	5	3.28	1.330
LLS 9	1	5	3.75	1.069
LLS 10	1	5	3.82	1.025
LLS 11	1	5	4.00	.987
LLS 12	1	5	4.32	.815
LLS 13	1	5	4.11	.939
LLS 14	2	5	4.55	.646
LLS 15	1	5	3.74	1.144
LLS Average	1.80	5.00	3.9337	.61574

Considering the standard deviation values, it can be seen that they were generally close to 1. It suggests that the data were close to the average. The item with the smallest standard deviation (0.646) was Item 14 "I like learning new things".

The item with the highest standard deviation (1.33) was Item 8 "I visit libraries and bookstores to find interesting books and journals". In other words, while participating students' responses to Item 14 were closest to each other, their responses to Item 8 were relatively more different.

Descriptive statistics on the Online Learning Readiness Scale (OLRS) are shown in Table 7. Similarly, it can be seen that all the averages of responses to items with a 5-Point Likert scale were higher than 3 and, in other words, they were positive.

Table 7. Item and Factor Averages on OLRS

Items	Min.	Max.	Mean	Std. Deviation
BIOY1	1	5	3.80	1.176
BIOY2	1	5	3.66	1.155
BIOY3	1	5	4.18	.912
OZGUD1	1	5	4.03	1.011
OZGUD2	1	5	3.90	1.055
OZGUD3	1	5	3.41	1.167
OZGUD4	1	5	4.03	.968

OZGUD5	1	5	4.25	.874
OGRKONT1	1	5	3.95	.964
OGRKONT2	1	5	3.10	1.362
OGRKONT3	1	5	3.86	1.041
OGRMOT1	1	5	4.29	.821
OGRMOT2	1	5	4.00	1.000
OGRMOT3	1	5	4.07	.928
OGRMOT4	1	5	3.72	1.153
CIOY1	1	5	3.86	1.151
CIOY2	1	5	4.04	1.026
CIOY3	1	5	3.84	1.123

Given the standard deviation values, similar to the LLS scale, it can be seen that the standard deviation was generally close to 1. It means that the data were distributed close to the average.

"Although there is a consensus among researchers about reporting χ2/sd in structural equation research studies (Mulaik et al., 1989), different researchers suggested different opinions about which one(s) of other fit indices to be reported. McDonald and Ho (2002) recommended CFI, GFI, NFI, and NNFI (TLI), whereas Garver and Mentzer (1999) recommended RMSEA, CFI, and NNFI (TLI), Brown (2006) recommended RMSEA, SRMR, CFI, and NNFI (TLI), and Iacobucci (2010) recommended CFI and SRMR fit indices. Gerbing and Anderson (1992) stated that, depending on the objective of researchers, different fit indices might be reported" (İlhan & Çetin, 2013). Within this context, among the abovementioned fit indices, the present study reports CMIN/df, CFI, TLI, RMSEA, and SRMR.

Although there are different opinions about what the threshold for the model fitness values should be, these values are accepted within certain limits. "Calculated χ2/df ratio being 5, GFI and AGFI values being higher than 0.90, and RMR and RMSEA values being lower than 0.05 suggest a model-data fitness. Besides that, GFI higher than 0.85, AGFI higher than 0.80, and RMR and RMSEA values lower than 0.10 are considered as the lower threshold for the model-data fitness" (Engin, Kör, & Erbay, 2017).

"NFI value ranges between 0 and 1 and, as a threshold, the value of 0.90 is considered to refer to a good fit (…) In literature, there are different opinions about the TLI threshold value. Besides the threshold values such as TLI>0.80, there also are high threshold values such as TLI>0.95" (Yaşlıoğlu, 2017).

CFI is a criterion that is influenced by the degree of freedom and the sample size. This value is desired to be close to 1. CFI values higher than .90 refer to a good fit and those higher than .95 refer to a perfect fit (Uğurlu & Arslan, 2019).

"Model's fit increases as SRMR values become closer to 0. A model is considered to have a good fit if it has an SRMR value lower than 0.05 and an acceptable fit if it has an SRMR value between 0.05 and 0.10" (Özabacı, 2011).

In the light of these data, the goodness of fit and sufficient fit values accepted in the literature are presented in Table 8.

Table 8. Goodness of Fit Criteria

	CMIN/df	CFI	NFI-TLI	RMSEA	SRMR
Perfect	<2.5	>0.95	>0.95	<0.05	<0.05
Sufficient	<5	>0.90	>0.80	<0.08	<0.10

The CFA model, which was established using the data obtained from 390 participants the Lifelong learning scale was administered to, was analyzed by using the AMOS 24 program. The goodness of fit values obtained and the acceptable goodness of fit values are presented in Table 6. Given the results in Table 6, it was determined that the model didn't meet the required "goodness of fit" values other than the SRMR value.

Table 9. LLS Goodness of Fit Values

	CMIN/df	CFI	TLI	RMSEA	SRMR
Sufficient Goodness of Fit Values	<5	>0.90	>0.80	<0.08	<0.10
Goodness of Fit Values of the First Model	5.837	.799	.765	.112	.0698
Goodness of Fit Values of the Corrected Model	3.340	.908	.886	.078	.0551

In order to improve the goodness of fit values, the modification indices were checked first and then covariances were defined between YBO12-YBO14, YBO9-YBO10, YBO1-YBO5, YBO2-YBO9, and YBO5-YBO8, respectively (Figure 1). Then, the goodness of fit values were found to be higher than the sufficient level, as seen in Table 9.

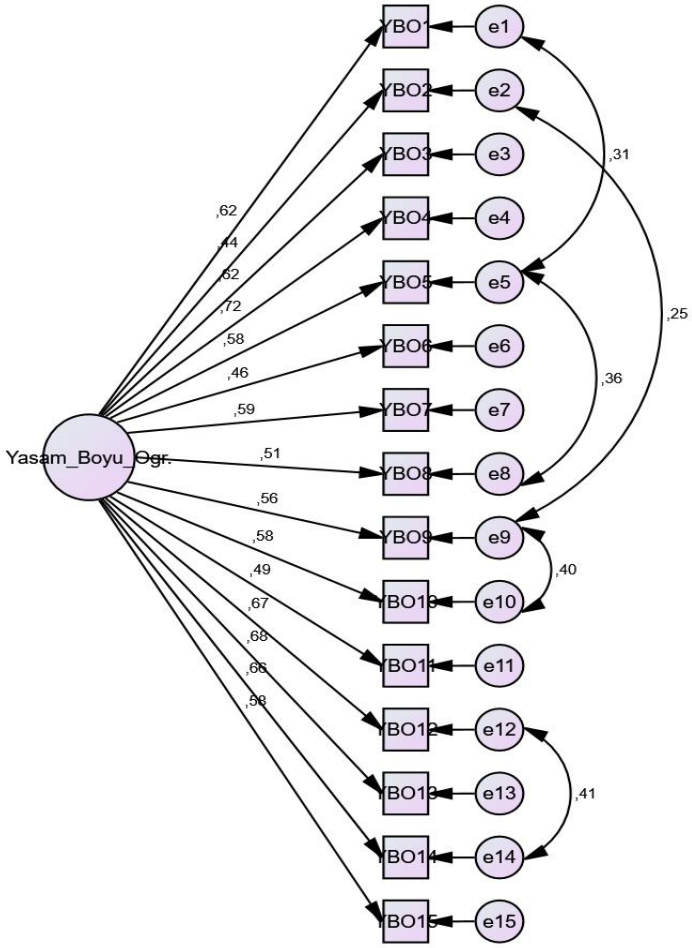

Figure 1. Lifelong Learning Scale CFA Model

Table 10 represents the standardized regression coefficients obtained from the analysis of the model. In confirmatory factor analysis, these values show the factor loads. To be considered significant, factor loads should be at specific levels. "Increasing number of samples decreases the acceptable factor load. While loads higher than 0.3 can be considered significant for a sample size of 350 individuals, this value increases to 0.4 when the number of samples decreases to 200, it increases to 0.5 when the sample size decreases to 120, and it increases to 0.6 when the sample size decreases to 85. The acceptable value for the sample size of 50 is 0.75. Factor analysis is not recommended for sample sizes lower than 50" (Hair et al., 2010).

Table 10. LLS Standardized Regression Coefficients

Item	Scale Item	Coefficient
LLS1	(Lifelong_Learning1)	.624
LLS2	(Lifelong_Learning2)	.444
LLS3	(Lifelong_Learning3)	.620
LLS4	(Lifelong_Learning4)	.717
LLS5	(Lifelong_Learning5)	.576
LLS6	(Lifelong_Learning6)	.457
LLS7	(Lifelong_Learning7)	.593
LLS8	(Lifelong_Learning8)	.509
LLS9	(Lifelong_Learning9)	.556
LLS10	(Lifelong_Learning10)	.578
LLS11	(Lifelong_Learning11)	.490
LLS12	(Lifelong_Learning12)	.666
LLS13	(Lifelong_Learning13)	.683
LLS14	(Lifelong_Learning14)	.656
LLS15	(Lifelong_Learning15)	.577

Since the sample size in the present study was 390, load values higher than 0.3 can be considered significant. As seen in Table 10, the coefficient of Item LLS2 having the lowest one was 0.444 and that of Item LLS4 having the highest one was 0.717. Thus, it can be stated that all the items have acceptable factor loads.

Online Learning Readiness Scale was administered to 390 students together with the Lifelong Learning Scale. The model established for CFA in Amos software is presented in Figure 2. In Table 11, the goodness of fit values obtained from the model are presented together with the acceptable goodness of fit values. Given the values, it can be seen that CMIN/df, TLI, and SRMR values were good enough but CFI and RMSEA values were outside the expected limits.

Examining the modification indices, covariances were defined for OZGUD3-OZGUD5, CIOY2-CIOY3, OZGUD1-OZGUD5, OGRMOT1-OGRMOT2, and OGRMOT2-OGRMOT3, respectively. Then, as seen in Table 8, the goodness of fit values increased to higher than the sufficient levels.

Table 11. OLRS Goodness of Fit Values

	CMIN/df	CFI	TLI	RMSEA	SRMR
Sufficient Goodness of Fit	<5	>0.90	>0.80	<0.08	<0.10
Goodness of Fit for the First Model	3.926	.888	.863	.087	.0635
Goodness of Fit for the Corrected Model	3.287	.916	.893	.077	.0547

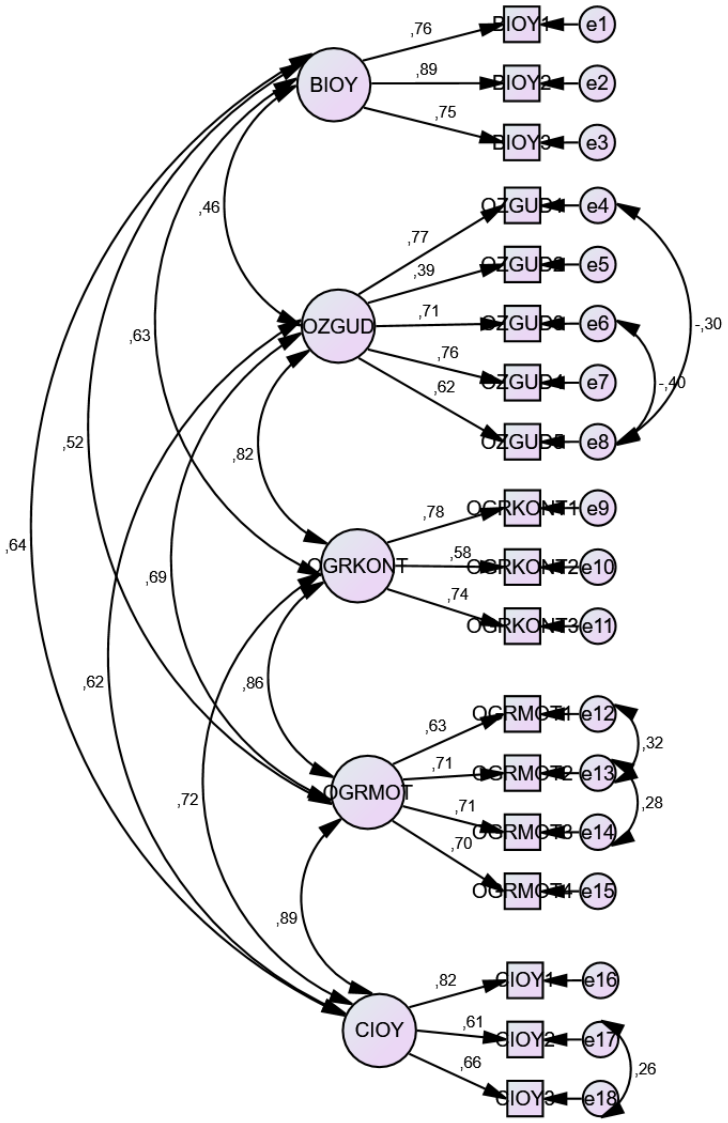

Figure 2. Corrected CFA Model for the Online Learning Readiness Scale

Table 12 presents the standardized regression coefficients obtained from the analysis of the OLRS model. Given these values, it can be seen that the item "Self-Driven Learning 2" had the lowest value (0.395). Hence, coefficients of all the items were higher

than the acceptable values. On the other hand, it can also be seen that the item “Computer and Internet Self-Efficacy 2” had the highest coefficient (0.894).

Table 12. OLRS Standardized Regression Coefficients

Scale Item		Coefficient
BIOY1	(Computer and Internet Self-Efficacy 1)	.765
BIOY2	(Computer and Internet Self-Efficacy 2)	.894
BIOY3	(Computer and Internet Self-Efficacy 3)	.752
OZGUD1	(Self-Driven Learning 1)	.767
OZGUD2	(Self-Driven Learning 2)	.395
OZGUD3	(Self-Driven Learning 3)	.713
OZGUD4	(Self-Driven Learning 4)	.759
OZGUD5	(Self-Driven Learning 5)	.616
OGRKONT1	(Student Control 1)	.784
OGRKONT2	(Student Control 2)	.578
OGRKONT3	(Student Control 3)	.738
OGRMOT1	(Motivation for Learning 1)	.629
OGRMOT2	(Motivation for Learning 2)	.712
OGRMOT3	(Motivation for Learning 3)	.714
OGRMOT4	(Motivation for Learning 4)	.698
CIOY1	(Online Communication Self-Efficacy 1)	.820
CIOY2	(Online Communication Self-Efficacy 2)	.607
CIOY3	(Online Communication Self-Efficacy 3)	.656

Mean scores on Lifelong Learning by the gender subgroups are presented in Table 13.

Table 13. Mean Scores on LLS and OLRS by Gender Subgroups

	Gender	N	Mean	Std. Deviation
LLS_Mean	Female	227	4.0250	.60573
	Male	163	3.8065	.60877
OLRS_Mean	Female	227	3.9053	.66995
	Male	163	3.8334	.67423

The results of the normality test for the mean scores on Lifelong Learning by gender subgroups are presented in Table 14.

Table 14. LLS and OLRS Normal Distribution by Gender

	Gender	Kolmogorov-Smirnov		
		Statistic	df	Sig.(p)
LLS_Mean	Female	0.074	227	0.005
	Male	0.072	163	0.04
OLRS_Mean	Female	0.055	227	0.093
	Male	0.046	163	.200*

Given the results presented in Table 14, since the coefficient was not higher than .05, it can be stated that there was no normal distribution. Thus, the Mann-Whitney-U test was used in order to examine if there was a difference between the groups in terms of mean scores on the Lifelong Learning Scale. The results obtained from this test showed that there was a statistically significant difference between women and men in terms of the mean scores on the Lifelong Learning Scale (U=14445, p=.000). It suggests that Hypothesis H1 was accepted. As seen in Table 13, the mean rank of women was 4.03, whereas that of men was 3.80. It shows that the lifelong learning mean scores of women participants were higher than those of men participants.

The result of the normality test between the online learning readiness mean scores of genders is presented in Table 14. Given these results, it can be seen that there was a normal distribution since p>.05. t-Test was used in order to determine if there was a difference between online learning readiness mean scores of women and men. It was found that there was a statistically significant difference between the mean scores of women and men on the Online Learning Readiness Scale [t(388)=0.092, p=0.001]. This finding suggests that Hypothesis H2 was accepted. In Table 13, it can be seen that the online learning readiness mean score of women ($\bar{X}$=3.91) was higher than those of men ($\bar{X}$=3.83).

Table 15. Descriptive Statistics of LLS and OLRS Mean Scores by the Type of Education Program

Score	Type of education program	N	Mean	Std. Deviation	Std. Error	Reliability Range for the Average of 95 Lower Limit	Upper Limit	Min.	Max
LLS_Mean	Associate Degree	31	3.8473	.84243	.15130	3.5383	4.1563	1.80	5.00
	Undergraduate	262	3.8593	.59048	.03648	3.7875	3.9311	2.00	5.00
	Postgraduate	97	4.1622	.54432	.05527	4.0525	4.2719	2.80	5.00
	Total	390	3.9337	.61574	.03118	3.8724	3.9950	1.80	5.00
OLRS_Mean	Associate Degree	31	3.7178	.96074	.17255	3.3654	4.0703	1.67	5.00
	Undergraduate	262	3.7894	.63146	.03901	3.7125	3.8662	1.96	5.00
	Postgraduate	97	4.1576	.58963	.05987	4.0387	4.2764	2.83	5.00
	Total	390	3.8752	.67181	.03402	3.8084	3.9421	1.67	5.00

Table 15 presents the mean scores on LLS and PLRS by educational level. A normality test was conducted in order to if the difference between online learning readiness mean scores and between lifelong learning scale mean scores by educational level and the results are shown in Table 16.

Table 16. LLS and OLRS Mean Scores P. Normality Test by Educational Level

Score	Type of education program	Kolmogorov-Smirnova Statistic	df	Sig.
LLS_Mean	Associate degree	0.183	31	0.009
	Undergraduate degree	0.057	262	0.04
	Postgraduate degree	0.092	97	0.044
OLRS_Mean	Associate degree	0.118	31	.200*
	Undergraduate degree	0.044	262	.200*
	Postgraduate degree	0.086	97	0.077

Given the results shown in Table 16, it can be seen that there was no normal distribution in the mean scores on Lifelong Learning Scale by the educational level (p<.05). Since there was no normal distribution, the non-parametric Kruskal-Wallis test was conducted in order to determine if there was a significant difference between the mean LLS scores.

Table 17. Kruskal-Wallis-H Test on Mean LLS Scores by the Level of Educational Program

Score	Groups	N	Mean Rank	Chi-Square	sd	P
LLS_Mean	Associate	31	193.15	16.018	2	.000
	Undergraduate	262	181.23			
	Postgraduate	97	234.79			
	Total	390				

As can be seen in Table 17, by using the Kruskal Wallis-H test, it was aimed to determine if the mean scores of students on the LLS differed significantly by their educational level. Accordingly, it was determined that there was a statistically significant difference between the mean scores on LLS by the current educational program, in which the students were enrolled (x2=16,018; sd=2; p<.05). This finding suggests that Hypothesis H3 was accepted. Mann Whitney-U test was used in determining between which educational levels there was a statistically significant difference. As a result of the analyses, it was revealed that there was a statistically significant difference between the LLS scores of postgraduate students and undergraduate students and the scores of postgraduate students were higher (U=9175; z=-4,05; p=.00). Considering the mean scores in Table 15, it can be seen that mean OLRS scores of postgraduate students ($\bar{X}$=4.16) were higher than those of undergraduate students ($\bar{X}$=3.79).

Table 18. Educational Levels and OLRS ANOVA test

Score		Sum of Squares	df	Mean Square	F	Sig.
OLRS_Mean	Between Groups	10.432	2	5.216	12.224	.000
	Within Groups	165.136	387	.427		
	Total	175.568	389			

Examining the normality test results presented in Table 16, it was determined that the mean scores on OLRS by educational levels had a normal distribution (p>.05). Since there was a normal distribution, the One-Way ANOVA test was conducted to examine if there was a difference between the OLRS scores by the current educational program, as seen in Table 18, and a statistically significant difference was found between the groups (F2-387=12.22; p=.00). This finding suggests that Hypothesis H4 was accepted. Considering the results obtained from the Levene test conducted in order to test the distribution between variances, it was determined as seen in Table 19 that there was a homogeneous distribution (p=.001).

Table 19. Homogeneity between Variances

	Levene Statistic	df1	df2	Sig.
OLRS_Mean	7.313	2	387	.001

Among Post-Hoc tests, the Scheffe test was conducted in order to reveal between which educational programs there was a difference in terms of OLRS scores and the results are presented in Table 20.

Table 20. Scheffe Test Results

Dependent Variable				Mean Difference (I-J)	Std. Error	Sig.	95% confidence level for average	
							Lower Lim	Upper Lim
OLRS Mean	Scheffe	Associate	Undergraduate	-.07150	.12407	.847	-.3764	.2334
			Postgraduate	-43971*	.13477	.005	-.7709	-.1085
		Undergraduate	Associate	.07150	.12407	.847	-.2334	.3764
			Postgraduate	-.36821*	.07764	.000	-.5590	-.1774
		Postgraduate	Associate	.43971*	.13477	.005	.1085	.7709
			Undergraduate	.36821*	.07764	.000	.1774	.5590

Given Table 20, it can be seen that there was a difference between undergraduate and postgraduate students and that, considering the data presented in Table 15, it can be concluded that the mean OLRS score of postgraduate students ($\bar{X}$=3.78) was higher than that of undergraduate students ($\bar{X}$=4.15).

"Path analysis is a method that can define the effects of external variables on internal variable(s) as direct, indirect, and total effect, which refers to the sum of direct and indirect effects, and allows facilitating the presentation of complex effect systems by illustrating these effect on a path schema" (Oktay, Akıncı, & Karaaslan, 2012).

In this step, the path analysis model, in which the hypotheses questioning if Lifelong Learning has effects on the subdimensions of OLRS could be tested, was established by using the AMOS 24 program. Goodness of fit of the structural model is presented in Table 21.

Table 21. Goodness of Fit Values of Path Analysis

	CMIN/df	CFI	TLI	RMSEA	SRMR
Sufficient Goodness of Fit	<5	>0.90	>0.80	<0.08	<0.10
Goodness of Fit for the First Model	3.834	.766	.748	.085	.0830
Goodness of Fit for the Corrected Model	3.187	.822	.805	.075	.0742

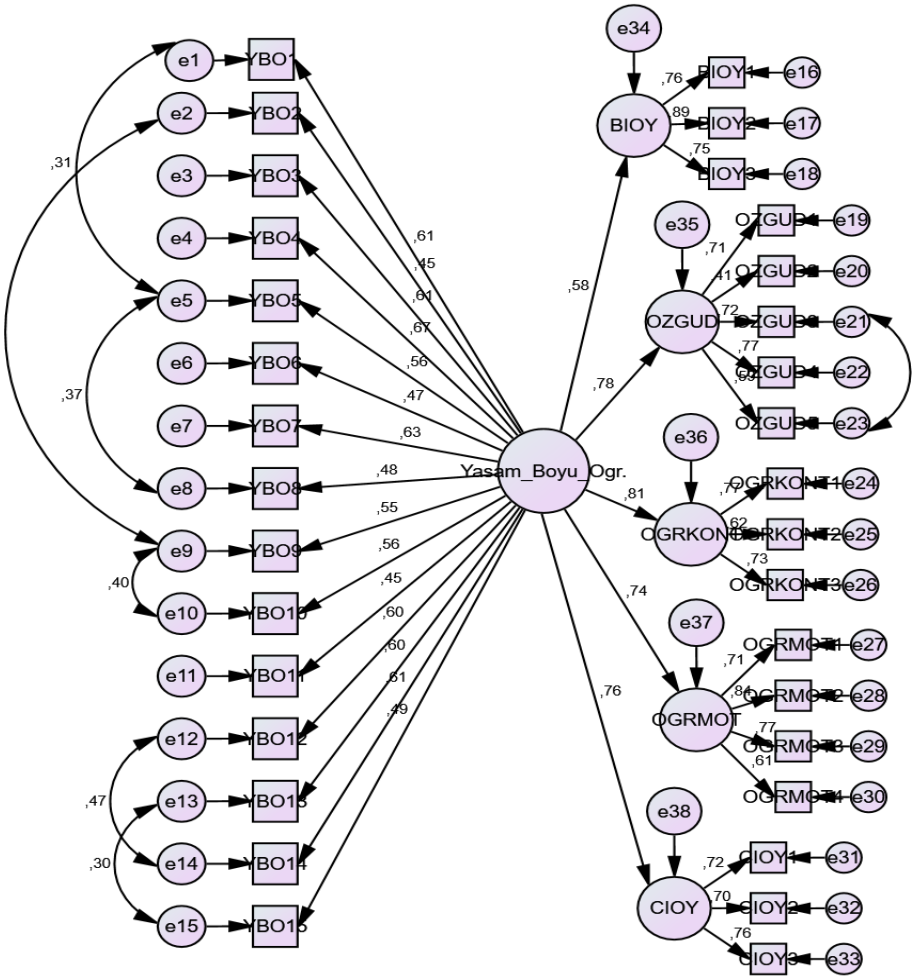

Figure 3. Path Analysis Model for the Effects of LL on Subdimensions of OLRS

Examining the first results obtained from the analysis of the model, it was determined that the values other than CMIN/df and SRMR did not have a suitable goodness of fit value. Controlling the modification indices, covariances were described for YBO12-YBO14, YBO9-YBO10, YBO5-YBO8, YBO1-YBO5, YBO13-YBO15, YBO2-YBO9, and OZGUD3-OZGUD5 and the goodness of fit values of the corrected model (Figure 3) offered sufficient goodness of fit values, except for CFI.

"Each fit index has critical limit points. Those are not exact ones but an acceptance. It is normal for the goodness of fit models established in newly developing areas to be below the critical limits" (Ayyıldız & Cengiz, 2006). Since the model would be tested recently and the other four parameters were meeting the goodness of fit criteria, the fact that the CFI value was lower than 0.9 was ignored and the hypothesis testing phase was initiated.

Table 22 represents the test results obtained for the hypotheses by using the path analysis. Hypothesis tests were conducted considering the t value (C.R.- critical ratio) and p values. Positivity and negativity of the t value determine the direction of the relationship. If the t value is positive, then the relationship between the factors is in the specified direction (positive). Otherwise, the relationship is negative. Within this context, it means that the p-value was lower than 0.05. Moreover, it also means that the hypotheses with t values higher than 1.96 and positive relationship were supported. Hypothesis test results are presented in Table 22.

Table 22. Path Analysis Results on Structural Relationships

Hypotheses	B	S.E	t (C.R)	P value	Result
H5:LLS ⟶ BIOY	0.578	0.131	+ 8.496	<0.001	Supported
H6:LLS ⟶ OzGud	0.782	0.121	+ 9.922	<0.001	Supported
H7:LLS ⟶ OgrKont	0.813	0.123	+ 10.491	<0.001	Supported
H8:LLS ⟶ OgrMot	0.736	0.095	+ 9.593	<0.001	Supported
H9: LLS ⟶ CIOY	0.760	0.140	+ 9.669	<0.001	Supported

Given the results presented in Table 22, it can be seen that Lifelong Learning had a positive and significant effect on the 5 subdimensions of OLRS. Hence, all 5 hypotheses (H5, H6, H7, H8, H9) were supported in the path analysis. Although there was no very high difference between t values, Hypothesis H7 had the highest value (10.491). In other words, Lifelong Learning had the highest effect on the Student Control (OGRKONT) subdimension of OLRS. Hypothesis H5 had the lowest t-value (8.496). Thus, the subdimension, on which Lifelong Learning had the relatively lowest effect, was Computer/Internet Self-Efficacy (BIOY).

DISCUSSION

It is very important to determine the factors influencing individuals' self-efficacy and readiness levels regarding the lifelong learning and online learning, among the most important educational concepts of today. Lifelong learning and online learning readiness scales developed for this purpose aim to determine those factors. In this study, among the prominent scales in the literature, the Turkish adaptation versions of the Lifelong Learning Scale developed by Wielkiewicz & Meuwissen (2014) and the Online Learning Readiness Scale developed by Hung et al. (2010) were used.

During the process, it was first tested if the gender and the education program in the university studied had an effect on the lifelong learning and online learning readiness concepts. The analyses showed that the lifelong learning scores of women were slightly higher than those of men. The results were in parallel with those reported by Kozikoğlu & Altunova (2018). On the other hand, in a previous study, Savuran (2014) determined that there was no difference between the genders in terms of lifelong learning competencies and age and department of graduation created a significant difference. Considering from the educational program being attended, there was no remarkable difference between associate degree students and undergraduate students in terms of lifelong learning but, as expected, lifelong learning levels of postgraduate students were higher than those of associate degree and undergraduate students. Similarly, Kozikoğlu & Altunova (2018) also found that lifelong learning levels of preservice teachers planning to do a master's degree were higher than the others.

Examining from the aspect of online learning readiness levels, women were found to be slightly better in comparison to men. In their study carried out on teachers, Üstün, Karaoğlan-Yılmaz, & Ramazan (2020) determined that online learning readiness level of female teachers was higher than male teachers. Examining the online learning readiness from the aspect of the type of program being attended in, there was no significant difference between undergraduate and associate degree programs but students having postgraduate education had a higher level of online learning readiness.

Considering the online learning readiness level, it was found to be worth further examining that there was no significant difference between associate degree students and other groups but there was a significant difference between undergraduate students and postgraduate students. It was thought that it might be because, in 390 participants, there were only 31 associate degree students. For this reason, a future study to be carried out with a higher number of associate degree students and a larger samples size would be useful in order to shed light on this subject.

CONCLUSION AND RECOMMENDATIONS

In the present study, it was actually aimed to determine if the lifelong learning was effective on the subdimensions of online learning readiness. Analyzing the structural model established within this context, it was found that lifelong learning had positive and significant relationships with each subdimension. In literature, the study that is similar to the present study the most is the one carried out by Çavuşoğlu & Acar (2020) measuring the relationship between students' opinions on distance education and their level of lifelong learning. Çavuşoğlu & Acar (2020) determined a positive relationship between the scores in effectiveness and familiarity subdimensions of the scale on opinion about distance education, which they used, and the lifelong learning scores. It suggests that the relationship between LL and OLRS might be a bidirectional one.

Examining the analysis data in detail, among the subdimensions of OLRS, LLS had the highest effect on Student Control, followed by Self-Driven Learning, Online Communication Self-Efficacy, Motivation for Learning, and Computer/Internet Self-Efficacy. Examining the factor loads of Lifelong Learning Scale, the highest factor load was found in LLS4 (0.717), followed by YBÖ13, YBÖ12, and YBÖ14 having close values, respectively. Those items were "I consider myself as a person that learns lifelong", "My area of interest regarding learning is very wide", "I am a person wondering many things", and "I love learning new things". Considering the items, it can be seen that they mainly focus on interest, curiosity, and pleasure from learning new things. Therefore, the activities aiming to increase the interest, motivation, and curiosity of individuals toward learning new things would contribute to the increase in their level of lifelong learning and, consequently, it would help increase their online learning readiness level.

Although it changed in the course of years in terms of shape, method, environment, and materials used, education will always have an important place in our lives, as it has always had. Achieving the desired outcomes from education, which started to become gradually more online in parallel with the changing necessities of this era and thanks to the advancement in technology, depends on accurately determining the paths and methods to be used and effectively and efficiently using them.

Within this context, it is thought that the studies aiming to determine the factors influencing the concepts such as lifelong learning and online learning readiness and reveal the relationships and interactions between these concepts would play a guiding light role in improving the education and lifelong learning.

Declaration of Conflicting Interests

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

Before administering the above mentioned 3-part questionnaire to the university students, the approval was obtained from the Ethics Committee of Bursa Uludağ University (26.11.2021, 2021-10).

REFERENCES

A.Mulaik, S., James, L. R., Alstine, J. V., Bennet, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. Psychological Bulletin, 430-445. https://doi.org/10.1037/0033-2909.105.3.430 adresinden 05.1.2022 tarihinde erişilmiştir.

Ayyıldız, H., & Cengiz, E. (2006). Pazarlama Modellerinin Testinde Kullanılabilecek Yapısal Eşitlik Modeli (Yem) Üzerine Kavramsal Bir İnceleme. Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 63-84.

Boztepe, Ö., & Demirtaş, Z. (2016). The Adaptation of Lifelong Learning Scale intoTurkish Culture. Journal of Family, Counseling, and Education, 10-17.

Brown, T. A., & Moore, M. T. (2012). Confirmatory Factor Analysis. Handbook of structural equation modeling, 361-379.

Çavuşoğlu, G., & Acar, K. (2020). Üniversite Öğrencilerinin Uzaktan Eğitime Yönelik Görüşleri ile Yaşam Boyu Öğrenme Düzeyleri Arasındaki İlişki. Spor ve Performans Araştırmaları Dergisi, 207-220.

Engin, M. (2013). Üniversitelerin Teknoloji Temelli Uzaktan Eğitim Sistemlerinin Karakteristik Özellikleri Açısından İncelenmesi. Eğitim Bilimleri ve Uygulama Dergisi, 1-22.

Engin, M., Kör, H., & Erbay, H. (2017). Yaşam Boyu Öğrenme Ölçeği Türkçe Uyarlama Çalışması. Kastamonu Eğitim Dergisi, 1561-1572.

Güleç, İ., Çelik, S., & Demirhan, B. (2012). Yaşam Boyu Öğrenme Nedir? Kavram ve Kapsamı Üzerine Bir Değerlendirme. Sakarya University Journal of Education, 34-48.

Hair, o. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. Essex: Pearson Education.

Hung, M.-L., Chou, C., Chen, C.-H., & Own, Z.-Y. (2010). Learner readiness for online learning: Scale development and student perceptions. Computers & Education, 1080-1090.

Kozikoğlu, İ., & Altunova, N. (2018). Öğretmen Adaylarının 21. Yüzyıl Becerilerine İlişkin Öz-yeterlik Algılarının Yaşam Boyu Öğrenme Eğilimlerini Yordama Gücü. Yükseköğretim ve Bilim Dergisi, 522-531.

Kumar, R. (2015). Araştırma Yöntemleri - Yeni Başlayanlar İçin Adım Adım Araştırma Rehberi. (Ö. Çokluk, Dü., Ö. Çokluk, G. Şekercioğlu, & H. Atak, Çev.) Ankara: Edge Akademi Yayıncılık.

McDonald, R. P., & Ho, M.-H. R. (2002). Principles and Practice in Reporting Structural Equation Analyses. Psychological Methods, 64-82.

More, M. G., & Kearsley, G. (2005). Distance Education: A System View of Online Learning. Wadsworth: Cengage Learning.

Oktay, E., Akıncı, M. M., & Karaaslan, A. (2012). Yol Analizi Yardımıyla Dersler Arasındaki Etkileşimin Araştırılması: Atatürk Üniversitesi İktisadi ve İdari Bilimler Fakültesi İşletme. Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi, 67-83.

Ölmez, C. (2019, Şubat 2). Normallik Testleri-Spss. https://cengizolmez.com adresinden 12.10.2021 tarihinde erişilmiştir.

Özabacı, N. (2011). İlişki Niteliği Ölçeği'nin Türkçe Uyarlaması: Geçerlik ve Güvenirlik Çalışması. Eğitim ve Bilim, 159-167.

Saruhan, Ş. C., & Özdemirci, A. (2020). Bilim, Felsefe ve Metodoloji. İstanbul: Beta.

Savuran, Y. (2014). Life-Long Learning Competencies Of Prospective English Language Teachers In Comparison With Their Mentors. Ankara: Hacettepe University Graduate School Of Educational Sciences.

Tabachnick, B. G., & Fidell, L. S. (2007). Using Multivariate Statistics. Boston: Pearson.

Uğurlu, C. T., & Arslan, C. (2019). Sendikal Tutum Ölçeği: Geçerlik ve Güvenirlik Çalışması. İnönü Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi, 78-90.

Üstün, A. B., Karaoğlan-Yılmaz, F. G., & Yılmaz, R. (2020). Öğretmenler E-Öğrenmeye Hazır mı? Öğretmenlerin E-Öğrenmeye Yönelik Hazır Bulunuşluklarının İncelenmesi Üzerine Bir Araştırma. Ahmet Keleşoğlu Eğitim Fakültesi Dergisi, 54-69.

W.Gerbing, D., & C.Anderson, J. (1992). Monte Carlo Evaluations of Goodness of Fit Indices for Structural Equation Models. Sociological Methods & Research, 132-160.

Wielkiewicz, R. M., & Meuwissen, A. S. (2014). A Lifelong Learning Scale for Research and Evaluation of Teaching and Curricular Effectiveness. Teaching of Psychology, 220-227.

Yaşlıoğlu, M. M. (2017). Sosyal Bilimlerde Faktör Analizi ve Geçerlilik: Keşfedici ve Doğrulayıcı Faktör Analizlerinin Kullanılması. İstanbul Üniversitesi İşletme Fakültesi Dergisi, 74-85.

Yıldırım, S., Yıldırım, G., Çelik, E., & Karaman, S. (2014). Uzaktan Eğitim Öğrencilerinin Uzaktan Eğitime Yönelik Görüşleri:Bir Ölçek Geliştirme Çalışması. Eğitim ve Öğretim Araştırmaları Dergisi, 365-370.

Yıldız, D., & Uzunsakal, E. (2018). Alan Araştırmalarında Güvenilirlik Testlerinin Karşılaştırılması ve Tarımsal Veriler Üzerine Bir Uygulama. Uygulamalı Sosyal Bilimler Dergisi, 14-28.

Yurdugül, H., & Sarıkaya, D. A. (2013). Çevrimiçi Öğrenme Hazır Bulunuşluluk Ölçeği: Geçerlik ve Güvenirlik Çalışması. Eğitim ve Bilim, 391-406.

Yükseköğretim Bilgi Yönetim Sistemi. (2021, 5 5). Yükseköğretim Kurulu: https://istatistik.yok.gov.tr/ adresinden 24.12.2021 tarihinde erişilmiştir.