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PRE-SERVICE TEACHERS' E-LEARNING READINESS AND LIFELONG LEARNING TENDENCIES

PRONTIDÃO PARA O E-LEARNING DE PROFESSORES EM FORMAÇÃO E TENDÊNCIAS DE APRENDIZAGEM AO LONGO DA VIDA

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Abstract
The aim of this study is to reveal the relationship between pre-service teachers' e-learning readiness and their lifelong learning tendencies. The population of the correlational survey model research is pre-service teachers studying at the Faculty of Education in a university in Turkey in the 2021-2022 academic year. The sample of the study consisted of 274 pre-service teachers who volunteered to participate in the study. The research data were collected with the "E-Learning Readiness Scale of University Students" developed by Yurdugül and Demir (2017) and the "Lifelong Learning Disposition Scale" developed by Gür-Erdoğan and Arsal (2016). The data were analyzed with a computer-aided statistical program. In this context, evaluations were made regarding some variables. Accordingly, in both e-learning readiness and lifelong learning disposition scores, a significant difference was determined in favor of pre-service teachers who continued their education in the 3rd and 4th grades and had a personal computer. In addition, a moderate and positive significant relationship was determined between the total score of e-learning readiness and the total score of lifelong learning dispositions of pre-service teachers.

Keywords: E-learning. Lifelong Learning. Readiness. Pre-Service Teachers.

Resumo
O objetivo deste estudo é revelar a relação entre a prontidão para o e-learning de futuros professores e suas tendências de aprendizagem ao longo da vida. A população da pesquisa do modelo de pesquisa correlacional são futuros professores que estudam na Faculdade de Educação de uma universidade na Turquia no ano letivo de 2021-2022. A amostra do estudo foi composta por 274 futuros professores que se voluntariaram para participar do estudo. Os dados da pesquisa foram coletados com a "Escala de Prontidão para o E-Learning de Estudantes Universitários", desenvolvida por Yurdugül e Demir (2017), e a "Escala de Disposição para a Aprendizagem ao Longo da Vida", desenvolvida por Gür-Erdoğan e Arsal (2016). Os dados foram analisados com um programa estatístico auxiliado por computador. Nesse contexto, foram feitas avaliações em relação a algumas variáveis. Consequentemente, tanto na prontidão para o e-learning quanto nas pontuações de disposição para a aprendizagem ao longo da vida, uma diferença significativa foi determinada a favor dos futuros professores que continuaram seus estudos no 3º e 4º anos e possuíam um computador pessoal. Além disso, foi determinada uma relação moderada e positiva significativa entre a pontuação total de prontidão para o e-learning e a pontuação total de disposições para a aprendizagem ao longo da vida de futuros professores.

Palavras-chave: *E-learning. Aprendizagem ao Longo da Vida. Prontidão. Futuros Professores.*

1 INTRODUCTION

As a result of the opportunities offered by the digital age, the development of technology offers new opportunities to facilitate the lives of individuals and enables a number of innovations in the field of education. Especially as a result of the Covid-19 pandemic, it can be said that the preferred learning/teaching methods have also changed and changed in accordance with the spirit of the period. In order to keep up with this change, to contribute to the development of individuals and to complete this process with less loss, it is known that e-learning environments are used in addition to face-to-face education. E-learning is a form of learning that students realize in computer and internet environments mostly as a requirement of self-directed learning. E-learning readiness of pre-service teachers is important in developing their e-learning skills. E-learning readiness consists of components such as computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-learning skills, learner control and motivation towards e-learning. E-learning readiness is an important prerequisite for pre-service teachers to acquire these skills and realize e-learning. Especially with the Covid-19 pandemic, the rapidly spreading online education applications have increased the importance of e-learning skills (Han, 2021). E-learning offers flexible learning opportunities with information and communication technologies without time and space limitations (Dikbaş, 2006; Gür-Erdoğan, Bayat, & Şentürk, 2017). Especially recently, e-learning, which is an indispensable part of the education system, has many advantages. Uyar and Karakuyu (2020) listed the advantages of e-learning as follows:

- from educational opportunities at any time of the day, regardless of time and place
- large audiences
- Enabling individuals to learn at their own learning pace
- Enabling learners to access course content at any time
- Individualized time in access
- Enabling fast and effective collaboration by enabling the creation of learning groups
- individuals' self-regulation skills
- individuals' lifelong learning skills

Developments in education, social, technological, political, economic and many other fields have made it compulsory for individuals to be in a continuous learning

endeavor. This situation draws attention to the importance of lifelong learning. When the literature is examined, it is seen that there are many definitions of lifelong learning. The European Union Commission (2000) defined lifelong learning as the individual's planned or unplanned, continuous learning activities with the aim of developing knowledge, skills and competencies in personal, professional, social and social areas. Yüzlü (2019) explained lifelong learning as a continuous and supportive process that encourages and empowers individuals to acquire all the knowledge, attitudes, skills, values and understanding they will need throughout their lives and to apply them with confidence, creativity and pleasure in all roles, conditions and environments. Özoğlu (2019), on the other hand, defined lifelong learning as people who strive to improve their knowledge and skill levels, experience, discover, analyze and interpret different information in this direction. Erdoğan (2020) defined lifelong learning as a discipline that includes emotional intelligence qualities such as self-consciousness, self-management, relationship management, and social awareness, as well as social communication, team coordination, and problem-solving skills, as well as training for employment. Bağcı (2011) defined lifelong learning as a concept that encompasses learning styles prepared with a focus on plans and programs within the school system, as well as learning activities that take place at every stage of life independent of the school system. According to Günüç, Odabaşı and Kuzu (2012), lifelong learning is defined as an education that can be realized at home, at school, at work or in all areas where the person exists since it covers all education and training processes such as formal, non-formal, technical, vocational and in-service. As a result, according to these definitions, it can be stated that lifelong learning is an ongoing learning and application process at every stage of life in addition to formal, non-formal and school-based learning. The goal of lifelong learning can be interpreted as the ability of countries to maintain or sustain their level of development in the face of rapid developments in many fields such as science and technology

University is an educational stage in which personal preferences are important and the freedom of the learner is important, such as the realization of self-learning through research (Coşkun & Demirel, 2012). In this context, the role of universities has been emphasized in raising individuals who think critically, solve problems, make independent decisions and have lifelong learning skills in the information age (Göksan, Uzundurukan, & Keskin, 2009). For this reason, determining the lifelong learning tendencies of pre-service teachers in addition to their readiness for e-learning and the relationship between

these two situations has been determined as an important issue that needs to be studied. In this context, the aim of this study is to examine the level of pre-service teachers' e-learning readiness and lifelong learning dispositions and the relationship between them. In line with this general purpose, answers to the following questions were sought:

Prospective teachers;

-Does their readiness for e-learning differ significantly according to gender, grade level, and personal computer ownership?

-Do the sub-dimensions of "computer self-efficacy", "internet self-efficacy", "online communication self-efficacy", "self-directed learning", "learner control" and "motivation towards e-learning" of e-learning readiness differ significantly according to gender, grade level, and personal computer ownership?

-Do lifelong learning dispositions differ significantly according to gender, grade level, and personal computer ownership?

-Do the lifelong learning dispositions related to "willingness to learn" and "openness to improvement" sub-dimensions differ significantly according to gender, grade level, and personal computer ownership status?

-What is the relationship between their e-learning readiness and their lifelong learning tendencies?

2 METHOD

2.1 Research model

In this study, which aims to examine the relationship between pre-service teachers' e-learning readiness and their lifelong learning tendencies, relational survey model was used. According to Karasar (2016), the survey model is used in researches that aim to describe a past or current situation as it exists. In correlational survey models, the aim is to determine whether there is a change or degree of change between two or more variables.

2.2 Working group

The population of the study consists of students studying at the Faculty of Education at a university in Turkey in the 2021-2022 academic year. Non-randomized convenience sampling method was used to select the sample. The convenience sampling method is the selection of the sample from easily accessible and applicable units due to the limitations in terms of time, money and labor (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2019). In this context, 274 pre-service teachers were included in the sample.

Table 1

Personal Information of Prospective Teachers

Variables		**f**	**%**
Gender	Female	212	77.4
	Male	62	22.6
Class level	1st grade	44	16.1
	2nd grade	112	40.9
	3rd grade	59	21.5
	4th grade	59	21.5
Section	Department of mathematics and science	43	15.7
	Department of foreign languages	12	4.4
	Basic education department	67	24.5
	Department of Educational Sciences	42	15.3
	Fine arts education department	14	5.1
	Turkish social sciences education	96	35
Having a personal computer	Yes	144	52.6
	No.	130	47.4

It is seen that 212 of the pre-service teachers are female and 62 of them are male. Of these 274 pre-service teachers, 44 were 1st grade, 112 were 2nd grade, 59 were 3rd grade, and 59 were 4th grade pre-service teachers. It was determined that 43 students were studying mathematics and science education, 12 students were studying foreign languages education, 67 students were studying elementary education, 42 students were studying educational sciences, 14 students were studying fine arts education and 96 students were studying Turkish-social sciences education. In addition, 144 pre-service teachers have their own computers while 130 pre-service teachers do not have their own computers

2.3 Data collection tools

While collecting the data of the study, "University Students' E-Learning Readiness Scale" developed by Yurdugül and Demir (2017) was used to determine the readiness of pre-service teachers for e-learning. This scale consists of 33 items in 7-point Likert type and 6 sub-dimensions. The sub-dimensions of the scale are computer self-efficacy, internet self-efficacy, online communication self-efficacy, self-directed learning, learner control and motivation towards e-learning. These 33 items range from "Not at all suitable for me (1)" to "Completely suitable for me (7)". The Cronbach's α value for the computer self-efficacy dimension of the e-learning readiness scale of university students was 0.84, 0.85 for the internet self-efficacy dimension, 0.84 for the online communication self-efficacy dimension, 0.88 for the self-learning dimension, 0.91 for the learner control dimension and 0.95 for the motivation towards e-learning dimension. The total Cronbach Alpha (α) value of the scale was calculated as 0.93. In the current study, Cronbach Alpha (α) value was determined as .96. "Lifelong Learning Tendency Scale" developed by Gür-Erdoğan and Arsal (2016) was used to determine the lifelong learning tendencies of pre-service teachers. The scale consists of 17 items in 5-point Likert type and 2 sub-dimensions. The sub-dimensions of the scale are willingness to learn and openness to development. These 17 items are organized as "Strongly disagree (1)", "Disagree (2)", "Neutral (3)", "Agree (4)" and "Strongly Agree (5)". The total Cronbach Alpha (α) value of the scale is .86. In the current study, the Cronbach Alpha (α) value was determined as .95.

2.4 Data analysis

The data obtained from the University Students' E-Learning Readiness Scale and Lifelong Learning Disposition Scale forms were analyzed with a licensed computer-aided statistical program. At this stage, firstly, it was examined whether the collected data showed normal distribution and normality tests were performed. When the literature is examined, the Kolmogorov-Smirnov (K-S) test (McKillup, 2012) is preferred when the sample size is more than 35 and the Shapiro-Wilk test (Shapiro & Wilk, 1965) is preferred when the sample size is small. In this context, the results of the K-S test were taken into consideration in this study and are presented in Table 2. At the same time, skewness and

kurtosis (skewness-kurtosis) values and histogram curves were also examined in normal distribution evaluations. It is stated that kurtosis and skewness values can be stretched up to 3.29 for a medium-sized study group (50 < n < 300) (Kim, 2013). However, since this was not the case in the present study, it was considered that the data did not show a normal distribution.

Table 2

Skewness and Kurtosis Values of the Scores and Kolmogorov-Smirnov Test Results

E-learning readiness scale	N	Skewness	kurtosis	K-S P
Total scores of e-learning readiness scale of university students	274	-,589	-,243	.001
Computer self-efficacy		-.450	-,491	.000
Internet self-efficacy		-1,283	,869	.000
Online communication self-efficacy		-,590	-,618	.000
Self-directed learning		-,924	,135	.000
Learner control		-1.326	3,651	.000
Motivation towards e-learning		-,556	-,579	.000
Lifelong learning dispositions scale total scores		-1,645	3,988	.000
Willingness to learn		-1,427	3,127	.000
Openness to development		-1,810	4,300	.000

When the K-S test results in Table 2 are examined, it is seen that there are deviations from normality in the total and sub-dimension scores of the e-learning readiness scale of university students and in the total and sub-dimension scores of the lifelong learning disposition scale. When skewness and kurtosis values are examined, it is observed that these values are within the range of ±5.00 for all score groups. Considering all these examinations, it was interpreted that the data did not show normal distribution and nonparametric tests (MWU, KWH) were used in data analysis. Pearson correlation coefficients of the scales were examined to look at the relationship between the scales. The e-learning readiness of university students is a seven-point Likert-type scale. In the evaluation and interpretation of the data, the value range between 1-7 was taken into consideration from negative to positive. Lifelong learning disposition scale is a five-point Likert type. In the evaluation and interpretation of the data, the value ranges of '1.00-1.80', '1.81-2.60', '2.61-3.40', '3.41-4.20' and '4.21-5.00' were considered from the most negative to the most positive according to the level of participation.

3 FINDINGS

In this section where the data related to the study are analyzed, the data collected with the "University Students' Readiness for E-Learning Scale" and "Lifelong Learning Disposition Scale" are analyzed. The findings related to these two scales are listed below. First of all, tests appropriate to the variables for the scale were made and presented in tables.

Table 3

MWU Test Results of Prospective Teachers' Readiness for E-Learning According to Gender Variable

Alt Dimensions	Gender	Queue average	Queue Total	Z	U	P
Computer self-efficacy	Female (212)	131.21	27817.50	-2.431	5239.5*	.015
	Male (62)	158.99	9857.50			
Internet self-efficacy	Female	136.02	28836.00	-.587	6258	.557
	Male	142.56	8839.00			
Online communication self-efficacy	Female	132.82	28157.50	-1.815	5579.5	.069
	Male	153.51	9517.50			
Self-directed learning	Female	134.91	28600.50	-1.003	6022.5	.316
	Male	146.36	9074.50			
Learner control	Female	136.20	28875.00	-.511	6297	.610
	Male	141.94	8800.00			
Motivation towards e-learning	Female	134.29	28470.50	-1.240	5892.5	.215
	Male	148.46	9204.50			
E-learning readiness total	Female	133.15	28227.50	-1.681	5649.5	0.93

	Male	152.38	9447.50

In Table 3, MWU test results are presented in order to determine pre-service teachers' readiness for e-learning according to their gender. According to this, a significant difference was found in pre-service teachers' readiness for e-learning according to gender when computer self-efficacy sub-dimension scores were analyzed (MWU=5239.5; p<.05). Considering the rank averages, it was determined that this difference was in favor of male pre-service teachers (QA=158.99). Accordingly, it can be stated that males find themselves more competent in computer self-efficacy than females. Internet self-efficacy (MWU=6258; p>.05), online communication self-efficacy (MWU=5579.5; p>.05), self-directed learning (MWU=6022.5; p>.05), learner control (MWU=6297; p>.05), motivation towards e-learning (MWU=5892.5; p>.05), motivation towards e-learning (MWU=5892. p>.05) and finally the total scores of the e-learning readiness scale (MWU=5649.5; p>.05).

Table 4

KWH Test Results for the Evaluation of Preservice Teachers' Readiness for E-Learning According to Grade Level Variable

Alt Dimensions	Class level	N	Rank average	KWH	p	MWU
Computer self-efficacy	1st	44	120.49	11.435*	.010	3-1 4-1 3-2 4-2
	2nd	112	124.71			
	3rd grade	59	154.59			
	4th grade	59	157.37			
Internet self-efficacy	1st grade	44	148.25	5.928	.115	-
	2nd grade	112	123.86			
	3rd grade	59	146.07			
	4th grade	59	146.81			
Online communication self-efficacy	1st grade	44	120.48	13.223*	.004	3-1 4-1 3-2 4-2
	2nd grade	112	123.32			
	3rd grade	59	159.96			

	4th	59	154.66			
Self-directed learning	1st	44	126.59	11.591*	.009	3-1 3-2
	2nd	112	124.96			
	3rd	59	166.34			
	4th	59	140.60			
Learner control	1st	44	132.38	7.250	.064	-
	2nd	112	124.96			
	3rd	59	155.95			
	4th	59	146.69			
Motivation towards e-learning	1st	44	124.23	8.595*	.035	4-2
	2nd	112	126.42			
	3rd	59	147.12			
	4th	59	158.82			
E-learning readiness total	1st	44	123.66	13.288*	.004	3-1 4-1 3-2 4-2
	2nd	112	121.85			
	3rd	59	159.04			
	4th	59	155.99			

As a result of the KWH test conducted to determine whether there is a statistical difference according to the grade level variable in the context of e-learning readiness scale in Table 4, a significant difference was found in the computer self-efficacy sub-dimension (KWH=11.435; p<.05). As a result of the MWU test conducted to determine between which groups this difference was between, this difference was found between 3rd and 1st grades in favor of 3rd grade (U=977.5; z=-2.141; p<.05), between 4th and 1st grades in favor of 4th grades (U=934.5; z=-2.430; p<.05), between 3rd and 2nd grades in favor of 3rd grades (U=2583.5; z=-2.344; p<.05), between 4th and 2nd grades in favor of 4th grades (U=2527.5; z=-2.527; p<.05)

The difference between the mean ranks of the class groups in the online communication self-efficacy sub-dimension was found statistically significant (KWH=13.223; p<.05). According to the analysis, the difference was found to be statistically significant between 3rd and 1st graders in favor of 3rd graders (U=936.5; z=-2.426; p<.05), between 4th and 1st graders in favor of 4th graders (U=972; z=-2.185; p<.05), between 3rd and 2nd grades in favor of 3rd grades (U=2413.5; z=-2.903; p<.05), between 4th and 2nd grades in favor of 2nd grades (U=2545; z=-2.474; p<.05)

When the mean ranks of the self-directed learning sub-dimension were analyzed, a statistically significant difference was found (KWH=11.591; p<.05). This difference was found to be between 3rd and 1st grades in favor of 3rd grades (U=879; z=-2.802; p<.05) and between 3rd and 2nd grades in favor of 3rd grades (U=2236; z=-3.152; p<.05). In the sub-dimension of motivation towards e-learning, a statistically significant difference was found according to the grade variable (KWH=8.595; p<.05). This difference was found to be between 4th and 2nd grades in favor of 4th grades (U=2528; z=-2.525; p<.05). There was no statistically significant difference in the Internet self-efficacy (KWH=5.928; p>.05) and learner control (KWH=7.250; p>.05) sub-dimensions of the scale according to the grade level variable.

When the total scores of the scale were analyzed, the difference between the mean ranks of the grade groups was found to be statistically significant (KWH=13.288; p<.05). As a result of the analysis, the difference between the 3rd and 1st grades was found to be in favor of the 3rd grades (U=963; z=-2.234; p<.05), between the 4th and 1st grades in favor of the 4th grades (U=977.5; z=-2.137; p<.05), between 3rd and 2nd grades in favor of 3rd grades (U=2410.5; z=-2.904; p<.05), between 4th and 2nd grades in favor of 4th grades (U=2491; z=-2.642; p<.05). Considering all these findings, it can be said that as the grade level increases, the level of readiness for e-learning also increases.

Table 5

MWU Test Results of Preservice Teachers' Readiness for E-Learning According to the Variable of Having a Personal Computer

Alt Dimensions	Having a personal computer	Queue average	Queue Total	Z	U	p
Computer self-efficacy	Yes (n=144)	168.35	24242.50	-6.793	4917.5	.000

	No. (n=130)	103.33	13432.50			
Internet self-efficacy	Yes	162.77	23438.50	-5.698	5721.5	.000
	No	109.51	14236.50			
Online communication self-efficacy	Yes	158.84	22872.50	-4.709	6287.5	.000
	No	113.87	14802.50			
Self-directed learning	Yes	155.98	22461.00	-4.071	6699	.000
	No	117.03	15214.00			
Learner control	Yes	158.90	22882.00	-4.795	6278	.000
	No	113.79	14793.00			
Motivation towards e-learning	Yes	152.11	21904.00	-3.217	7256	.000
	No	121.32	15771.00			
E-learning readiness total	Yes	164.00	23615.50	-5.826	5544.5	.000
	No	108.15	14059.50			

According to the findings obtained from the MWU test, a statistically significant difference was found in the computer self-efficacy sub-dimension (MWU=4917.5; p<.05) scores of pre-service teachers' readiness for e-learning. This difference was found to be in favor of pre-service teachers who had a personal computer (QA=168.35). When the Internet self-efficacy sub-dimension (MWU=5721.5; p<.05) scores were examined, it was seen that there was a difference in favor of the pre-service teachers who had a personal computer (QA=162.77When the online communication self-efficacy sub-dimension (MWU=6287.5; p<.05) scores were considered, it was seen that there was a differentiation in favor of the pre-service teachers who had a personal computer (QA=158.84). Another sub-dimension is the self-directed learning sub-dimension. A significant difference was found in this sub-dimension (MWU=6699; p<.05) and it was understood that this difference was again in favor of pre-service teachers who had

personal computers (QA=155.98). When the learner control sub-dimension scores (MWU=6278; p<.05) were taken into consideration, a significant difference was again found. Similarly, this difference was found to be in favor of pre-service teachers who had personal computers (QA=158.90). When the sub-dimension of motivation towards e-learning (MWU=7256; p<.05) was taken into consideration, a significant difference was determined and this difference was in favor of pre-service teachers who had personal computers (QA=151.11). Finally, when the total e-learning readiness scores were examined, a significant difference was determined between the groups (MWU=5544.5; p<.05). This difference was in favor of pre-service teachers who had personal computers (QA=164.00).

Table 6

MWU Test Results of Prospective Teachers' Lifelong Learning Dispositions According to Gender Variable

Alt Dimensions	Gender	Queue average	Queue Total	Z	U	P
Willingness to learn	Female (n=212)	136.40	28916.50	-.428	6338.5	.669
	Male (n=62)	141.27	8758.50			
Openness to development	Female	139.31	29533	-.721	6189	.471
	Male	131.32	8142			
Lifelong learning tendency total	Female	137.14	29073.50	-.140	6495.5	.889
	Male	138.73	8601.50			

In Table 6, MWU test was conducted to determine the lifelong learning dispositions of the students according to their gender. When willingness to learn (MWU=6338.5; p>.05), openness to development (MWU=6189; p>.05), and lifelong learning disposition scale total score (MWU=6495.5; p>.05) were examined, it was seen that there was no statistically significant difference according to gender.

Table 7

KWH Test Results of Prospective Teachers' Lifelong Learning Dispositions According to Grade Level Variable

Alt Dimensions	Class level	N	Rank average	KWH	p	MWU
Willingness to learn	1st	44	141.22	14.002*	.003	3-2 4-2
	2nd	112	117.15			
	3rd	59	159.69			
	4th	59	151.16			
Openness to development	1st	44	153.85	17.522*	.001	1-2 3-2 4-2
	2nd	112	115.59			
	3rd	59	162.33			
	4th	59	142.06			
Lifelong learning tendency total	1st	44	145.22	15.434*	.001	1-2 3-2 4-2
	2nd	112	115.96			
	3rd	59	161.80			
	4th	59	148.33			

In Table 7, as a result of the KWH conducted to determine whether the mean ranks of the lifelong learning disposition scale showed a significant difference according to the class variable, the difference between the mean ranks of the class groups in the willingness to learn sub-dimension was found statistically significant (KWH=14.002; p<.05). After this process, MWU test was applied to determine which groups caused the significant difference determined after KWH. As a result of the analysis, it was determined that the difference between 3rd and 2nd grades was in favor of 3rd grades (U=2277.5; z=-3.348; p<.05) and between 4th and 2nd grades was in favor of 4th grades (U=2509; z=-2.593; p<.05). Another sub-dimension, openness to development, was found to be statistically significant (KWH=17.522; p<.05). As a result of the analyses, it can be said that the difference was between 1st and 2nd grades in favor of 1st grades (U=1750; z=-2.864; p<.05), between 3rd and 2nd grades in favor of 3rd grades (U=2198; z=-3.698; p<.05) and between 4th and 2nd grades in favor of 4th grades (U=2670.5; z=-2.100; p<.05). When the total scores of the lifelong learning disposition scale were

analyzed, the mean ranks of the class groups differed statistically (KWH=15.434; p<.05). It can be said that the difference is between 1st and 2nd grades in favor of 1st grades (U=1923.5; z=-2.132; p<.05), between 3rd and 2nd grades in favor of 3rd grades (U=2201.5; z=-3.592; p<.05), between 4th and 2nd grades in favor of 4th grades (U=2535; z=-2.504; p<.05).

Table 8

MWU Test Results of Prospective Teachers' Lifelong Learning Dispositions According to the Variable of Having a Personal Computer

Alt Dimensions	Having a personal computer	Queue average	Queue Total	Z	U	p
Willingness to learn	Yes (n=144)	153.81	22149	-3.604	7011	.000
	No (n=130)	119.43	15526			
Openness to development	Yes	151.57	21826.5	-3.196	7333.5	.001
	No	121.91	15848.5			
Lifelong learning tendency total	Yes	153.88	22158.5	-3.612	7001.5	.000
	No (130)	119.36	15516.5			

According to the findings obtained from the MWU test, a significant difference was found in the lifelong learning dispositions of pre-service teachers in terms of willingness to learn (MWU=7011; p<.05); openness to development (MWU=7333.5; p<.05) and total scores of the lifelong learning disposition scale (MWU=7001.5; p<.05). When the rank averages related to the sub-dimensions were taken into consideration, it was seen that this difference was in favor of those who had personal computers.

Table 9

Between Preservice Teachers' E-Learning Readiness and Lifelong Learning Dispositions

		Willingness to learn	Openness to development	Lifelong learning tendency total
Computer self-efficacy	Pearson Correlation	.405**	.323**	.394**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274
Internet self-efficacy	Pearson Correlation	.534**	.488**	.542**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274
Online communication self-efficacy	Pearson Correlation	.489**	.441**	.495**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274
Self-directed learning	Pearson Correlation	.726**	.597**	.713**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274
Learner control	Pearson Correlation	.578**	.503**	.577**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274
Motivation towards e-learning	Pearson Correlation	.370**	.250**	.343**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274
E-learning readiness total	Pearson Correlation	.644**	.528**	.632**
	Sig. (2-tailed)	.000	.000	.000
	N	274	274	274

A correlation coefficient of 1.00 indicates a perfect positive relationship, -1.00 indicates a perfect negative relationship and 0.00 indicates no relationship. Although there are no clear ranges for the interpretation of the correlation coefficient in terms of magnitude, the following ranges are taken into consideration in the interpretation of correlation: A correlation coefficient between 0.70-1.00 in absolute value can be explained as a high level relationship; a correlation coefficient between 0.70-0.30 can be explained as a medium level relationship; and a correlation coefficient between 0.30-0.00 can be explained as a low level relationship (Büyüköztürk, 2016). When Table 9 is examined, Pearson correlation coefficient was examined to determine the relationship between pre-service teachers' e-learning readiness and lifelong learning tendencies. According to the results of the analysis, it was determined that there was a moderate, positive and significant relationship ($r=.632$, $p<.01$). According to this finding, it can be said that as pre-service teachers' e-learning readiness scores increase, their scores for lifelong learning tendencies also increase. At the same time, it was seen that there were significant positive relationships between the sub-dimensions of both scales ($p<.05$). Among the statistical results given in the table in terms of sub-dimensions, the highest correlation was found between "self-directed learning" and "willingness to learn" sub-dimensions ($r=.726$). The lowest correlation was found between "motivation towards e-learning" and "openness to improvement" sub-dimensions ($r=.250$).

4 CONCLUSION

In this study examining the relationship between teacher candidates' readiness for e-learning and their lifelong learning tendencies, it was determined that male teacher candidates' results in e-learning readiness were better in the dimension of computer self-efficacy. In other words, it can be stated that males have a more positive perception of computer self-efficacy, which is one of the dimensions of e-learning readiness. When the total score obtained from the e-learning readiness scale was analyzed, no significant difference was found according to the gender variable. There are similar studies supporting this result that male students' readiness for e-learning is higher than female students (Tanyıldızı, 2016; Olcay, Döş, Sürme, & Düzgün, 2018; Yılmaz, Sezer, & Yurdugül, 2019). In Bilici and Bağcı's (2020) study, no significant difference was found according to the total score of pre-service teachers from the e-learning readiness scale

according to the gender variable. When the sub-dimensions of the scale were examined, it was found that pre-service teachers' readiness for e-learning showed a significant difference in favor of female students in the self-learning dimension according to the gender variable, but did not show a significant difference in the computer self-efficacy dimension, internet self-efficacy dimension, online communication self-efficacy dimension, learner control dimension and motivation for e-learning dimension. According to the results of Dikbaş (2006) and Haznedar's (2012) study, it was concluded that female pre-service teachers' readiness levels for e-learning are high, in other words, they are at a good level compared to men. Uyar and Karakuyu (2020), in their study examining the readiness of vocational school students towards e-learning, concluded that students' readiness for e-learning did not differ according to gender. Similarly, there are other studies in which students' readiness for e-learning did not show significant change according to gender (Korkmaz, Çakır, & Tan, 2015; Adnan & Boz-Yaman, 2017; Bahadır, 2020).

When the class variable was taken into consideration in pre-service teachers' readiness for e-learning, a statistically significant differentiation was determined in the computer self-efficacy sub-dimension. According to the result obtained, it was determined that 3rd and 4th grade students had higher computer self-efficacy scores than 1st and 2nd grade students. Yakın and Tınmaz (2013) concluded that 3rd grade students were significantly better in terms of technical and pedagogical competence for e-learning than 1st grade students in their research with ICT program students. When the studies on computer/internet self-efficacy construct are examined in the literature, there are also studies in which there is no significant difference (Korkut & Akkoyunlu, 2008; İpek & Acuner, 2011). There was no statistical difference in the Internet self-efficacy sub-dimension. A statistically significant difference was found in the online communication sub-dimension. This difference was in favor of 3rd and 4th graders because 3rd and 4th graders had higher online communication self-efficacy scores than 1st and 2nd graders. Another sub-dimension, self-directed learning sub-dimension, showed a statistically significant difference. According to the result obtained, 3rd grade students had higher self-learning scores than 1st and 2nd grade students. In the study of Bilici and Bağcı (2020), it was found that the e-learning readiness of pre-service teachers in the 2nd grade was lower than that of pre-service teachers in the 3rd grade in the self-learning dimension. No statistically significant difference was found in the learner control sub-dimension. A

statistically significant difference was found in the sub-dimension of motivation towards e-learning. This difference is that 4th graders have a better level of motivation towards e-learning than 2nd graders. When the total scores of the e-learning readiness scale were analyzed, a statistically significant difference was determined. When we look at which groups this difference is between; it is concluded that 3rd and 4th grade students have a better level of e-learning readiness than 1st and 2nd grade students. In Bilici and Bağcı's (2020) study, it was seen that the total e-learning readiness scores of 3rd grade pre-service teachers were higher than 2nd grade pre-service teachers. In Demir's (2015) study, it was found that the e-learning readiness of pre-service teachers in the 4th grade was higher. In Yurdugül and Demir's (2017) study, when fourth-grade students of the faculty of education were compared with first-year students, it was found that fourth-grade students had higher levels of all factors of the e-learning readiness construct.

Another issue emphasized in the current research is the level of readiness of pre-service teachers for e-learning depending on their having a personal computer. In this regard, pre-service teachers' e-learning readiness levels differed significantly both in all sub-dimension scores and in total score. According to the result obtained, students who have personal computers have better e-learning readiness scores. Similarly, according to the results of another study, it was determined that the e-learning readiness of students who had personal computers was higher for the overall scale and each sub-factor (Yılmaz, Sezer, & Yurdugül, 2019). In Kabataş's (2019) study, it was concluded that the e-learning readiness levels of pre-service teachers with personal computers were higher than pre-service teachers without personal computers. The lifelong learning dispositions of pre-service teachers did not differ statistically according to their gender in both the willingness to learn, openness to development sub-dimensions and the total score of the scale. Similarly, in Kaya-Sağlam, Çamlıyer, Asma, and Kalkan's (2019) study, teachers' lifelong learning disposition levels did not show a significant difference in terms of gender in both sub-dimensions and total score of the scale. Yasa (2018) examined the relationship between lifelong learning dispositions and information literacy skills of pre-service teachers and concluded that gender was not an effective variable on lifelong learning dispositions. In the literature, there are also studies in which lifelong learning disposition differs according to gender variable (Diker-Coşkun, 2009; Demirel & Akkoyunlu, 2010; Coşkun & Demirel, 2012; Gencel, 2013; Bilici & Bağcı, 2020; İncik, 2020).

Another issue emphasized in the current research is the level of lifelong learning tendencies of pre-service teachers depending on the grade variable. In this regard, a significant difference was determined in favor of 3rd and 4th grade pre-service teachers for the willingness to learn dimension, in favor of 1st, 3rd and 4th grade for the openness to development dimension, and in favor of 1st, 3rd and 4th grade for the total score. Similarly, in Bilici and Bağcı's (2020) study, lifelong learning tendencies of pre-service teachers differed in favor of 1st and 3rd grade pre-service teachers according to the grade level variable. In their study, Boztepe and Demirtaş (2018) concluded that the lifelong learning tendency of pre-service teachers in the 3rd and 4th grades was higher. In Aydın's (2018) study, total lifelong learning levels of prospective primary school teachers showed a significant difference between 1st, 2nd, 3rd and 4th grades in favor of the 4th grade. Tunca, Alkın-Şahin, and Aydın (2015) examined the lifelong learning dispositions of pre-service teachers and found that the total lifelong learning dispositions score of pre-service teachers differed significantly according to the grade level in favor of the 2nd, 3rd and 4th grades. Reaching a different conclusion, Erdoğan (2020) examined the relationship between 21st century skills and lifelong learning dispositions of prospective Turkish teachers and found no significant difference in the lifelong learning dispositions of prospective teachers according to grade level. The lifelong learning dispositions of pre-service teachers differed statistically in favor of those who have a personal computer both in the dimensions of willingness to learn and openness to development and in the total score of the scale according to the status of having a personal computer. In Kabataş's (2019) study, no significant difference was observed in the lifelong learning attitude scale total scores of pre-service teachers according to their personal computer ownership status.

When the relationship between pre-service teachers' e-learning readiness and lifelong learning dispositions was examined, it was concluded that there were significant positive relationships between the sub-dimensions of both scales. At the same time, it was determined that there was a moderate, positive and significant relationship between the total score of e-learning readiness and the total score of lifelong learning dispositions. According to this result, it can be said that as pre-service teachers' e-learning readiness scores increase, their lifelong learning dispositions scores also increase. Similarly, in Bilici and Bağcı's (2020) study, a moderate, positive and significant relationship was found between pre-service teachers' lifelong learning dispositions and self-learning dimension and learner control dimension. A low, positive and significant relationship was

found between pre-service teachers' lifelong learning dispositions and their e-learning readiness, online communication self-efficacy dimension and internet self-efficacy dimension. Gür-Erdoğan, Bayat, and Şentürk (2017) found a low, positive and significant relationship between lifelong learning disposition and e-learning readiness in pre-service teachers. Considering all these results, it can be said that pre-service teachers see e-learning and lifelong learning as important and valuable.

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Authors' Contribution

Both authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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