



Digital Skills for Teaching and Learning in Distance Education: An Example of a University in the Pandemic

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ABSTRACT

Purpose: Distance education gained key importance in the field of education during the COVID-19 pandemic. A new era has begun for educators and students in higher education with the birth of education and training from a distance. In this study, the predictive power of academic staff's digital competence to gauge their distance education perception was investigated. Secondly, the predictive power of students' digital literacy to understand their online learning readiness was examined.

Method: This study was conducted with a survey design, one of the quantitative research designs. The distance teaching dimension of this study was performed with 201 (F: 119; M: 82) academicians, and the distance learning dimension was carried out with 1612 (F: 1026; M: 580; Other: 6) students. For distance teaching, the predictive power of educators' digital competence was examined, and the predictive power of students' digital literacy was examined for the distance learning dimension of this study. **Results:** For the distance teaching part of this study, results showed a positive and significant relationship between the academic staff's digital competence and their perceptions of distance education. Furthermore, their digital competence significantly predicted their perceptions. For the distance learning part of this study, the results showed a positive, significant relationship between students' digital literacy and their online learning readiness, and their digital literacy significantly predicted the level of their online learning readiness. The results indicated that the digital skills of both the academic staff and students were a prerequisite for the effectiveness of distance learning and teaching. **Implications for Research and Practice:** As the results of this research indicate, digital skills have a significant impact on academicians' perceptions of distance education and on students' readiness for learning. In this regard, supporting the digital skills of both parties will increase their readiness for distance education and, ultimately, students will be able to benefit more from distance education.

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Introduction

The COVID-19 pandemic has been influencing the world since the first half of 2020 and has started to show its effects significantly and gradually on various fields like health, economy, politics and education. As one of the most affected fields by the pandemic, a new era has started for educators and students in higher education because teaching and learning activities have been held online since the start of the pandemic. The situation in the first months of 2020, as mentioned by Cutri et al. (2020), meant for teaching staff all around the world to transform their courses into the online format, continue their instruction through online learning with little or no preparation and continue teaching under the traumatic conditions of the pandemic. A similar situation also applies to university students since thousands of them were forced to make a quick start on online learning activities on which they had little or no experience in a compulsory manner (Shahzad et al., 2020). In this pandemic, where online learning has a key role, a series of problems in maintaining teaching and learning through distance education and adaptation to this process has caused the questioning of various perceptions along with skills and abilities. Foremost among these come digital competence and digital literacy (Carretero et al., 2018; Laanpere, 2019). Although these two concepts seem similar, they are defined differently in the literature. In the present study, while techno-pedagogical knowledge of the academic staff was referred to as digital competence, digital literacy referred to the effective use of digital learning tools by students. It is considered important that these two concepts are defined, and their conceptual framework is specified to determine the problems experienced in the online learning process.

The spread of digital technologies in all aspects of life and the changes and renewals they have brought has caused a change in the expectations from professionals who are busy with teaching. Some of these expectations are using various new technologies, fulfilling managerial duties and supporting the digital literacy of the students. These expectations are referred to as digital competences in the literature. Digital competence is defined by Ferrari (2012) as knowledge, skills, attitudes and abilities necessary to be used in fields like performing a series of duties using information and communication technologies and media, problem-solving, communicating, content creation, sharing the created content and managing knowledge. According to the model proposed by Krumsvik (2007), educators' digital competence can be categorised under four core components, namely, basic ICT skills, didactic ICT competence, learning strategies, and digital Bildung. Basic ICT skills refer to the use of technology in a transparent way. Didactic ICT competence covers the ability to use ICT in subjects to be able to achieve competence-based aims. The third component, learning strategies, is about assuming a meta-perspective of the first two components and includes changing the viewpoint about knowledge by focusing on pedagogical implications. Lastly, digital Bildung refers to the meta-perspective of the first three components and focuses on the reflections of digitalization on students' participation and identity development. According to this model, the development of digital competence is a journey, which goes through the stages of adoption, adaptation, appropriation, and innovation. During this four-step journey, educators' ability to integrate technology in a skillful way gradually develops.

Digital competence, which European Commission (2019) included among eight

basic life-long learning competences, refers to the ability to use digital technologies confidently, critically and responsibly in the learning process, the work-life, or in society. In the context of education, digital competence refers to the critical use of the internet and digital technology from an educational perspective and consists of the management of different digital devices and software in these devices (Amhag et al., 2019). Therefore, digital competence for educators not only includes practical skills in the use of digital tools that could be used in various topics and teaching environments, but it also covers competences in accommodating and transforming digital tools to various topics and situations. An educator with digital competence goes beyond adapting to the digital technologies or customizing a digital tool to his/her lessons and achieves to transfer this knowledge to different fields and uses them in every possible environment successfully (Engen, 2019). In this respect, Krumsvik (2011; 2014) emphasizes the importance of educators merging pedagogy, subjects, and digital competence to be able to catch up with new trends in the digitised school of today. An educator's professional digital competence level plays an important role in the formation of online learning perception because to be able to improve the digital competences of students and use digital technologies efficiently in teaching-learning processes, an educator who has digital competences is necessary. Moreover, this is a prerequisite for students to be able to acquire efficient learning in distance education (Pettersson, 2018). When educators do not trust their digital competence, it is probable that they avoid distance education and several studies (Gillies, 2008; Hattangdi et al., 2010; Koppelman & Vranken, 2008; Marsh et al., 2010) draw attention to this aspect.

Digital literacy is defined as the ability to find, organize, understand, evaluate and analyze information using digital technology (Direkci et al., 2019). Digital literacy, according to Kozan and Bulut Ozek (2019), is a prerequisite for cognitive activity because individuals having digital literacy skills can synthesize available knowledge and the knowledge they acquired through technology correctly and also present this knowledge in a digital environment. Digital literacy, together with the aforementioned qualities, can contribute to individuals' greater success and competence by bringing effortless flexibility to the access and use of the technological material they need (Ocak & Karakus, 2019). A digitally literate individual has enough knowledge to determine, access, manage, analyze and properly use digital sources. In this respect, digital literacy can help an individual to execute various digital acts successfully in such fields as work, education and entertainment (Joosten & Cusatis, 2020; Sivrikaya, 2020, Tang & Chaw, 2016). Basic digital literacy, as Rosen (2020) puts forward, means questioning the quality of information that an individual comes across and being able to use digital skills comfortably, confidently and fluently to solve various possible problems that can be faced at home, work or society in a digital era with a continuously changing technology. Digital literacy can make learning easier for students in online learning processes. Many students entering into learning environments can experience a meaningful learning process by mastering digital tools available in digital environments (Baterna et al., 2020). When the subject is handled from this dimension, it is safe to say that students with higher digital literacy levels can pursue learning processes easily and efficiently when compared to students with lower digital literacy levels (Eshet-Alkalai, 2004) because digital literacy makes important contributions to the readiness levels of students in online learning (Adnan & Anwar, 2020).

Educators, in online learning processes, are responsible for all the processes

starting from the preparation to execution of the lesson. Together with uploading the syllabus, weekly material and evaluation tools to the system, educators provide attendance, access to the content and interaction with the students by communicating with them during the lesson (Gok & Kilic Cakmak, 2020). In this respect, educators have a busy schedule with the aforementioned digital tools during educational processes, and their perception concerning online learning is highly important for the process to continue healthily and efficiently. Online learning processes, as Gokmen et al. (2016) claimed, necessitate that educators handle multiple roles, such as a source provider, a learning manager and an instructional designer. Other than just being a transmitter of information. The perception related to these roles affects how they are perceived by the students and plays a determining role in the quality of the learning environment. Phillips (2013) pinpointed that the perception of educators in online learning affects the content provided to students, the mentorship processes and educational practices specifically. He also emphasizes that a full understanding of the perception on this subject is important in developing what is provided in the online learning environment. Although some technical problems can also affect educators' perception (Gillies, 2008; Koppelman & Vranken, 2008; Marsh et al., 2010), it is essential that this construct is examined and its impact on educators' teaching processes is investigated.

Online learning readiness is a variable having an important role concerning the efficiency and academic success that a student pursues in an online learning process. Warner, Christie and Choy (1998) handle the issue in three dimensions and define readiness as being ready for situations, which students prefer face-to-face learning, namely, using the internet and computer-based tools comfortably and pursuing the learning process independently. Similarly, Borotis and Poulymenakou (2004) define readiness as mental and physical readiness for the online learning experience and the act of online learning, while Oliver (2001) defines it as a structure that includes the use of technological tools necessary in online learning and self-regulation. When all these definitions are examined in detail, it is clearly seen that online learning readiness is an important structure that would affect learning outcomes, efficiency to achieve through online learning and student motivation. Moreover, when the literature is considered, it is seen that there is a significant relation between readiness for learning and learning outcomes (Demir-Kaymak & Horzum, 2013), student satisfaction and motivation (Yilmaz, 2017) and attitude towards learning (Bovermann et al., 2018).

The digital competence of educators plays an important role regarding the quality, continuity and usability of teaching and communication that they provide students with online learning (Ally, 2019). Moreover, the rapidly changing demands made on educators require them to gain an increasingly broad set of competences. In particular, the ubiquity of digital devices and the mission to provide a role model of digital competence in educators (Redecker, 2017). Likewise, the perception of distance education has a key role in arranging the learning environment, making effective implementations and continuing communication with the students. From students' perspectives, their digital literacy levels should be sufficient for them to have the maximum benefit from online learning (Kearsley, 2000) and there is a positive correlation between the digital literacy skills of students and their attitude towards distance education (Kayaduman & Battal, 2020). It is inevitable that students with a low level of online learning readiness will experience various problems and fail to

achieve desired success. There is a growing body of literature on educators' digital competence (Gudmundsdottir & Hatlevik, 2017; Instefjord & Munthe, 2017), their perception of distance education (Gunduz & Isman, 2018; Kulal & Nayak, 2020), students' digital literacy (Anthonysamy, 2020; Nanni & Pusey, 2020) and their readiness for online learning (Doe, Castillo, Musyoka, 2017; Rafique et al. 2021). However, to our knowledge, there is not any study examining the relationships among the mentioned constructs. In the process of the management of online learning during the pandemic, it is important to investigate how educators and students perceive online learning and the relation between these perceptions and available competences. Moreover, it is also important to find out in which areas the shareholders should be supported. The present study had the purpose to present a different viewpoint on the possible problems of higher education institutions, which continue education through online learning during the pandemic, concerning the competences of academic staff and students. In this vein, the primary purpose of the study was to investigate the predictive power of the academic staff's digital competences on their distance education perception. The secondary purpose of this study, on the other hand, was to investigate the predictive power of students' digital literacy on their level of online learning readiness. The research questions in this study are as follows:

1. Do the digital competences of the academic staff predict their online learning perceptions? If yes, what is their predictive power?
2. Does digital literacy of the students predict their online learning readiness levels? If yes, what is their predictive power?

Method

Research Design

The study was held through survey design of quantitative research design. Through surveys, researchers can collect information about people's attitudes, knowledge, perceptions and behaviours (Fink, 2003). Survey studies aim to describe specific characteristics of a group and situation, which happened in the past or are still applicable in existing circumstances (Buyukozturk et al., 2013; Creswell; 2012; Karasar, 2012). In this study, the aim was to investigate the relation between digital skills and online learning and teaching and the predictive power of these skills on attitudes and behaviors of academic staff and the students. Data were collected through four different Likert-type questionnaires.

Research Sample

The online teaching aspect of this study was held with the participation of 201 academic staff members (119 females and 82 males). When the distribution of the academic staff, concerning their faculty, institute, and vocational school they worked at, was examined, it could be seen that there were representatives of the academic staff from all the academic units at the university, namely, faculty of dentistry, faculty of law, faculty of economics and administrative sciences, faculty of communication, faculty of educational sciences, faculty of engineering and environmental sciences, faculty of health sciences, medical faculty, faculty of architecture and design, school of foreign languages, vocational school of health services, the institute of science and the

institute of social sciences. The title and gender distribution of the participants are presented in Table 1.

Table 1
Title and Gender Distribution of Study Group in Online Teaching Dimension

Title	Female		Male		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Full Professor	7	44	9	56	16	8
Associate Professor	12	71	5	29	17	8
Assistant Professor	34	57	26	43	60	30
Instructor	51	65	27	35	78	39
Research Assistant	11	50	11	50	22	11
Specialist	1	25	3	75	4	2
Lecturer	3	75	1	25	4	2
Total	119	59	82	41	201	100

**In the percentage calculations, values after comma were rounded up.*

When the sample that participated in the online teaching dimension of this study was examined concerning gender, it was seen that male ($f=82, 41\%$) and female ($f=119, 59\%$) participants were distributed in a way in which the number of female participants outnumbered the male participants. However, when the titles of the sample were considered, it could be stated that the most crowded group were the instructors ($f=78, 39\%$) and assistant professors ($f=60, 30\%$) and the least were the specialists ($f=4, 2\%$) and lecturers ($f=4, 2\%$). Moreover, the professional experience of the participants was also gathered demographically and examined in Table 2.

Table 2
Professional Experience of the Academic Staff

Experience	<i>f</i>	%
0-5 years	54	27
6-10 years	26	13
11-15 years	45	22
16-20 years	31	15
21 years and over	45	23

**In the percentage calculations, values after comma were rounded up.*

The professional experience of the participants presented a close distribution categorically. These were classified in five different categories as 0-5 years of experience (f=54, 27%), 6-10 years of experience (f=26, 13%), 11-15 years of experience (f=45, 22%), 16-20 years of experience (f=31, 15%) and 21 years and over experience (f=45, 23%). Finally, the distribution of the workload of the teaching staff is presented in Table 3.

Table 3

Workload of the Academic Staff during Pandemics

Workload	<i>f</i>	%
0-3 hours	140	70
4-6 hours	46	23
7-9 hours	11	5
10 hours and above*	4	2
Total	201	100

*Compulsory teaching duties like Laboratory and teaching assistance were also added to the calculations.

When the faculties, institutes and vocational schools of students participating in the online learning dimension of the study were examined, it was seen that the resulting information was the same as for the departments of the academic staff (f=1026, 64%), male (f=580, 35%) and others (f=6, 1%). Gender distributions according to age are presented in Table 4.

Table 4

Age and Gender Distributions of Study Group for Online Learning Dimension

Age	Female		Male		Other		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
18 and below	20	%1	18	%1	0	%0	38	%2
19-21	510	%32	250	%16	5	%1	765	%48
22-25	384	%24	233	%14	1	%1	618	%38
25 and above	112	%7	79	%5	0	%0	191	%12
Total	1026	%64	580	%36	6	%1	1612	%100

*Values after comma were rounded up in percentage calculations.

When age groups were investigated, it was seen that most of the students were in 19-21 ($f=765$, 48%) and 22-25 ($f=618$, 38%) age groups. Moreover, among these age groups, female participants ($f=510$, 32%) in the 19-21 group were the biggest part. According to gender, the group with the least participants was the other ($f=6$, 1%) group. Finally, 60% ($f=968$) of the students stated that they took at least one online lesson before the pandemic.

Research Instruments and Procedures

In this study, the data were collected using four different questionnaires: (1) Digital Competences Scale, (2) Distance Education Perception Scale, (3) Digital Literacy Scale and (4) Online Learning Readiness Scale. The validity, reliability and specifications of these scales were explained under separate sub-titles.

Digital competence scale. The Digital Competence Scale, which aimed to determine the digital competences of educators, was developed by Redecker (2017) and adapted to Turkish by Toker et al. (in-press). The scale consists of 22 5-point Likert-type items. The Cronbach alpha internal consistency coefficient for the whole questionnaire was calculated as .94. As for this study, the Cronbach's alpha value was .94.

Distance education perception scale. Distance Education Perception Scale was developed by Gok (2011) to investigate the perceptions of the academic staff related to online learning. The scale consists of 21 5-point Likert-type items. The Cronbach's alpha internal consistency coefficient for the whole questionnaire was calculated as .91. As for this study, the Cronbach's alpha value was .90.

Digital literacy scale. To test the digital literacy of the students, Digital Literacy developed by Ng (2012) was used. The Turkish adaptation of the Digital Literacy Scale was made by Ustundag et al. (2017). The scale consists of 10 5-point Likert-type items.

The Cronbach's alpha coefficient value of the scale was calculated as .86. As for this study, the Cronbach's alpha value of the scale was .91.

Online learning readiness scale. To test the readiness levels of university students, Online Learning Readiness Scale developed by Hung et al. (2010) was used. The Turkish adaptation and psychometric specifications of the scale were made by Ilhan and Cetin (2013). The scale consisted of Likert-type 18 items. The Cronbach's alpha coefficient, which ensures reliability, was calculated as .95. As for this study, the Cronbach's alpha value was calculated as .91.

Data Collection

This study started after Ethics Committee approval was acquired from the university where the researchers worked. All the ethical rules of scientific studies were followed in data collection, analysis, and article writing processes. Informed consent was received with a yes/no screen question and including an explanation that they could withdraw at any time. The data were collected through electronic forms applied between April-June in 2019-2020 academic year. Due to the pandemic, all the courses were online. The electronic forms were sent to the students and academic staff via e-mail. The students and academic staff who volunteered to participate in this study filled out the forms anonymously by visiting the link in the email.

Data Analysis

The analysis of the collected data was made using SPSS 22.0 statistical program. Two simple linear regression analyses were performed to examine the predictive power of the academic staff's digital competences on their perceptions of distance education and the students' digital literacy on their online learning readiness. Simple linear regression is the process of defining the relation between two variables when a relation between them is detected through mathematical equity by appointing one of the variables as dependent and the other as independent (Buyukozturk, 2011; Secer, 2017). The obtained equity gives predictions about the way and type of the relation and unknown values (Sipahi et al., 2008).

Datasets were examined to meet the assumptions of regression analysis. Kurtosis and skewness values were examined to investigate whether the four variables of the study showed normal distribution. These values varied between -1 and +1 for all four variables. The values show a normal distribution for all variables. Both datasets met the assumption of independent errors ($d=2.031$ for student variables and $d=1.978$ for academic staff variables). Moreover, standardized estimated values and standardized residue graphics for both datasets were visually examined and it was seen that all the values of dependent and independent variables presented equal variance. Based on these results, it was decided that regression analysis could be performed.

Results

The Predictive Power of The Digital Competences of The Academic Staff on Their Online Learning Perceptions

Concerning the first research question, the examination was made of whether the academic staff's digital competences predicted their perceptions concerning distance education. Descriptive statistics related to variables are presented in Table 5.

Table 5

Descriptive Statistics related to Digital Competence of the Academic Staff and their Distance Education Perceptions

Variables	N	Minimum	Maximum	x-Value	SD
Digital Competences	201	35.00	107	70.00	16.34
Perception of Distance Education	201	40.00	102.00	75.31	12.64

Table 6 presents the results of simple linear regression analysis held to investigate whether the digital competence levels of the academic staff predicted their distance education perceptions.

Table 6

Simple Linear Regression Analysis Results related to Predictive Effect of Instructors' Digital Competence Levels on their Perception of Distance Education

	B	Standard Error	β	t	p
Constant	52.91	3.58		14.75	.00
Digital Competence	.32	.050	.414	6.41	.00

n=201, R=.414, R²=.17

As seen in Table 6 and according to analysis results, there was a significant relation between digital competence levels of the academic staff and their perceptions of distance education ($r=.41$, $p < .01$). Moreover, their digital competence levels predicted their perception of distance education statistical significance [$F(1, 200)= 41.112$, $p=.000$]. Digital competence levels explained 17% of the variability of the academic staff's level of perception of distance education.

The Predictive Power of the Digital Literacy of the Students on Their Online Learning Readiness Levels

Regarding the second research question, the examination was made of whether the students' digital literacy levels predicted their online learning readiness level. Descriptive statistics concerning the variables are presented in Table 7.

Table 7

Descriptive Statistics related to Students' Scores of Digital Literacy and Online Learning Readiness

Variables	N	Minimum	Maximum	x-Value	SD
Digital Literacy	1612	10.00	50.00	36.42	8.62
Online Learning Readiness	1612	18.00	90.00	69.32	12.65

Table 8 presents the results of simple linear regression analysis held to investigate whether students' digital literacy levels predicted their online learning readiness.

Table 8

Simple Linear Regression Analysis Results related to Predictive Effect of Students' Digital Literacy Levels on their Online Learning Readiness

	B	Standard Error	β	t	p
Constant	33.02	1.00		32.91	.00
Digital Literacy	.99	.027	.68	37.18	.00

n=1612, R=.68, R²=.46

As seen in Table 8, the results of the analysis indicate that there is a significant relation between students' digital literacy levels and their online learning readiness ($r=.68$, $p < .01$). Moreover, their digital literacy levels predicted their online learning readiness statistically significantly [$F(1, 1610)= 1382.411$, $p=.00$]. Digital literacy explains 46% of the variability of students' readiness for online learning.

Discussion, Conclusion, Recommendations

In this study, the predictive power of the digital competences of the academic staff on their online learning perceptions and digital literacy levels of the students on their online learning readiness were investigated. Results in relation to the first question of this study revealed that the digital competences of the academic staff predicted their distance education perceptions significantly. Similarly, results related to the second question of this study indicated that students' digital literacy levels predicted their online learning readiness in a significant way.

Results demonstrated that there is a significant positive relation between the digital competences of the academic staff and their distance education perceptions. Additionally, their digital competence levels predict their distance education perceptions. In other words, the academic staff who believe that their digital competences are high have positive perceptions related to distance education. This result is in accordance with the results of studies held on the resistance of educators related to online learning. In these studies, it is claimed that educators' underconfidence in their digital competence plays an important role in their avoidance to carry out distance education courses. For instance, Mills, Yanes and Casebeer (2009), in their study on the resistance of educators towards distance education, pinpointed that educators had concerns related to their digital competences. Although the academic staff is able to use computers to send e-mails, prepare presentations, write articles and do research on the internet, they are not confident in using digital technologies to instruct students on online platforms. Additionally, in their review study, Hattangdi et al. (2010) pointed out that educators avoided distance education because they did not trust their digital competences. Similarly, in several studies (Burke & Dempsey, 2020; Maguire, 2005; Martin et al., 2019), it was revealed that the main reason for educators to resist distance education was their lack of digital competence. The success and sustainability of distance education are highly important as it will clearly be at the center of future educational understanding. Therefore, positive perceptions of the academic staff towards distance education is an important prerequisite for the previously mentioned success and sustainability. In order for distance education perceptions to be positive, digital competences should be supported and attached the utmost importance (Ally, 2019). For the academic staff, although significant, the predictive power of digital competence on distance education perception is rather low. This result indicates the impact of other variables that were not within the scope of the current study. For instance, the perceptions of the academic staff might be affected by their negative experiences, such as technical problems related to image and sound during online courses. These problems affect perceptions of the academic staff considerably (Gillies, 2008; Koppelman & Vranken, 2008; Marsh et al., 2010) and further studies are needed to have a greater understanding of the situation.

The findings obtained in this study showed that students' digital literacy levels and their online learning readiness are correlated and their digital literacy levels significantly predict their online learning readiness. According to these results, it can be argued that students with higher digital literacy are more ready for online learning. Joosten and Cusatis (2020) state that students can have more control over how and when to complete learning activities in an online learning environment. This flexibility

and control can positively contribute to students' knowledge of technology use, time management, organization and interaction. From this point of view, learning using online technologies may have become more attractive for the students. Although technical infrastructure and technological facilities are important prerequisites for distance education processes (Adnan & Anwar, 2020), it is clear that online learning provides many benefits for university students if these prerequisites are met. Therefore, considering the pandemic, it has become an important element in distance education processes. Direkci et al. (2019) highlight the importance of the topic and emphasize that this skill should be acquired by all students through the use of qualified tools. Several studies that were conducted before the emergency distance education during the pandemic also support this result. For instance, Tang and Chaw (2016) stated that students whose digital literacy levels were higher adapted to an online learning environment easily and learn effortlessly. In the study conducted by Kayaduman and Battal (2020), it was observed that there was a positive correlation between the digital literacy skills of students and their attitude towards distance education. Drennan et al.(2005) concluded that students with high computer skills adapt more easily to distance education and have a positive perception towards distance education.

As a result, digital skills are crucial for distance education. The present study was limited to the academic staff working at a private university and students enrolled at the same university. Moreover, data collected in the scope of this study were collected through a survey that was held through questionnaires to define the existing situation. The following suggestions can be made for practitioners and researchers in the scope of the results of this study:

- Studies can be held at universities to improve digital skills for the success and sustainability of distance education.
- Experimental studies about improving digital competences can be conducted and their impact on perceptions can be examined.
- According to the results of the study, both distance education perceptions and online learning readiness can be partly explained by digital skills. By integrating qualitative measures, a thorough examination of the impact of variables other than digital skills can be carried out in future studies.

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Uzaktan Öğrenme ve Öğretme Sürecinde Dijital beceriler: Pandemide Bir Üniversite Örneği

Atf:

- Yurtseven, N., & Sara, S. (2021). Digital skills for teaching and learning in distance education: An example of a university in the pandemic. *Eurasian Journal of Educational Research*, 94, 295-314, DOI: 10.14689/ejer.2021.94.13

Özet

Problem Durumu: Covid-19 pandemisi 2020 yılının ilk çeyreğinden itibaren tüm dünyayı etkisi altına almış, sağlık, ekonomi, politika, eğitim gibi pek çok alanda etkilerini belirgin bir şekilde ve giderek artan bir yoğunlukta göstermeye başlamıştır. Pandeminin en çok etkilediği alanlardan biri olan eğitim alanında, eğitim ve öğretimin uzaktan yürütülmeye başlamasıyla gerek öğretmenler, gerek öğrenciler, gerek yükseköğretimdeki öğretim elemanları için yeni bir dönem başlamıştır. 2020 yılının ilk ayları, Cutri ve diğ. (2020) de ifade ettiği gibi, dünyanın dört bir yanında öğretim elemanları için derslerini çevrimiçi formata dönüştürmek, çok az ya da hiç hazırlık yapmadan hızlı bir şekilde uzaktan eğitimle dersleri yürütmek ve pandeminin travmatik koşulları altında öğretimi sürdürmek anlamını taşımıştır. Benzer bir durum üniversite öğrencileri için de geçerli olmakla birlikte, birçok öğrenci daha önce çok az ya da hiç deneyimlemediği çevrimiçi öğrenme faaliyetlerine zorunlu bir şekilde pandeminin başlamasıyla birlikte hızlı bir giriş yapmıştır (Shahzad ve diğ., 2020). Uzaktan eğitimin kilit bir önem arz ettiği pandemi döneminde, bu sürece uyum ve uzaktan eğitimle öğrenme ve öğretmeyi devam ettirmede yaşanan bir takım aksaklıklar, birçok algının, yeterlik ve becerinin sorgulanmasına yol açmıştır. Bunların başında dijital yeterlikler ve dijital okuryazarlık gelmektedir. Bu iki kavram her ne kadar benzer gözüke de literatürde farklı biçimde tanımlandıkları görülmektedir. Mevcut araştırmada dijital yeterlik kavramıyla öğretim elemanlarının tekno-pedagojik bilgileri kast edilirken, dijital okuryazarlık kavramı, öğrencilerin dijital öğrenme araçlarını etkili bir biçimde kullanmasına referans vermektedir. Bu iki kavramların tanımlanmasının ve kavramsal çerçevesinin çizilmesinin, uzaktan eğitim sürecinde yaşanan aksaklıkların tespit edilmesinde önemli olduğu düşünülmektedir.

Öğretim elemanlarının dijital yeterlikleri, uzaktan eğitimde öğrencilere sağladıkları öğretim ve iletişimin kalitesi, devamlılığı ve kullanılabilirliği açısından önemli bir rol oynamaktadır. Benzer bir biçimde, uzaktan eğitim algısı öğrenme ortamının düzenlenmesi, etkili uygulamalar yapılması ve öğrencilerle iletişimin devamlılığı

açısından kilit bir öneme sahiptir. Konu öğrenci açısından ele alındığında, öğrencilerin çevrimiçi öğrenmeden maksimum verim elde edebilmeleri için dijital okuryazarlık düzeylerinin belirli bir düzeyde olması gerekmektedir. Çevrimiçi öğrenmeye hazırbulunuşluğu düşük öğrencilerin, uzaktan eğitim sürecinde bir takım sorunlar yaşaması ve istenilen verimi elde edememesi kaçınılmazdır. Konuya ilişkin literatür incelendiğinde, öğretim elemanlarının dijital yeterlikleri ve bu yeterlikler bağlamında uzaktan eğitim algılarının incelendiği ya da öğrencilerin dijital okuryazarlık düzeyleri ile çevrimiçi öğrenmeye hazırbulunuşluk düzeyleri arasında ilişkinin incelendiği herhangi bir araştırmaya rastlanmamıştır. Uzaktan eğitimin pandemi sürecinde yönetilmesi noktasında gerek öğretim elemanlarının gerekse öğrencilerin çevrimiçi öğrenmeyi nasıl algıladıkları ve bu algılarla mevcut yeterlikler arasındaki ilişkilerin anlaşılması ve paydaşların uzaktan eğitim sürecinde hangi alanlarda desteklenmesi gerektiğinin belirlenmesi gerekmektedir. Mevcut araştırma, pandemi sürecinde uzaktan eğitimle öğretime devam eden yükseköğretim kurumlarının yaşadığı olası problemleri öğretim elemanlarının ve öğrencilerin yetkinlikleri bağlamında mercek altına alarak, konuya farklı bir bakış açısı getirmeyi amaçlamaktadır.

Araştırmanın Amacı: Bu araştırmanın birincil amacı öğretim elemanlarının dijital yeterliklerinin uzaktan eğitim algılarını yordama gücünün incelenmesidir. Araştırmanın ikinci amacı ise öğrencilerin dijital okuryazarlıklarının çevrimiçi öğrenmeye hazırbulunuşluk düzeylerini yordama gücünün incelenmesidir.

Araştırmanın Yöntemi: Araştırma nicel araştırma desenlerinden tarama deseni ile yürütülmüştür. Tarama araştırmaları, bir grubun belirli özelliklerini ve geçmişte ya da halen var olan bir durumu olduğu şekliyle betimlemeyi amaçlayan araştırmalardır (Büyüköztürk ve diğ., 2013; Karasar, 2012). Tarama deseni kapsamında likert tipi dört farklı ölçekle toplanan veri, analiz edilerek dijital yeterliklerin uzaktan eğitim süreciyle olan ilişkisi ve bu yeterliklerin uzaktan eğitim sürecindeki tutum ve davranışları yordama gücünün incelenmesi amaçlanmıştır.

Araştırmanın örneklemini 201 akademisyen, 1612 öğrenci olmak üzere toplam 1813 kişi oluşturmaktadır. 201 akademisyen ile çevrimiçi öğretim, 1612 öğrenci ile de araştırmanın çevrimiçi öğrenim boyutu yürütülmüştür. Araştırma grubuna lisans ve lisansüstü düzeyde ders alan öğrenciler ve ders veren öğretim elemanı dahil edilirken yabancı öğrenci ve öğretim elemanı araştırma grubunun dışında tutulmuştur. Araştırmanın verileri 2019-2020 Bahar dönemi Nisan-Haziran ayları arasında elektronik olarak oluşturulan bir form aracılığıyla toplanmıştır.

Araştırmanın çevrimiçi öğretim boyutu 119 kadın ve 82 erkek olmak üzere toplam 201 öğretim elemanının katılımı ile gerçekleştirilmiştir. Çevrimiçi öğretim boyutuna katılım gösteren araştırma grubu cinsiyet açısından incelendiğinde, kadın (f=119, %59) katılımcıların erkek (f=82, %41) katılımcılardan fazla olduğu görülmektedir. Bununla birlikte çevrimiçi öğrenme boyutuna katılım gösteren öğrencilerin cinsiyet açısından dağılımları kadın (f=1026, %64), erkek (f=580, %35) ve diğer (f=6, %1) olmak üzere kadın katılımcı ağırlıklıdır.

Bu araştırma kapsamında toplanan veriler, (1) Çevrimiçi Öğrenmeye Hazırbulunuşluk Ölçeği, (2) Dijital Okuryazarlık, (3) Uzaktan Eğitim Algısı Ölçeği ve (4) Mesleki Dijital Yeterlikler Ölçeği olmak üzere dört farklı ölçek aracılığı ile toplanmıştır. Araştırmadan elde edilen verilerin analizi SPSS 22.0 istatistik programı ile gerçekleştirilmiştir. Öğretim elemanlarının dijital yeterliklerinin uzaktan eğitim algılarını yordama gücü ile öğrencilerin dijital okuryazarlıklarının çevrimiçi öğrenmeye hazırbulunuşluk düzeylerini yordama gücünün incelenmesi basit doğrusal regresyon analiz ile gerçekleştirilmiştir.

Araştırmanın Bulguları: Araştırmanın birinci sorusu kapsamında gerçekleştirilen analiz sonuçlarına göre öğretim elemanlarının mesleki dijital yeterlik düzeyleri ile uzaktan eğitim algı düzeyleri arasında istatistiki olarak anlamlı bir ilişki bulunmaktadır ($r=.41$, $p < .01$). Ayrıca, mesleki dijital yeterlik düzeyleri ile uzaktan eğitim algı düzeylerini istatistiki olarak anlamlı bir şekilde yordamaktadır [$F(1, 200)= 41.112$, $p=.000$]. Mesleki dijital yeterlik düzeyi, öğretim elemanlarının uzaktan eğitim algı düzeylerindeki değişkenliğin %17'sini açıklamaktadır.

Araştırmanın ikinci sorusu kapsamında gerçekleştirilen analiz sonuçlarına göre öğrencilerin dijital yeterlik düzeyleri ile çevrimiçi öğrenmeye hazırbulunuşluk düzeylerini arasında istatistiki olarak anlamlı bir ilişki bulunmaktadır ($r=.68$, $p < .01$). Ayrıca, dijital yeterlik düzeylerinin çevrimiçi öğrenmeye hazırbulunuşluk düzeylerini istatistiki olarak anlamlı bir şekilde yordamaktadır [$F(1, 1610)= 1382.411$, $p=.00$]. Dijital okuryazarlık, öğrencilerin çevrimiçi öğrenmeye hazırbulunuşluk düzeylerindeki değişkenliğin %46'sını açıklamaktadır.

Araştırmanın Sonuçları ve Öneriler: Öğretim elemanlarının dijital yeterlikleri uzaktan eğitim algılarının, öğrencilerin dijital okuryazarlıkları çevrimiçi öğrenmeye hazırbulunuşluk düzeylerinin anlamlı birer yordayıcısıdır. Mevcut araştırma, bir vakıf üniversitesinde çalışan öğretim elemanları ve aynı üniversiteye kayıtlı öğrencilerle sınırlıdır. Ayrıca, bu araştırma bağlamında elde edilen veriler, var olan durumun tespit edilmesi için yalnızca ölçekler aracılığıyla yapılan tarama sonucu elde edilmiştir. Araştırmadan elde edilen sonuçlar bağlamında uygulayıcılar ve araştırmacılar için aşağıdaki önerilerde bulunulabilir:

- Öğretim elemanlarının ve öğrencilerin dijital becerilerinin geliştirilmesi için üniversitelerde buna yönelik çalışmalar yapılabilir.
- Öğretim elemanlarının ve öğrencilerin dijital becerilerini geliştirecek deneysel çalışmalar yapılabilir.
- Araştırmadan elde edilen bulgular doğrultusunda, hem öğretim elemanlarının uzaktan eğitim algısı hem de öğrencilerin çevrimiçi öğrenmeye hazırbulunuşluğu, dijital yeterlikleri ve dijital okuryazarlıklarıyla kısmen açıklanabilmektedir. Gelecekteki araştırmalarda nitel ölçümler de eklenerek dijital beceriler dışındaki değişkenlerin etkisinin kapsamlı bir incelemesi gerçekleştirilebilir.

Anahtar Sözcükler: Uzaktan öğretim, dijital okuryazarlık, dijital yeterlik, çevrimiçi öğrenmeye hazırbulunuşluk, uzaktan eğitim algısı.