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

Nihal YURTSEVEN¹ Seda SARAÇ² Ergün AKGÜN³

ARTICLE INFO

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.

© 2021 Ani Publishing Ltd. All rights reserved

1 Bahçeşehir University, nihal.yurtseven@es.bau.edu.tr TURKEY, ORCID: 0000-0002-1338-4467
2 Bahçeşehir University, seda.sarac@es.bau.edu.tr, TURKEY, ORCID: 0000-0002-4598-4029
3 Bahçeşehir University, ergun.akgun@de.bau.edu.tr, TURKEY, ORCID: 0000-0002-7271-6900,
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 (Direci 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; Siivrikaya, 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 (Gök & 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 Poulmenakou (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               | Female | % | Male | % | Total | % |
|---------------------|--------|---|------|---|-------|---|
| 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**

| Experience         | f  | % |
|--------------------|----|---|
| 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|
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          | f  | %  |
|-------------------|----|----|
| 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 |
|----------------|--------|------|-------|-------|
| 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 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.

References

Adnan, M. & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students’ perspectives. *Journal of Pedagogical Sociology and Psychology, 2*(1), 45-51.

Ally, M. (2019). Competency profile of the digital and online teacher in future education. *International Review of Research in Open and Distributed Learning, 20*(2), 302-318.

Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher educators’ use of digital tools and needs for digital competence in higher education. *Journal of Digital Learning in Teacher Education, 35*(4), 203-220. [https://dx.doi.org/10.1080/21532974.2019.1646169](https://dx.doi.org/10.1080/21532974.2019.1646169)
Anthonysamy, L. (2020). Digital literacy deficiencies in digital learning among undergraduates. In S. Noviaristanti, H. M. Hanafi, & Trihanondo (Eds.), Understanding digital industry (pp. 133-136). Routledge.

Baterna, H. B., Mina, T. D. G., & Rogayan, D. V. Jr. (2020). Digital literacy of STEM senior high school students: Basis for enhancement program. *International Journal of Technology in Education (IJTE)*, 3(2), 105-117.

Borotis, S., & Pouloumenakou, A. (2004). E-Learning readiness components: Key issues to consider before adopting e-learning interventions. *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2004*, Washington, DC, USA. https://www.learntechlib.org/p/11555.

Bovermann, K., Weidlich, J., & Bastaens, T. (2018). Online learning readiness and attitudes towards gaming in gamified online learning – a mixed methods case study. *International Journal of Educational Technologies in Higher Education*, 15(27), 1-17. https://doi.org/10.1186/s41239-018-0107-0.

Buyukozturk, S. (2011). Sosyal bilimler için veri analizi el kitabı. Ankara: Pegem Akademi.

Buyukozturk, S., Cakmak-Kilic, E., Akgun, O. E., Karadeniz, S., & Demirel, F. (2013). *Bilimsel Araştırma Yöntemleri*. Ankara: Pegem Yayıncılık

Carretero, S., Vuorikari, R., & Punie, Y. (2017). *DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use*.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. Massachusetts, MA: Pearson Education, Inc.

Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: Transitioning to online teaching during COVID-19 pandemic. *Europeon Journal of Teacher Education*, 43(4), 523-541.

Demir-Kaymak, Z., & Horzum, M. (2013). Relationship between online learning readiness and structure and interaction of online learning students. *Educational Sciences: Theory and Practice*, 13(3), 1792-1797.

Dempsey, M., & Burke, J. (2020). Covid-19 Practice in Primary Schools in Ireland Report: A Two-month Follow-up. Project Report. Maynooth University. Direkç, B., Akbulut, S., & Şimşek, B. (2019). Türkçe dersi öğretim programı (2018) ve ortaokul Türkçe dersi kitaplarının dijital okuryazarlık becerileri bağlamında incelenmesi. *Avrasya Uluslararası Araştırmalar Dergisi*, 7(16), 797-813.

Doe, R., Castillo, M. S., & Musyoka, M. M. (2017). Assessing online readiness of students. *Online Journal of Distance Learning Administration*, 20(1), 1-15.

Drennan, J., Kennedy, J., & Psaras, A. (2005). Factors affecting student attitudes toward flexible online learning in management education. *The Journal of Educational Research*, 98(6), 331-338. Engen, B. K. (2019). Understanding social and cultural aspects of teachers’ digital competencies. *Comunicar*, 61(27), 9-18.
Eshet-Alkalai, Y. (2004). Digital literacy: a Conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93-106.

European Commission (2019). Key competences for lifelong learning. Luxemburg: Publications Office of the European Union. [https://dx.doi.org/10.2766/569540](https://dx.doi.org/10.2766/569540).

Ferrari, A. (2012). *Digital competence in practice: An analysis of frameworks*. Luxembourg: Publications Office of the European Union. [https://dx.doi.org/10.2791/82116](https://dx.doi.org/10.2791/82116).

Gillies, D. (2008). Student perspectives on videoconferencing in teacher education at a distance. *Distance Education, 29*(1), 107-118.

Gök, B. (2011). *Perceptions of faculty perceive the current status of distance education* (Unpublished Master’s Thesis). Gazi University, Informatics Institute, Ankara.

Gök, B., & Kilic Cakmak, E. (2020). Uzaktan eğitimde ders veren öğretim elemanlarının uzaktan eğitim algısı. *Kastamonu Education Journal, 28*(5), 1915-1931. [https://dx.doi.org/10.24106/kefdergi.3914](https://dx.doi.org/10.24106/kefdergi.3914).

Gokmen, O. F., Duman, İ., & Horzum, M. B. (2016). Uzaktan eğitimde kuramlar, değişimler ve yeni yönelimler. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 2*(3), 29-51.

Gudmundsdottir, G. B. & Hatlevik, O. E. (2017). Newly qualified teachers’ professional digital competence: implications for teacher education. *European Journal of Teacher Education, 41*(2), 214-231.

Hung, M.L., Chou, C., Chen, C.H., & Own, Z.Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education, 55*, 1080-1090.

Ilhan, M. & Cetin, B. (2013). Çevrimiçi öğrenmeye yönelik hazırlık bulunmamak olup olmadığını (çöhbö) türkçe formunu geçerlilik ve güvenilirlik çalışması. *Eğitim Teknolojisi: Kuram ve Uygulama, 3*(2), 72-101.

Instefjord, E. & Munthe, E. (2017). Educating digitally competent teachers: A study of integration of professional digital competence in teacher education. *Teaching and Teacher Education, 67*, 37-45.

Joosten, T. & Cusatis, R. (2020). Online learning readiness. *American Journal of Distance Education, 34*(3), 180-193. [https://dx.doi.org/10.1080/08923647.2020.1726167](https://dx.doi.org/10.1080/08923647.2020.1726167).

Karasar, N. (2012). Bilimsel araştırma yöntemleri (24. baskı). Ankara: Nobel Yayınevi.

Kayaduman, H., & Battal, A. (2020). The Relationship Between Digital Literacy and Distance Education Perceptions. 13th Annual International Conference of
Education, Research and Innovation, 2223–2227.
https://doi.org/10.21125/iceri.2020.0533.

Kearsley, G. (2000). Online Education: Learning and Teaching in Cyberspace, Wadsworth Publishing Company.

Koppelman, H., & Vranken, H. (2008). Experiences with a synchronous virtual classroom in distance education. ACM SIGCSE Bulletin, 40(3), 194-198.

Kozan, M. & Bulut Özek, M. (2019). Böte bölümü öğretmen adaylarının dijital okuryazarlık düzeyleri ve siber zorbalığa ilişkin duyarlıklarının incelenmesi. Fırat Üniversitesi Sosyal Bilimler Dergisi, 29(1), 107-120.

Krumsvik, R. (2007). Skulen og den digitale læringsrevolusjon [The School and the Digital Learning Revolution; in Norwegian]. Oslo, Universitetsforlaget.

Krumsvik, R. J. (2011). Digital competence in the Norwegian teacher education and schools. Høgre utdanning, 1(1), 39-51.

Krumsvik, R. J. (2014). Teacher educators’ digital competence. Scandinavian Journal of Educational Research, 58(3), 269-280.

Kulal, A. & Nayak, A. A study on perception of teachers and students toward online classes in Dakshina Kannada and Udupi District. Asian Association of Open Universities Journal, 15(3), 285-296.

Laanpere, M. (2019). Recommendations on assessment tools for monitoring digital literacy within UNESCO’s Digital Literacy Global Framework. United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (UIS). https://doi.org/10.15220/2019-56-en.

Maguire, L. L. (2005). Literature review–faculty participation in online distance education: Barriers and motivators. Online journal of distance learning administration, 8(1), 1-16.

Marsh, B., Mitchell, N., & Adamczyk, P. (2010). Interactive video technology: Enhancing professional learning in initial teacher education. Computers & Education, 54(3), 742-748.

Martin, F., Budhrani, K., Kumar, S., & Ritzhaupt, A. (2019). Award-winning faculty online teaching practices: Roles and competencies. Online Learning, 23(1), 184-205.

Mills, S. J., Yanes, M. J., & Casebeer, C. M. (2009). Perceptions of distance learning among faculty of a college of education. MERLOT Journal of Online Learning and Teaching, 5(1), 19-28.

Nanni, A. & Pusey, K. (2020). Leveraging students’ digital literacy through project-based learning. The Asian EFL Journal, 24(1), 141-172.

Ng, W. (2012). Can we teach digital natives digital literacy?. Computers & Education, 59(3), 1065-1078.
Ocak, G. & Karakus, G. (2019). Öğretmen adaylarının dijital okuryazarlık öz-yeterlilik becerilerinin farklı değişkenler açısından incelenmesi. Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi, 21(1), 129-147.

Oliver, R. (2001). Assuring the quality of online learning in australian higher education. M. Wallace, A. Ellis & D. Newton (Ed). Moving Online II Conference (pp 222-231). Lismore: Southern Cross University.

Pettersson, F. (2018). On the issues of digital competence in educational contexts—a review of literature. Education and Information Technologies, 23(3), 1005-1021. https://dx.doi.org/10.1007/s10639-017-9649-3.

Phillips, M. S. (2013). Instructor and student perceptions of online courses: Implications of positioning theory (Yayımlanmamış doktora tezi). East Tennessee State University, Department of Educational Leadership and Policy Analysis.

Rafique, G. M., Mahmood, K., Warraich, N. F., & Rehman, S. U. (2021). Readiness for Online Learning during COVID-19 pandemic: A survey of Pakistani LIS students. The Jornal of Academic Librarianship, 47(3), 1-10.

Redecker, C. (2017). European Framework for the Digital Competence of Educators: DigCompEdu. In: Punie, Y. (ed). EUR 28775 EN. Publications Office of the European Union, Luxembourg. Http://dx.doi.org/10.2760/159770Resnick,L.B.(1972). OpenEducation: Some Tasks for Technology. Educational Technology, 12(1), 70-76. Retrieved from https://eric.ed.gov/?id=ED078694

Rosen, D. J. (2020). Assessing and teaching adult learners’ basic and advanced 21st century digital literacy skills. Adult Literacy Education, Spring 2020, 73-75.

Secer, I. (2017). SPSS ve LISREL ile pratik veri analizi: Analiz ve Raporlaştırma. Ankara: Anı Yayıncılık.

Shahzad, A., Hassan, R., Aremy, A. Y., Hussain, A., & Lodhi, R. N. (2020). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. Qual Quant. https://doi.org/10.1007/s11135-020-01028-z.

Sipahi, B., Yurtkoru, E. S., & Cinko, M. (2008). Sosyal bilimlerde SPSS’le veri analizi. İstanbul: Beta Yayıncılık.

Sivrikaya, M. H. (2020). An analysis on digital literacy level of faculty of sports science students. Asian Journal of Education and Training, 6(2), 117-121.

Tang, C. M. & Chaw, I. Y. (2016). Digital Literacy: A Prerequisite for Effective Learning in a Blended Learning Environment?. The Electronic Journal of e-Learning, 14 (1), 54-65.

Toker, T., Akgün, E., Cömert, Z. & Edip, S. (in-press). Eğiticimciler için dijital yeterlik ölçeği: Uyarlama, geçerlik ve güvenirlik çalışması. Milli Eğitim Dergisi.

Ustundag, M. T., Gunes, E., & Bahcivan, E. (2017). Dijital okuryazarlık ölçeğinin Türkçe'ye uyarlanması ve fen bilgisi öğretmen adaylarının dijital okuryazarlık durumları. Journal of Education and Future, 12, 19-29.
Warner, D., Christie, G., & Choy, S. (1998). Readiness of VET clients for flexible delivery including online learning. Brisbane: Australian National Training Authority.

Yılmaz, R. (2017). Exploring the role of e-learning readiness on student satisfaction and motivation in flipped classroom. Computers in Human Behavior, 70, 251-260.

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

Atıf:
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 altında almış, sağlık, ekonomi, politika, eğitim gibi pek çok alanda etkilerini belirgin bir şekilde ve giderek artan bir yoğunlukta göstermeye başlamıştır. Pandemisin en çok etkilediği alanlardan biri olan eğitim alanında, eğitim ve öğretimin uzaktan yürütülmeye baslanmasıyla 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 dersleri çevrimiçi formata dönüştürmek, çok az ya da hiç hazırlık yapmadan hızlı bir şekilde uzaktan eğitim 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 olarak pantevinin başlamasıyla hızlı bir biçimde giriş yapmıştır (Shahzad ve diğ., 2020).

Uzaktan eğitimin kilit bir önem arz ettiği pandemide, bu süreçte uyum ve uzaktan eğitimde yaygın devam ettirmede yaşanan bir takım aksaklıklar, birçok öğrencinin, yeterlilik ve becerinin sorgulanmasına yol açmıştır. Bunların başında dijital yeterlikler ve dijital okuryazarlık gelmektedir. Bu iki kavram her ne kadar benzer gözükse de literatürde farklı biçimde tanımlandıkları görülmektedir. Mevcut araştırmada dijital yeterlik kavramında öğretim elemanlarının teknopeda bilgileri kast edilirken, dijital okuryazarlık kavramı, öğrencilerin dijital öğretme araclarını etkili bir biçimde kullanmasına referans vermektedir. Bu iki kavramların tanınmasını ve kavramsal çerçevesinin çizilmesinin, uzaktan eğitim sürecinde yaşanan aksaklıkların tespit edilmesinde önemli olduğu düşünülmektedir.

Öğretim elemanlarının dijital yeterlikleri, uzaktan eğitimde öğrencilerle sağladıkları öğretim ve iletişimin kalitesi, devamlılığı ve kullanılılığı 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 öğrencisi açısından ele alındığında, öğrencilerin çevrimici öğrenmeden maksimum verim elde edebilmeleri için dijital okuryazarlık düzeylerinin belirli bir düzeyde olması gerekmektedir. Çevrimici öğrenmeye hazırlunmuşluğu dişlik öğrencilere, uzaktan eğitim sürecinde bir takım sorunlar yaşaması ve istenilen verimi elde edememesi kaçınılmazdır. Konuya ilişkin literatür incelendiğinde, öğretim elemanlarının dijital yeterlikleri ve bu yeterlikler bağlantılı olarak uzaktan eğitim algılarının incelendiği yerde, öğrencilerin dijital okuryazarlık düzeyleri ile çevrimici öğrenmeye hazırlunmuşluğunun belirli bir düzeyinde olduğu ancak bu bu düzeyin belirlenmesindeNIL bireysel özelliklerin rol oynadığı görülmektedir.

Kontrol edilen herhangi bir araştırma pandemi sürecinde uygulanan uzaktan eğitim sürecinde öğrencinin dijital okuryazarlık düzeyi ile uzaktan eğitim öğrenme algısı arasındaki ilişki incelendiğinde, öğretim elemanlarının dijital okuryazarlık düzeyi ile uzaktan eğitim algısı arasında bir ilişki bulunmamaktadır. Araştırmacı, pandemi döneminde uygulanan uzaktan eğitim öğretimi, öğretim elemanlarının dijital okuryazarlık düzeyi ile uzaktan eğitim öğrenme algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrencilerin dijital okuryazarlık düzeyleri ile uzaktan eğitim algısı arasındaki ilişkiyi incelmek amacıyla, uygulanan uygulamaların öğrenc
Bu araştırma kapsamında toplanan veriler, (1) Çevrimiçi Öğrenmeye Hazırbulunusluk Ölçeği, (2) Dijital Okuryazarlık, (3) Uzaktan Eğitim Algısı Ölçeği ve (4) Mesleki Dijital Yeterlikler Ölçeği olmak üzere dört farklı ölçek aracılığı ile toplanmıştır. Araştırmanın 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 hazırlılığı düzeylerini yordama gücünün incelemesi basit doğrusal regresyon analiz ile gerçekleştirilmiştir.

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

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

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

- Öğretim elemanlarının ve öğrencilerin dijital becerilerinin geliştirilmesi için üniversitelerde buna yönelik çalışmalar yapılabilir.
- Öğretim elemanlarının ve öğrencilerin dijital becerilerini geliştirecek deneySEL çalışmalar yapılabilir.
- Araştırmanın elde edilen bulgular doğrultusunda, hem öğretmen elemanlarının uzaktan eğitim algısı hem de öğrencilerin çevrimiçi öğrenmeye hazırlılığını, dijital yeterlikleri ve dijital okuryazarlıklarıyla kısmen açıklanabilmesidir. Gelecekteki araştırmalarla nitel ölçümler de eklenerek dijital beceriler dışındaki değişiklerin etkisinin kapsamlı bir incelemesi gerçekleştirilirilebilir.

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