# UNDERGRADUATES' ATTITUDES TOWARDS DISTANCE EDUCATION AND PERCEPTIONS OF READINESS FOR E-LEARNING DURING THE COVID-19 PANDEMIC

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Received: 14/07/2021 Accepted: 09/03/2022

## ABSTRACT

The COVID-19 pandemic, which suddenly took the whole world under its influence, also radically affected the educational environments. This research aimed to examine the attitudes of undergraduates towards distance education, their perceptions of readiness for e-learning, and the relationship between these two variables during the COVID-19 pandemic, the effects of which are also felt in higher education. Thus, quantitative research paradigm and correlational design were used in the study. Data were collected online in two weeks via the Attitude Scale towards Distance Learning (ASDL) and E-Learning Readiness Self-Assessment Instrument (ERSI). Using the convenient sampling method, 1422 undergraduate students enrolled in a summer school program at a state university in Turkiye were included in the sample. The findings of the research indicate that the participants' attitudes towards distance education are moderate, and their perceptions of readiness for e-learning are high-level during the COVID-19 pandemic. There is a moderate positive correlation between these two variables. There are also positive, moderate, or strong correlations between the ASDL and some subscales of the ERSI. The findings of the study provide useful information about the distance education carried out during the COVID-19 pandemic.

**Keywords:** Covid-19 pandemic, distance education, attitude, e-learning, readiness.

## INTRODUCTION

Although not fully detected, the new type of coronavirus disease (COVID-19) which is thought to have emerged in the Wuhan city of China towards the end of 2019 affected the whole world in a short time, caused a global pandemic, and exposed the world to irreversible changes. (WHO, 2021). Education systems have also been inevitably affected by this change. Governments, school administrations, and educators have become concerned about potential learning losses due to the pandemic. Students and their families have been severely suffered by this period. The pandemic has greatly endangered the functioning of schools and learning in various ways. Different practices have been used to know and compensate for the extent of learning losses in students (Zhao, 2021). The sudden closure of schools in this period caused the usual teaching activities to be stopped immediately and all the education actors involved were plunged into an uncertain pedagogical disturbance in the following months (Nadeau, Siouiet & Fortier, 2020). In some countries, education has started to be carried out distantly, and in the others, the mixed education method has been preferred, which can also be called hybrid as it is a combination of distance and face-to-face education (United Nations, 2020).

After the first coronavirus case observed in Turkiye in March 2020, schools were completely closed. It has been tried to adapt to this new normal by adopting various models at different levels (TEDMEM, 2020). Although there were problems in the context of education in this period, the implemented models facilitated the transition to the new normal, brought new paradigms in education to the agenda, and led to new beginnings such as the sudden spread of distance education (El Maarouf, Belghazi & El Maarouf, 2020). On the other side, some researchers emphasize that the sudden and forced closure may lead to deterioration of content and assessments, cognitive overload (Charroud, Dessus & Osete, 2020), educational interruption, inconsistencies between goals, and difficulties in implementation (Detroz, Tessaro & Younes, 2020). However, these challenges can also be an opportunity for people to question and rediscover their practices (Alonso Vilches, Detroz, Hausman & Verpoorten, 2020). For example, distance education can help break the spiral of failure and mitigate the effects of the competitive classroom climate such as threatening glances from peers, upward social comparisons, shyness, etc.

Distance education is a method in which teachers and learners are not physically in the same environment, and learning can be carried out synchronously or asynchronously with educational technology tools (Alkan, 2011; Seferoglu, 2006). In the 21st century, electronic-based teaching methods carried out through radio, television, and the internet are most preferred in distance education. Learning through electronic-based tools is called e-learning. E-learning means transferring knowledge and skills to individuals through electronic devices and teaching activities carried out in electronic environments (Gulbahar, 2019). Although distance education and e-learning are thought to be vital parts of educational environments during the pandemic, the sudden exposure to this outbreak shows that Turkiye and other countries have been unprepared for the continuity of education (Bozkurt & Sharma, 2020). Obviously, students experience complex and intense emotions in their learning processes regarding the new normal due to pandemic psychology (Strong, 1990).

Learning is an action that has affective and psychological aspects as well as cognitive ones (Aydin, 2016). Cognitive skills, learning styles, affective characteristics such as attitude and motivation have important roles in learning (Tasgin, 2020). In e-learning, hardware requirements, technical knowledge and skills are also needed (Gulbahar, 2019). These mean readiness for e-learning as well (Kalelioglu & Baturay, 2014).

ICTs are key elements that guarantee pedagogical continuity and support new ways of living and working in this exceptional period. Digital technologies have never been more important in ensuring pedagogical continuity (Elmendilia & Saaidi, 2020). Various research results imply that students have serious learning losses in Turkiye and around the world (CREDO, 2020; TEDMEM, 2020). Therefore, millions of students can continue their education distantly in the post-pandemic period to compensate for their learning losses.

In Turkiye especially in higher education institutions, since the beginning of the pandemic, education has been mostly carried out distantly, except for certain programs (yok.gov.tr). After literature review, it can be clearly seen that the studies on distance education in Turkish higher education context during the COVID-19 pandemic focus on the following areas: undergraduates' views and satisfaction levels about distance education carried out during the pandemic period (Akdemir & Kilic, 2020; Gurler, Uslu & Dastan, 2020; Karadag & Yucel, 2020; Yildiz, 2020), their readiness for distance education and e-learning (Kuzu, 2020; Turkmen, Asci & Zor, 2020; Uyar & Karakuyu, 2020). However, a study dealing with the relationship between both variables was not found by the researchers. Thus, it is considered significant to investigate both the attitudes of students towards distance education and their perceptions of readiness for e-learning together for several reasons.

First, determining some characteristics of the undergraduates in the development of distance education curriculums, which have become a part of the new normal, may be effective in future action plans. Secondly, it may reveal the importance of studies on needs analysis in emergency distance education situations that may be experienced later. Thirdly, in the light of the variables discussed in this study, it is possible to determine the relationships between some features underlying digital competencies, which are among the 21st century skills. Besides, it is thought that the study will contribute to the field in terms of emphasizing the importance of the learners' affective characteristics in urgent digital transformations. Last but not least, this study will emphasize the importance of curriculum development studies to be carried out in global crises and may guide education policies in this direction. In this sense, this study aims to examine the relationship between undergraduates' attitudes towards distance education and their perceptions of readiness for e-learning during the COVID-19 pandemic. To achieve this aim, answers to the following research questions were sought:

1. What is the level of undergraduates' attitudes towards distance education during the pandemic?
2. What is the level of undergraduates' perceptions of readiness for e-learning during the pandemic?
3. Is there a significant relationship between undergraduates' attitudes towards distance education carried out during the pandemic and their perceptions of readiness for e-learning?

## METHOD

### Design and Procedure

Correlational design was used for the purpose of the research. The correlational design is a model that examines the relationship and connections between two or more variables to reach a conclusion beyond describing a situation or event. This model aims to analyze the correlation between the variables without manipulating them (Frankel, Wallen & Hyun, 2015). Correlational research are studies that lead to revealing the relationship between variables that interact, determining the degree and direction of existing relationships, and conducting other studies by considering the relationships between variables (Buyukozturk, Cakmak, Akgun, Karadeniz, & Demirel, 2013). In this regard, the relationship between undergraduates' attitudes towards distance education and their perceptions of readiness for e-learning during the pandemic was examined in this study.

The research procedure is as follows. Firstly, necessary permissions were obtained from the developers of the scales to be used in the research. Then, the approval was received from the Social and Human Sciences Research Ethics Committee of Karabuk University, numbered E-78977401-050.02.04-25363 and dated 2 July 2020. The data were collected through the "Attitude Scale towards Distance Learning (ASDL)" developed by Kisla (2016) and the "E-Learning Readiness Self-Assessment Instrument (ERSI)" developed by Watkins, Leigh & Triner (2004), and adapted into Turkish by Kalelioglu & Baturay (2014). The data were collected online in two weeks. A total of 1568 students studying online summer school program at Karabuk University filled out the scales online. After checking the scales completed by 1568 students, 146 of them were removed from the data file according to Mahalanobis Distance (MD), and the data obtained from 1422 students forming the sample were subjected to statistical analysis.

Participants

The universe of the study consists of 18.126 students who registered the summer school program at Karabuk University in the summer term of the 2019-2020 academic year. The sample consists of students who voluntarily participated in the study by clicking on the link in the e-mail sent to the whole universe and completed the study by answering all the items. Many multivariate extreme data were found in the data analysis, and accordingly, 146 out of 1568 students who voluntarily answered all the questions were not included in the sample (N=1422). Since the study was based on volunteerism, convenient sampling method was used for the sampling process. Some descriptive statistics of the sample are given in Table 1.

**Table 1.** Descriptive statistics of the sample

| Feature | Variable | f | % |
|---|---|---|---|
| Gender | Female | 580 | 40,8 |
| | Male | 842 | 59,2 |
| Age | 18-20 | 255 | 17,9 |
| | 21-23 | 734 | 51,6 |
| | 24+ | 433 | 30,8 |
| University | Karabuk University | 1050 | 73,8 |
| | The others | 372 | 26,2 |
| Department | Social Sciences | 328 | 23,1 |
| | Econ.&Admn.Sc. | 100 | 7 |
| | Health Sciences | 122 | 8,6 |

| | | | |
|---|---|---|---|
| | Natural&Applied Sc. | 872 | 61,3 |
| Grade | Prep. | 18 | 1,3 |
| | 1st | 121 | 8,5 |
| | 2nd | 292 | 20,5 |
| | 3rd | 343 | 24,1 |
| | 4th | 537 | 37,8 |
| | 5th | 6 | 4,6 |
| | 6th | 21 | 1,5 |
| | Grad. | 24 | 1,7 |
| Total | | 1422 | 100 |

## Data Collection Tools

### The Attitude Scale towards Distance Learning (ASDL)

The Attitude Scale towards Distance Learning (ASDL) developed by Kisla (2016) includes 35 items. ASDL has a single factor that measures students' attitudes towards distance learning. The 5-likert type scale items are rated from strongly disagree (1) to strongly agree (5). Internal consistency coefficient of the scale was reported as α=.89. The scale explained 28% of total variance with a single factor.

### The E-Learning Readiness Self-Assessment Instrument (ERSI)

The E-Learning Readiness Self-Assessment Instrument (ERSI) was developed by Watkins, Leigh & Triner (2004) and adapted into Turkish by Kalelioglu & Baturay (2014). The original form of the ERSI includes 27 items and 6 factors. The item number was reduced to 25 in the adapted scale, and the 6-factor structure of the scale was preserved. The factors of the scale are importance of success (α=.80), online relationships (α=.78), technical skills (α=.80), technology access (α=.84), motivation (α=.75), and online skills (α=.64). The items of the 5-likert type scale are rated from strongly disagree (1) to strongly agree (5). The amount of variance explained by the scale, which was found to preserve its 6-factor structure as a result of the analyzes, was 61.54.

## Data Analysis

Within the scope of this study, analyzes were carried out using Factor 10.10, Mplus 7, and SPSS programs. As a result of the analysis, many multivariate extreme data were found in the relevant scales, and some individuals were excluded from the data file according to Mahalanobis Distance (criterion having a value less than .001). Accordingly, 146 people were not included in the analysis and a new data file was created (N=1422). The structure of the data was found to be suitable for the polychoric correlation matrix. One of the most reliable confirmatory factor analysis (CFA) software with polychoric correlation matrix is Mplus. In the analyzes performed with Mplus by using polychoric correlation matrix and ULSMV factor subtraction method, non-working items were determined. The relevant experts (PCG, CEIT, and Measurement & Evaluation specialists) stated their opinions in terms of the removal of non-working items from the scales. Consequently, the fit indices showed appropriate results in the CFA performed with the remaining items (ASDL: TLI/NNFI=.942, CFI=.946, RMSEA=.098 %90 Confidence Interval [.096-.100]; and ERSI: TLI/NNFI=.984, CFI=.990, RMSEA=.041 %90 Confidence Interval [.096-.100]). Hence, it was determined that the items had sufficient factor loading and predicted the factors significantly. In addition, Standardized Alpha and McDonald's Omega coefficients were calculated for both scales in the reliability analysis (ASDL: α=.98, α=.92; ERSI: α=.91, α=.88).

The fact that the skewness and kurtosis coefficients in the literature are between ±1.5 shows that the scales and the subscales do not deviate too much from the normal distribution. So, it is sufficient that the values of skewness and kurtosis of the subscales are between -1.5 and +1.5 to accept the normal distribution of the data (George & Mallery, 2010). In this research, the skewness and kurtosis values were found between ±1.5.

Depending on these results, statistical analyzes based on the assumption of normal distribution were used. For the interpretation of the findings, "1.00-1.80: none", "1.81-2.61: low", "2.62-3.42: moderate", "3.43-4, 23: high" and "4.24-5.00: very high" values are used.

## FINDINGS

In this section, the findings of the research are presented in comprehensible tables in a meaningful order according to the research questions.

**Table 2.** Attitudes of the participants towards distance education

| Scale | N | $\bar{X}$ | SD |
|---|---|---|---|
| ASDL | 1422 | 3,07 | 1,114 |

Table 2 shows the descriptive statistics (arithmetic mean and standard deviation) of undergraduates' attitudes towards distance education. According to the table, the attitudes of undergraduates towards distance education are at the "moderate" level (Mean: 3,07; SD: 1,114).

**Table 3.** Attitudes of the participants towards distance education

| Scale and Subscales | N | $\bar{X}$ | SD |
|---|---|---|---|
| Technology Access | 1422 | 3,56 | 1,372 |
| Technical Skills | 1422 | 4,59 | ,707 |
| Online Relationships | 1422 | 4,03 | 1,099 |
| Motivation | 1422 | 3,45 | 1,313 |
| Online Skills | 1422 | 3,77 | 1,269 |
| Importance of Success | 1422 | 4,29 | ,796 |
| ERSI | 1422 | 3,95 | ,839 |

Table 3 shows the descriptive statistics (arithmetic mean and standard deviation) of undergraduates' perceptions of readiness for e-learning. According to the table, undergraduates' perceptions of readiness for e-learning are at the "high" level (Mean: 3.95; SD=.839). Undergraduates' perceptions of "technology access" (Mean: 3,56; SD:1,372), "online relationships" (Mean: 4,03; SD:1,099), "motivation" (Mean: 3,45 SD: 1,313), and "online skills" (Mean: 3.77 SD: 1.269), which are the subscales of the ERSI, are also at a "high" level. In the subscales of ERSI, "technical skills" (Mean: 4.59; SD: .707), and "importance of success" (Mean: 4.29; SD: .796), student perceptions are at the "very high" level.

**Table 4.** Attitudes of the participants towards distance education

| Scale and Subscales | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Technology Access | 1 | | | | | | | |
| Technical Skills | ,499** | 1 | | | | | | |
| Online Relationships | ,499** | ,577** | 1 | | | | | |
| Motivation | ,521** | ,442** | ,734** | 1 | | | | |
| Online Skills | ,523** | ,485** | ,709** | ,818** | 1 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Importance of Success | ,188** | ,358** | ,286** | ,200** | ,241** | 1 | | |
| ERSI | ,749** | ,697** | ,851** | ,863** | ,869** | ,435** | 1 | |
| ASDL | ,438** | ,319** | ,556** | ,743** | ,718** | 0,23 | ,664** | 1 |

*Note. N=1422, Sig.(2-tailed):,000 *p<.05, **p<.01*

Table 4 shows the relationship between undergraduates' attitudes towards distance education and their perceptions of readiness for e-learning. According to the table, it is seen that there is a moderate positive correlation between undergraduate students' attitudes towards distance education and their readiness for e-learning (r: 0.664; p<0.01). According to the table, there are also significant relationships between ASDL and ERSI's subscales. Moderate positive correlation exists between the ASDL and the "technology access" (r: 0.438; p<0.01), "technical skills" (r: 0.319; p<0.01) and "online relationships" (r: 0.556; p<0.01), which are the subscales of the ERSI. There is also high-level positive correlation between ASDL and "motivation" (r= 0.743; p<0.01) and "online skills" (r= 0.718; p<0.01) subscales. There is no significant relationship between ASDL and the "importance of success" subscale of ERSI (r: 0.023; p<0.01).

## DISCUSSIONS AND CONCLUSION

During the new type of coronavirus (Covid-19) pandemic, the attitudes of the undergraduates towards distance education were found to be "moderate". In a study carried out by Oz-Ceviz, Tektas, Basmaci & Tektas (2020), the reasons why undergraduates are satisfied with the distance education are as followings: having the opportunity to watch the content again, not going to school, having a bulletin and video for information about the course, no attendance obligation, and no loss of time. Likewise, in Buluk and Esitti's (2020) study, it was found that many tourism undergraduates (approximately 86%) could adapt to the learning management system implemented by the university in a short time. It has been stated that this is caused by online communication, especially the use of mobile technology devices has an important place in the lives of the youth. The same reasons could be effective for the participants of this research. Another study revealed that during the pandemic distance education made it easier for undergraduates to adapt to this period by increasing their technical skills and the students were satisfied with the distance education platforms offered by their institutions (Yilmaz- Altuntas, Basaran, Ozeke & Yilmaz, 2020). Contrary to these studies, there are also unparallel results in the literature. For example, the undergraduate students of the geography department who participated in the study of Saribas & Meydan (2020) have negative attitudes towards online learning. Similarly, the attitudes of associate degree students participating in Demir's (2020) study towards distance education courses in mathematics are negative. Likewise, Akdemir & Kilic's (2020) study shows that the participants also experienced unfavorable experiences regarding distance education carried out during the pandemic, and the education received in this period did not meet their academic expectations. Although the results of this study are not completely similar to the results of other studies, it may provide considerable information about the attitudes of the undergraduates towards distance education carried out during the pandemic. Nevertheless, the small number of studies and their samples make it necessary to repeat similar studies with larger samples at variable intervals.

In a study examining the satisfaction levels of students regarding distance education in higher education during the COVID-19 pandemic, participants' statements show that the Council of Higher Education of Turkiye "passed the class" thanks to its decisions and information policy whereas the universities "failed the classroom" due to lack of preparation. Moreover, the participant students think that the instructors are deprived of teaching skills for distance education (Karadag & Yucel, 2020). This study, on the other hand, is concerned with how ready the students are for this critical period. The results show that the participants' perceptions of readiness for e-learning are at a high level throughout the scale. In terms of subscales, their readiness perceptions are at a high level in the technology access, online relations, motivation, and online skills" and very high in the technical skills, and importance of success. Kuzu (2020) found out similar results in her study in examining the freshmen's readiness levels for distance education during the pandemic. In two other studies carried out on vocational school students, it was also concluded that the participants' readiness levels for e-learning were high (Turkmen, Asci & Zor, 2020; Uyar & Karakuyu, 2020). On the

other hand, students who participated in the study of Akdemir and Kilic (2020) felt lack of motivation in distance learning during the pandemic. Accordingly, the results of this study differ from the study of Akdemir and Kilic (2020) in terms of participants' motivation for e-learning. These results may have been affected by the data collected from different samples in different time periods. The course of the pandemic may also have had a direct impact on the results. Considered as a whole, the results of different studies show that students think that they are ready for e-learning. On the other hand, they consider that universities, faculty members, and lecturers are caught unprepared for the pandemic period. Hence, researchers can carry out comprehensive studies to examine the perceptions of readiness for e-teaching, and e-learning of all stakeholders during the pandemic. Besides, due to the different results in the literature, researchers can focus on learners' motivation in distance education.

The sudden and rapid transition to distance education due to the pandemic may cause inequalities in access to technology. Karadag & Yucel (2020), and Yildiz (2020) stated these inequalities among important problems in their studies. On the contrary, the results of this study show that the undergraduates have a high level of readiness perception in "technology access" during the pandemic. This may have been for the reason that the data of the study was collected online, and the sample consisted of students who had no problem in accessing the technology. Accordingly, researchers can consider this point in order to provide results with higher validity and reliability in further studies.

The results of the study show that there is a significant and positive relationship between undergraduates' attitudes towards distance education and their perceptions of readiness for e-learning through distance education. Even though distance education and e-learning are similar to classical education environments and learning, it is clear that there are some cognitive and affective differences for learners. Besides these two variables, e-learning can also be affected by different cognitive and affective features such as academic success, motivation, interest, expectation, excitement, etc. (Bicer, 2019; Etlioglu & Tekin, 2019; Gulbahar, 2019). Moreover, how the distance education carried out during the pandemic, combined with the psychology of the pandemic, affects e-learning remains a door that has not been fully opened yet. Given the relationship between the attitude towards distance education and the perception of readiness for e-learning, it is a necessity to reveal other variables that may relate to these variables and to deal with the psychology of pandemic in depth. It is vital to examine the relationships between these variables and different variables, which regulate or mediate these relationships, in terms of contributing to the literature and related researchers in understanding the pandemic psychology of students.

It can be considered as a limitation that the study group of the research consisted of 1422 students who attended the summer school at Karabuk University in the summer term of the 2019-2020 academic year. Due to this limitation, future studies can be carried out with much larger samples and universities to be selected from every region of the country. More comprehensive and in-depth data on the factors affecting their attitudes towards distance education and their perceptions of readiness for e-learning can be revealed by conducting one-to-one interviews with students. This can provide an overall questioning and discussion of the results. Lastly, the views of lecturers and university students on these subjects can be compared.

**Acknowledgements:** We would like to thank Karabuk University Distance Education Application and Research Center for the support in the conduct of the research, Mr. Kiymaz and Mr. Ocel for proofreading the manuscript, and two anonymous reviewers for their constructive feedback.

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