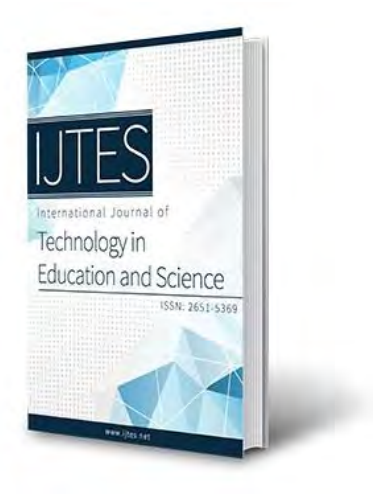

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Abstract

This study, it was aimed to examine the attitudes of university students receiving distance education towards distance education in terms of various demographic characteristics. The survey method, one of the quantitative research methods, was used in the study. 764 university students who were selected by the criterion sampling method and who received distance education in the COVID-19 pandemic participated in the study. In the collection of data, the Attitude Scale towards Distance Education was used and the data were collected online with the prepared form. Various statistical analyses were made on the collected data and the results were discussed within the framework of research questions. As a result of the analysis, it was concluded that university students' attitudes towards distance education were low. It has been observed that the scores of the scale of attitude towards distance education differ in terms of gender and grade level. It was also observed in the study that having a computer and internet connection at home and the level of participation in the virtual classrooms had a positive effect on the attitude towards distance education. In this period when distance education is not a choice but a necessity, it is recommended that the education to be provided should be planned well to achieve the expected quality and to increase the level of success. It is thought that these results obtained from the study will contribute to distance education institutions and planners.

Introduction

The Coronavirus, which emerged in China in December 2019 (Wu & McGoogan, 2020), spread all over the world after a certain period of time. After it threatened health as an epidemic, it was recommended by the World Health Organization (2020) to take various measures to stop this spread. Attention to social distancing and cleanliness, curfews and the obligation to use masks were among these measures. Like every sector, education has had its share of this situation. When it was understood that the epidemic would not stop in a short time after the schools were vacationed in the first place, distance education was started at all education levels. The distance education method, which was mostly used in associate degree, undergraduate, and graduate programs before the pandemic, started to be used at all levels of education, including primary and secondary schools, in the pandemic. In 143 countries around the world, nationwide school closures took place, while some other countries implemented localized closures (Yucesoy-Ozkan, Kaya, Gulboy, Altun, & Oncul, 2020). After the outbreak reported in Turkey in March 2020, all social activities in schools under the new COVID-19 measures by the Ministry of National Education (MNE) have been canceled. When it is understood that the epidemic cannot be

brought under control in a short time, MNE decided to make distance learning courses by using electronic resources, Education Information Network (EIN) platform, and Turkey Radio, and Television Institution EIN Channel (EIN-TV). In the same month, it was decided that education would be given remotely, by all university senates.

Distance education is a teaching method that eliminates the need for students and teachers to be in the same environment. Considering the time of schools communicating with students by letter, this method, which dates back to ancient times, was already beginning to be a popular education model before the pandemic with the spread of the internet and mass media (Şimşek, İskenderoğlu, & İskenderoğlu, 2010). Distance education provides many benefits for students like as convenience (Poole, 2000), flexibility (Chizmar & Walbert, 1999), encouragement of interaction (Dascalu, Bodea, Lytras, De Pablos, & Burlacu, 2014), and collaboration with students and teachers from different schools (Yurdugül & Sırakaya, 2013). Distance education, in its simplest definition, is known as the distance between the person giving and receiving the education (Dabaj, 2009). However, concepts such as distance, independence from time and space, and interaction in distance education are important terms that have so many meanings that they are almost useless unless certain sub-meanings are defined and generally agreed upon (Moore, 1989). For this reason, the meaning of these terms should be clearly stated to the educators and students who are faced with distance education for the first time. Knowing what kind of a system distance education is will enable students to benefit more from this system. Cook and Dupras (2004) acknowledge that the most effective platforms in distance education allow students to interact with the material. Using this method, students can follow information at their own pace and participate in courses through feedback and comments. It is wondered whether this situation is considered in the distance education practices that are mandatory in the pandemic.

The distance education model, which has many positive and negative opinions and many kinds of research, was forced to be used in all education levels after the COVID-19 pandemic. This obligation has left many of the conditions required for quality distance education to be ignored. For example; since face-to-face education continued to be taught in virtual classroom environments, there was not enough time to develop the contents for distance education and share through learning management systems. The pandemic required the reconsideration of previous studies on distance education. Although there were problems such as limited interaction, infrastructure problems, and lack of equipment, it was observed that education could be carried out in some way even under extraordinary conditions such as pandemic thanks to distance education (Hebebci, Bertiz, & Alan, 2020). However, ElSaheli-Elhage (2021) concluded in her study that students and teachers have a low level of preparation for distance education.

According to Tavşancıl (2002), attitude is a phenomenon that is gained by learning, guides the behavior of the individual, and causes bias in the decision-making process. The cognitive element of the attitude is gained through the education processes or experiences of individuals on the relevant subject. Before the COVID-19 pandemic, it is possible to encounter a lot of attitude studies towards distance education. These studies show that there is a positive attitude towards distance education (Knowles & Kerkman, 2007; Ilter, Aksu, & Yilmaz, 2005). In addition, the results also show that there is a medium-level attitude (Ateş & Altun, 2008; Kışla, 2005;

Brinkerhoff & Koroghlanian, 2005). Considering that students adapt to distance education more easily with their computer skills (Drennan, Kennedy, & Pisarski, 2005), it is important to examine the attitude towards distance education, which was implemented at all education levels during the COVID-19 pandemic period. Arbaugh and Duray (2002) stated that students with more experience in distance education tend to be more satisfied with learning online. It is important to know the attitude of students who have met distance education at the university level for the first time towards distance education as a result of these experiences, in order to increase the quality of the education provided and to reduce the problems. Katz (2002) revealed in his study that the psychological attitudes of students facilitate the efficient use of distance education approaches differently. The study also concluded that satisfaction with learning, the level of control of the learning process, and motivation to work for distance education are positively associated with students' preferences for structured distance learning (Katz, 2002). At the same time, the time spent in the distance education environment and the frequency of participation in synchronized lessons were found to be factors affecting the distance education motivation of students (Bertiz & Kocaman Karoğlu, 2020).

The degree of success to be achieved from the compulsory distance education model should definitely be investigated. The first element to be analyzed in the analysis step, which is the first stage of an instructional design process, is the student (Şimşek, 2009). How much to benefit from a designed educational environment varies according to the individual differences of the students (Kuzgun & Deryakulu, 2014). It is easy to overcome the problems encountered in small groups in distance education. However, student characteristics at the distance education and university level applied across the country at all educational levels should be considered (Smith & Ragan, 2005).

The attitude of students who have to receive distance education during the COVID-19 pandemic is one of the important factors that will constitute a source for the redesign of distance education, which will be applied continuously if the pandemic period continues. This study is carried out in order to obtain results that will contribute to the authorities who will redesign the distance education applications implemented all over the world. Smith and Ragan (2005) mention four different characteristics of students analyzed in an instructional design process. These are cognitive, physical, affective, and social characteristics. The attitude, which is one of the student characteristics discussed in this study, is among the affective characteristics according to the above classification. Considering all these needs, this study aimed to examine the attitudes of university students who received distance education during the COVID-19 pandemic in terms of various demographic characteristics. For this purpose, answers to the following questions were sought:

1. How are the attitudes of university students towards distance education?
2. Do university students' attitudes towards distance education differ in terms of gender?
3. Do university students' attitudes towards distance education differ in terms of grade level?
4. Do university students' attitudes towards distance education differ in terms of having a computer?
5. Do university students' attitudes towards distance education differ in terms of having internet?
6. Do university students' attitudes towards distance education differ in terms of their level of participation in virtual classes?

Method

In this study, the survey method, which is one of the quantitative research methods, was used. The survey method is a type of research in which the views of the participants on a subject or their characteristics such as interest, ability, and attitude are determined (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2009).

Study Group

The universe of the study consists of university students who have taken courses with the distance education model that was implemented during the COVID-19 pandemic. The sample of the study consists of 764 university students selected by the criterion sampling method. The criteria in the study were determined as being a university-level student and taking courses by distance education during the COVID-19 pandemic period. The descriptive characteristics of the participants who gave their opinions in the study are given in Table 1.

Table 1. Descriptive Characteristics of Students

		n	%
Gender	Female	513	67.1
	Male	251	32.9
Grade Level	1st	369	48.3
	2nd	195	25.5
	3rd	84	11.0
	4th	116	15.2
Do you have a computer at home?	Yes	484	63.4
	No	280	36.6
Do you have an internet connection at home?	Yes	644	84.3
	No	120	15.7
How often do you attend virtual classes?	I attend all classes	248	32.5
	I attend most of the classes	292	38.2
	I attend some classes	109	14.3
	I can very little attend	100	13.1
	I do not attend at all	15	2.0

When Table 1 is examined, it is seen that 67.1% of the students participating in the study were female and 32.9% were male. 48.3% of the students, study in the 1st, 25.5% in the 2nd, 11% in the 3rd, and 15.2% in the 4th grade. While 63.4% of the participants own a computer, 84.3% have internet access at home. While 32.5% of the students attended all of the virtual classes, 2.0% stated that they never attended the virtual classes.

Data Collection

The data in the study were collected using the online data collection tool. The data collection tool consists of

two parts. In the first part, students' gender, grade level, computer and internet ownership at home, and the frequency of attending live lessons were asked. In the second part, the Attitude Scale towards Distance Education, which consists of 35 items developed by Kışla (2016), was used. The internal consistency coefficient (Cronbach Alpha) of the developed scale was determined as .89. Prepared online data collection tool, were delivered to university students in various cities of Turkey through social media tools. Participants meeting the criteria determined in the study were asked to fill the form on a voluntary basis.

Data Analysis

Different statistical analysis tools such as frequency, percentage, Kruskal Wallis H test, Dunnet T3 Post Hoc test, and Mann Whitney U test were used in the analysis of the data, and these analyzes were performed in a computer environment using the SPSS 23.0 statistical program. Kolmogorov-Smirnov and Shapiro-Wilk values were found to be significant at the $p<0.05$ significance level for the scores of the Attitude Scale towards Distance Education, as a result of the analyses conducted to understand the compatibility of the data to normal distribution. These findings show that the scores of the Attitude Scale towards Distance Education of the data do not comply with the normal distribution. Therefore, nonparametric tests were applied in the analysis of the data. The results of the normality test are given in Table 2.

Table 2. Normality Test Results of the Attitude Scale towards Distance Education

	Kolmogorov-Smirnov			**Shapiro-Wilk**		
	Test	s.d	p	Test	s.d	p
Attitude Scale	.061	764	.000	.969	764	.000

The internal consistency coefficient (Cronbach Alpha) of the Attitude Scale towards Distance Education was calculated as .945. A 5-point Likert-type rating was used for the options against the judgment sentences in the scale. Accordingly, the 1st, 2nd, 4th, 5th, 9th, 11th, 14th, 15th, 16th, 18th, 19th, 22nd, 23rd, 25th, 26th, 28th, 29yh, 33rd, and 34th items of the scale; while scoring "Strongly Agree" (5 points), "Agree" (4 points), "Undecided" (3 points), "Disagree" (2 points), "Strongly Disagree" (1 point), the remaining items were scored reverse. As a result of the scoring obtained, the average of the points given to each item was evaluated according to the distribution of the points given in Table 3.

Table 3. Score Ranges for Attitude Level

Level	**Minimum**	**Maximum**
Very high	4.20	5.00
High	3.40	4.19
Middle	2.60	3.39
Low	1.80	2.59
Very low	1.00	1.79

Findings

In this part of the study, the findings obtained as a result of the analysis of the data collected are mentioned. The findings are given in the order observed in the research questions.

How are the attitudes of university students towards distance education?

The distribution of the students' Attitude Scale towards Distance Education is given in Figure 1. The average score of the Attitude Scale towards Distance Education of the students participating in the study (n 7 64) was found to be x 2 46 This finding shows that considering the score ranges given in Table 3, university students attitudes towards distance education are at a low level.

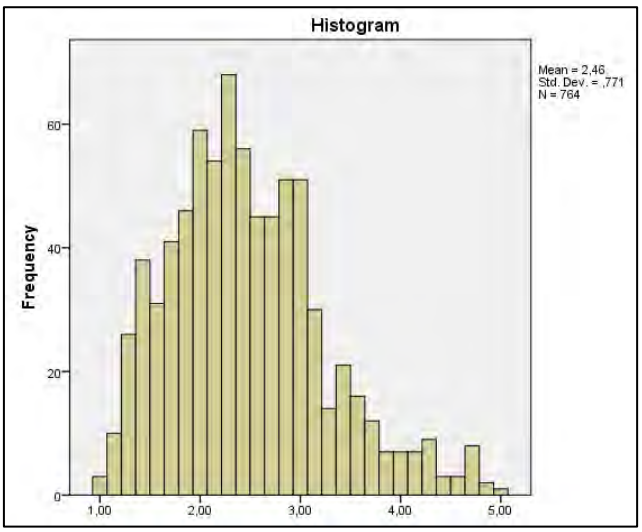

Figure 1. Distribution of Attitude Average Scores

Do university students' attitudes towards distance education differ in terms of gender?

Mann Whitney U-Test results of the Attitude Scale towards Distance Education according to gender are given in Table 4. Accordingly, a significant difference was found between the scores of the Attitude Scale towards Distance Education between genders, U=57957.50, p <0.05. When the attitude average values are examined, it was understood that the scores of the Attitude Scale towards Distance Education (=2.58) of the male students are higher than the female students (=2.41). This finding indicates that gender has an effect on the attitude towards distance education.

Table 4. The U-Test Result of the Attitude Scores According to Gender

Gender	n		Mean Rank	Sum of Ranks	U	p
Male	251	2.58	408.09	102431.50	57957.50	.025
Female	513	2.41	369.98	189798.50		

Do university students' attitudes towards distance education differ in terms of grade level?

Kruskal Wallis test results of the Attitude Scale towards Distance Education according to the grade levels of the students are given in Table 5. The analysis results show that the scores of the Attitude Scale towards Distance Education differ significantly in terms of grade levels, χ^2 (sd=3, n=764) = 18.855, p<0.05. This finding indicates that the grade level affects the attitude towards distance education. Looking at the mean rank of the groups, it is seen that the highest value is in 4th grade students. Dunnet T3 Post Hoc test was applied to understand that there is a significant difference between the groups. As a result of the Dunnet T3 Post Hoc test, it was found that 4th grade students' Attitude Scale towards Distance Education scores were significantly higher than the scores of other classes. There is no significant difference between the scores of the other classes in the Attitude Scale towards Distance Education.

Table 5. Kruskal Wallis Test Result of the Attitude Scores According to the to the Grade Level

Grade Level	n		Mean Rank	sd	χ^2	p	Significant Difference
1st	369	2.43	377.12	3	18.855	.000	1st - 4th
2nd	195	2.35	351.54				2nd - 4th
3rd	84	2.42	370.13				3rd - 4th
4th	116	2.78	460.61				

Do university students' attitudes towards distance education differ in terms of having a computer?

Mann Whitney U-Test results are given in Table 6 according to the status of having a computer of the Attitude Scale towards Distance Education. Accordingly, it was found that there is a significant difference between the scores of the Attitude Scale towards Distance Education of those who have a computer and those who do not, U=192613.00, p<0.05. Considering the mean ranks, it is understood that the scores of the students with a computer in the Attitude Scale towards Distance Education are higher than the students who do not. This finding shows that having a computer has an effect on the attitude towards distance education.

Table 6. U-Test Result of the Attitude Scores According to Having a Computer

Havin a computer	n		Mean Rank	Sum of Ranks	U	p
Yes	484	2.53	397.96	192613.00	60277.00	0.011
No	280	2.36	355.78	99617.00		

Do university students' attitudes towards distance education differ in terms of having internet?

Mann Whitney U-Test results of the Attitude Scale towards Distance Education according to the status of having an internet connection at home are given in Table 7. Accordingly, it was found that there is a significant difference between the scores of the Attitude Scale towards Distance Education of those who have an internet connection at home and those who do not, U=33582.50, p<0.05. Considering the mean rank, it is understood that students who have an internet connection at home have higher scores on the Attitude Scale towards

Distance Education than students who do not. This finding shows that having an internet connection at home affects the attitude towards distance education.

Table 7. U-Test Result of the Attitude Scores According to Having an Internet Connection

Having an internet connection	n		Mean Rank	Sum of Ranks	U	p
Yes	644	2.49	390.35	251387.50	33582.50	0.023
No	120	2.31	340.35	40842.50		

Do university students' attitudes towards distance education differ in terms of their level of participation in virtual classes?

Kruskal Wallis test results of the scores of the Attitude Scale towards Distance Education according to the participation levels of the students in virtual classes are given in Table 8. The results of the analysis show that the scores of the Attitudes towards Distance Education Scale differ significantly in terms of levels of attendance in virtual classes χ^2 (sd=4, n=764) =15.643, p<0.05. This finding shows that the level of participation in virtual classes affects the attitude towards distance education. Looking at the average rank of the groups, it is seen that the highest value is in the students who fully attend virtual classes. Dunnet T3 Post Hoc test was used to understand which groups had a significant difference.

The results of the Dunnet T3 Post Hoc test differ significantly with the scores of the Attitude Scale towards Distance Education of the students who attended all virtual classes and the scores of the groups of students who attended the lessons very little and attended some lessons. There is no significant difference between the scores of the other groups of the Attitude Scale towards Distance Education.

Table 8. Kruskal Wallis Test Result of the Attitude Scores According to the Attendance in Virtual Classes

Attendance in Virtual Classes	n		Mean Rank	sd	χ^2	p	Significant Difference
0- Never	15	2.28	356.80	4	15.643	.004	1-4
1- Very Little	100	2.26	328.32				2-4
2- Some Courses	109	2.37	364.17				
3- Most of the Courses	292	2.45	374.91				
4- All Courses	248	2.61	422.90				

Discussion and Conclusion

In this study, in which attitudes towards distance education were examined, the results showed that university students have a low attitude towards distance education. The fact that students were caught unprepared for distance education, which they had to attend for the first time, may have caused such a result. Unger and Meiran (2020) state that students who first encountered the distance education system, which had to be implemented

during the COVID-19 pandemic, were initially anxious and these concerns decreased after a few weeks. Continuing education remotely in order to prevent disruption of education due to the schools closed in order to prevent the spread of the Coronavirus has made anxiety in students, which has negatively affected students' attitudes towards distance education. This shows that it is important to inform students in advance before starting distance education. In studies conducted before the pandemic (Ateş & Altun, 2008; Brinkerhoff & Koroghlanian, 2005; Kışla, 2005) it is seen that there are moderate (undecided) attitudes towards distance education.

University students' attitudes towards distance education were examined in terms of gender, and it was concluded that the average values of attitudes of both groups were low. Despite this, it was observed that male students have a higher attitude compared to female students. This may be due to the fact that, according to a generally accepted opinion, male students have a higher tendency to use technology than female students (Wang, Luo, Gao, & Kong, 2012; Yau & Cheng, 2012). Similarly, Sezer (2016) obtained a result in favor of male students in his study However, Işık, Karakış, and Güler (2010) found a result in favor of female students, while Ateş and Altun (2008) and Kışla (2005) found that students' attitudes towards distance education did not show a significant difference in terms of gender.

The average attitude of the students towards distance education was examined in terms of grade level and it was observed that 4th grade students were at the middle level and the other grades were at a low level. Although there is a significant difference between the average attitude values of 4th grade students and other grades, no significant difference was observed among the first 3 grades. In Turkey, final year university students are usually required to take the exams such as Public Personnel Selection Exam or Academic Postgraduate Education Exam to find a job after graduation. It is common to use online tests and practice software in preparation for these exams (Bozkurt & Tekedere, 2013). The higher attitude of final year students may be due to this. On the contrary, some studies (Ateş & Altun, 2008; Sezer, 2016) show that grade level does not affect attitude towards distance education. 60.5% of that distance education universities in Turkey, the common core courses in 1st grade taught via distance education (Kocatürk-Kapucu & Uşun, 2020). Despite this, the fact that 1st-grade students' attitudes towards distance education are not at the expected level raises the suspicion that the education provided is not of the desired quality.

Having a computer and internet connection at home and the level of participation in virtual classes have positively affected students' attitudes towards distance education. This finding is supported by similar studies (Chang & Tung, 2008; Venkatesh & Davis, 1996). Similarly, Drennan, Kennedy, and Pisarski (2005) stated that students with advanced computer skills adapt easily to distance education lessons and have positive opinions about distance education On the contrary, Özdemir, Akbaş, and Çakır (2009) stated that there is no significant relationship between information literacy levels and their attitudes towards distance learning.

Recommendations

While the studies conducted before the COVID-19 pandemic show that the attitudes towards distance education

are at a moderate level, it has been concluded that they are at a low level in this study conducted during the pandemic. Based on this result, the need for studies to increase students' attitudes towards distance education arose. The system analysis process should be carried out carefully in the studies to be carried out, and the results of these and similar studies will be useful at this stage.

In the study, it was determined that having a computer and internet connection at home positively affected the attitude towards distance education. Besides, the level of participation in live lessons also has a positive effect on students. Students who do not have a computer and internet connection at home either cannot attend live lessons or try to enter their mobile phones. It is recommended that the lessons be taught by considering the high number of these students and students are encouraged to participate in live lessons. This study can be repeated at regular intervals and it can be investigated whether the low level of attitude increases gradually. Thus, it will be possible to eliminate the shortcomings of education with the results obtained in each step.

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