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Satisfaction levels of undergraduate students with distance education during the covid-19 pandemic*

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Abstract

The Council of Higher Education (CoHE) switched to distance education with digital tools in all universities as of March 23, 2020. The relevant decision was put into effect by the universities. Since this date, distance education has been utilized in almost all programs in universities. Covid 19 Pandemic period was finished, and face-to-face education was started in 2021. This research aims to analyze the satisfaction levels of undergraduate students with distance education during the Covid-19 pandemic. In this context, the research study group designed in the scanning model consists of 1605 students enrolled at Tekirdağ Namık Kemal University. The research data were obtained with the "Scale on the Satisfaction Levels of University Students with Distance Education," which was developed by Baltacı, Mercan-Annak, Akbay, Akaydın and Sökmensüer (2021) and whose validity and reliability have been proven. The SPSS Statistics 20 program analyzed the data. It was investigated whether the satisfaction levels of undergraduate students with distance education showed a statistically significant difference concerning certain variables during the Covid-19 pandemic. The study determined that undergraduate students were generally satisfied with the distance education they received during the Covid-19 pandemic. A statistically significant difference was found between the satisfaction levels of undergraduate students with distance education applications based on gender, department, self-efficacy perception of computer use skills, and having problems accessing distance education. On the other hand, no statistically significant difference was seen between the satisfaction levels of undergraduate students with distance education applications based on age, grade level, regular Internet access, and distance education status before the epidemic.

Keywords: Distance education, Covid-19, Satisfaction, Undergraduate students.

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INTRODUCTION

The 21st century, in which information and communication technologies are rapidly evolving, can be referred to as both the information age and the digital age (Dere & Demirci, 2021). The rapid development of information and communication technologies in this century makes our lives easier. These information and communication technology advancements also contribute significantly to developing distance education applications for the global education network. Utilizing information technologies, educators insist on the implementation of global education practices. Distance education is one of the models that offer global education opportunities (İşman, 2011). Distance education is a teaching environment in which various methods and materials are presented using digital tools to facilitate learning (Simonson, Smaldino & Zvacek, 2015; Sun, Tsai, Finger, Chen & Yeh, 2008). The rapid development of information and communication technologies has increased the prevalence of distance education, and the recent Covid-19 pandemic has made this prevalence even more imperative.

The Covid-19 pandemic began in Wuhan, China, at the end of 2019 and spread rapidly in 2020, gaining global influence. The first case of Covid-19 in Turkey was confirmed on March 11, 2020, and the World Health Organization declared a pandemic on the same day (Council of Higher Education [CoHE], 2020; World Health Organization [WHO], 2020). After the Covid-19 pandemic declaration, in order to prevent the pandemic from spreading further, distance education has been implemented at all levels of education, from primary school to university (Dere & Akkaya, 2022). In this regard, the Council of Higher Education (CoHE) decided on March 18, 2020, that all universities would implement a distance education process with digital opportunities as of March 23, 2020, and the relevant decision was put into practice by universities (Council of Higher Education [CoHE], 2020; Karadağ & Yücel, 2020). Since this date, distance education has been offered in almost all university programs.

As part of CoHE's decision to switch all universities in Turkey to distance education with digital opportunities as of March 23, 2020, 121 (64%) of 189 universities began distance education on March 23, 2020, 41 (21.6%) on March 30, 2020, and 25 (13.2%) on April 6, 2020 (CoHE, 2020). Turkish universities offered the total number of courses during the spring semester of the 2019-2020 academic year was 736,341, while the total number of distance education courses opened following the global pandemic was 668,008. Therefore, 90.1% of the courses in the spring semester were offered in distance education. Almost all universities (99.2%) began offering their theoretical courses, and approximately 89% began offering the theoretical parts of their applied courses via distance education (CoHE, 2020). In Tekirdağ Namık Kemal University, where the research was conducted, CoHE 5ı courses (CoHE, 1981) had already been offered in distance education before the Covid-19 pandemic through the Distance Education Application and Research Center (NKUZEM). Tekirdağ Namık Kemal University continued distance education through 100 virtual classrooms with an asynchronous structure as of March 23, 2020, and a synchronous structure as of March 30, 2020, per the CoHE decision mentioned above.,

In addition, formal education had been supplemented with distance education in higher education before the Covid-19 pandemic. In this period, distance education in higher education institutions primarily consisted of Atatürk's Principles and History of Revolution, Turkish Language and English courses, and a few other standard compulsory courses (Erol-Şahin, 2019; Öztaş & Kılıç, 2017). However, distance education was also implemented for other courses due to the necessity arising from the Covid-19 pandemic after March 23, 2020.

Literature Review

The literature review reveals a few studies on the satisfaction perceptions of undergraduate students toward distance education in Turkey. Various studies (Akbaba, Kaymakcı, Birbudak & Kılcan, 2016; Barış, 2015; Birişci, 2013; Doğan & Tatık, 2015; Eygü & Karaman, 2013; Kırali & Alcı, 2016; Kışla, 2005; Öztaş, 2018; Öztaş & Kılıç, 2017; Sümer, 2016; Ulusoy, 2009) on distance education offered at university level

before the Covid-19 pandemic in Turkey had been conducted. However, distance education has been applied in almost all university programs since the Covid-19 pandemic in Turkey, which refers to a recent period, studies have been carried out. They will be carried out in universities during and after the Covid-19 pandemic and provide more reliable data on distance education. In this sense, determining the satisfaction levels of undergraduate students enrolled in distance education courses during the Covid-19 pandemic is crucial for further improvement.

In the research conducted by Eygü & Karaman (2013) before the Covid-19 pandemic process, in which the satisfaction perceptions of university students towards distance education were examined, it was concluded that the students considered distance education programs as an opportunity for themselves. In their study to determine the relationship between the cognitive flexibility levels of distance education students and their satisfaction with distance education during the pandemic period, Özkılıçcı & Uysal-Cantürk (2020) found that student satisfaction increases in parallel with cognitive flexibility and negative affect have a partial mediation effect on the relationship between cognitive flexibility and the level of student satisfaction. In the research conducted by Basith, Rosmaiyadi, Triani & Fitri (2020) in Indonesia, in the research by Nenko, Kybalna & Snisarenko (2020) in Ukraine, and the research by Malkawi, Bawaneh & Bawa'aneh (2021) at the United Arab Emirates University, it was found that the students were generally satisfied with the educational practices during the Covid-19 pandemic. The study by Günel & Güler (2021) discovered that students did not experience problems other than systemic issues in distance education and accepted distance education as a good alternative during the pandemic. Yaprak & Koçak (2020) evaluated distance education in terms of the satisfaction of university students during the COVID-19 pandemic, and it was concluded that students were not generally satisfied. In the study by Karadağ & Yücel (2020), in which undergraduate students' satisfaction with the distance education practices of universities in Turkey during the Covid-19 pandemic process was examined, it was found that while undergraduate students were satisfied with the Higher Education Council, they were dissatisfied with the management of their university/faculty and especially digital content/teaching materials. In the study conducted by Tüzün & Yörük-Toraman (2021) to explore the factors likely to affect the satisfaction of university students with distance education during the pandemic period, it was concluded that they were not generally satisfied with distance education and that a majority of them preferred face-to-face education to distance education in terms of various education components.

In order to improve the efficiency of distance education, it is essential to determine student satisfaction with distance education, which has had a wide range of applications at the university level throughout the Covid-19 pandemic. This research aims to analyze the satisfaction levels of undergraduate students with distance education during the Covid-19 pandemic. When the literature is reviewed, it is believed that this study will contribute to the field since it is observed that the studies on the satisfaction levels of undergraduate students with distance education carried out during the Covid-19 pandemic are insufficient. This research will pave the way for determining students' satisfaction levels with distance education at the university level during the Covid-19 pandemic.

In this regard, answers to the following questions were sought in the study:
Do satisfaction levels of undergraduate students with distance education applications differ based on the;

- Gender
- Age
- Department
- Grade Level
- Regular Internet access
- Distance education experience before the epidemic
- Self-efficacy perception of computer use skills
- Access means to distance education
- Experiencing problems in access to distance education?

METHOD

Research Model

In this study, a survey model was used to determine the satisfaction levels of undergraduate students with distance education applications. Survey models are research approaches that aim to describe a past or present situation as it is. The event, individual, or object that is the subject of the research is defined within its conditions and without any effort to change or influence it (Karasar, 2017, p. 109).

Universe and Sample

The research sample comprises 1605 students (2nd, 3rd, and 4th grades) studying at Tekirdağ Namık Kemal University. Since it is impossible to reach all these students in practice, the simple random sampling method (Stratton, 2021) was preferred. During the application of this method, 664 students were taken into the sample using the convenience sampling method by ensuring that all students present on the days when the scale was applied were included in the sample. The 664 students who participated in to research demographic information is presented in detail in Table 1 below:

Table 1. Demographic Information of Participants

Variables	Categories	*f*	%
Gender	Female	371	55,9
	Male	293	44,1
	Total	664	100
Age	20 and under	113	17,0
	21	169	25,5
	22	171	25,8
	23	110	16,6
	24 and above	99	14,9
	Total	664	100
Department (Dept)	German Language and Literature (GLL)	60	9
	Archeology (AR)	20	3
	Biology (BI)	15	2,3
	Geography (GE)	23	3,5
	Physics (PY)	9	1,4
	French Language and Literature (FLL)	71	10,7
	English Language and Literature (ELL)	116	17,5
	Chemistry (CH)	56	8,4
	Mathematics (MA)	74	11,1
	Psychology (PS)	22	3,3
	Sociology (SO)	65	9,8
	History (HI)	61	9,2

	Turkish Language and Literature (TLL)	72	10,8
	Total	664	100
High School Type that the Students in the Sampling Graduated from	Anatolian High School	405	61
	Anatolian Vocational High School	72	10,8
	Industrial Vocational High School	10	1,5
	Science High School	8	1,2
	General High School	35	5,3
	İmam Hatip High School	51	7,7
	Vocational High School	30	4,5
	Teacher Training High School	3	0,5
	Social Sciences High School	1	0,2
	Technical High School	4	0,6
	Open Education High School	6	0,9
	Multi-Program High School	2	0,3
	Basic High School	8	1,2
	Private High School	5	0,8
	Other	23	3,5
	Total	664	100
Grade Level	Second Year	250	37,7
	Third Year	215	32,4
	Fourth Year	199	30,0
	Total	664	100
Regular Internet Access	Yes	532	80,7
	No	30	4,6
	Partly	97	14,7
	Total	664	100
Distance Education Status Before the Epidemic	Yes	335	51,9
	No	310	48,1
	Total	664	100
Self-Efficacy Perception of Computer Use Skills	Very Good	147	22,2
	Good	213	32,2
	Average	259	39,2
	Poor	36	5,4
	Very Poor	6	0,9
	Total	664	100
Access Means to Distance Education	Personal Computer	643	97
	Internet Cafe	4	0,6
	Someone Else's Computer	11	1,7

	Computers at University	5	0,8
	Total	664	100
Experiencing Problems in Accessing Distance Education	Yes	315	48
	No	112	17,1
	Partly	229	34,9
	Total	664	100
Device Type Used for Distance Education Access	Tablet	60	9
	Smart Phone	440	66,3
	Desktop Computer	137	20,6
	Laptop	516	77,7
	Total	664	100

The table shows that 55.9% of the respondents are female, and 44.1% are male. In addition, 61% of the students who responded to the scale graduated from Anatolian High School, 10.8% from Anatolian Vocational High School, 1.5% from Industrial Vocational High School, 1.2% from Science High School, 5.3% from General High School, 7.7% from Imam Hatip High School, 4.5% from Vocational High School, 0.5% from Teacher Training High School, 0.2% from Social Sciences High School, 0.6% from Technical High School, 0.9% from Open Education High School, 0.3% from Multi-Program High School, 1.2% from Basic High School, and 3.5% from other types of high schools. In addition, 17% of the students are aged 20 and under, 25.5% are 21, 25.8% are 22, 16.6% are 23, and 14.9% are 24 and above.

On the other hand, 9% of the respondents were studying German Language and Literature, 3% Archeology, 2.3% Biology, 3.5% Geography, 1.4% Physics, 10.7% French Language and Literature, 17.5% English Language and Literature, 8.4% Chemistry, 11.1% Mathematics, 3.3% Psychology, 9.8% Sociology, 9.2% History, and 10.8% Turkish Language and Literature. In addition, 37.7% of the participants were in the 2nd year, 32.4% in the 3rd year, and 30% in the 4th year. In addition, 80.7% of the respondents stated that they have a stable internet connection, 14.7% stated that they have a partial internet connection, and 4.6% stated that they do not have a stable internet connection. In addition, 51.9% of the students stated that they had taken a course through distance education before the Covid-19 pandemic period, and 48.1% stated that they had not taken any distance education courses before.

22.2% of the respondents defined their computer skills as "very good," 32.2% as "good," 39.2% as "average," 5.4% as "poor," and 0.9% as "very poor." In addition, 97% of the participants' accessed distance education from personal computers, 0.6% from devices in internet cafes, 1.7% from someone else's computers, and 0.8% from university computers. In addition, 48% experienced problems accessing distance education, 17.1% experienced no problems, and 34.9% experienced problems partially. Finally, 9% of the students' accessed distance education with a tablet, 66.3% with a smartphone, 20.6% with a desktop computer, and 77.7% with a laptop.

Data Collection Tool

The demographic information form prepared by the researcher and the "Scale on the Satisfaction Levels of University Students with Distance Education " developed by Baltacı, Mercan-Annak, Akbay, Akaydın & Sökmensüer (2021), whose validity and reliability have been proven, were used to collect the data of the research. The minimum score obtained from this 28-item scale is "28", and the maximum score is "140". As the score obtained from the scale increases, the satisfaction level of students with distance education applications also increases (Baltacı et al., 2021).

Reliability and Validity

The Scale on the Satisfaction of University Students with Distance Education (SSUSDE) was found to be reliable (α > 0.70), and the mean score of SUSSDE was calculated as 97.06 ± 21.95.

Table 2. Reliability and Average Values of the Scale on the University Students' Satisfaction with Distance Education

Scale	***Mean****	***Cronbach Alpha (α)***
The Scale of the University Students' Satisfaction with Distance Education (SUSSDE)	97,06 ± 21,95	0,95

* The minimum score taken from the scale is "28" and the maximum score is "140". As the score obtained from the scale increases, the satisfaction level of students with distance education applications also increases (Baltacı et al., 2021).

It was reported that "the result of factor analysis indicates that the scale has a satisfactory level of construct validity with a 2-dimensional structure. The item test correlation findings show that the scale items measure the same structure validly." (Baltacı et al, 2021).

Data Analysis

IBM SPSS Statistics software was used to analyze the collected data. Independent Samples T-Test was used to compare the means of two groups, and one-way ANOVA was applied to compare more than two groups using the scores of "the Scale on the Satisfaction Levels of University Students Distance Education." Kolmogorov-Smirnov (Shapiro-Wilk if n<30) Normality test was utilized to check the normality assumption required for these parametric tests. The missing data were completed with the median to calculate the scale scores. In cases where normality assumption was not achieved -as non-parametric tests- the Mann-Whityney U Test was used to compare the means of two groups based on the scale scores, and the Kruskal-Wallis H Test was used to compare more than two groups. The significance level of 5% was taken as the basis for all hypothesis tests.

Research Ethics

Before the study, scientific study permission was obtained from Tekirdağ Namık Kemal University Scientific Research and Publication Ethics Committee with the decision numbered T2022-841 on 14.03.2022.

FINDINGS

Findings of the First Research Question

The first research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education by gender. The results of this question are presented in Table 4.

Table 4. Mann-Whitney Test Results for Mean Rank of Scale Scores by Gender

Variable	**Category**	**N**	**Mean**	**Standard Deviation**	**Mean Rank**	**Rank Sum**	**Mann-Whitney U**	**p**
Gender	Female	371	95,18	22,40	318,27	118078	49072	***0,031****
	Male	293	99,43	21,16	350,52	102702		

At the end of the Mann-Whitney Test, a statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on the gender variable (U=49072, p< 0.05). In the sample, male students' satisfaction levels were $\bar{X}$=99,43, while female students' satisfaction levels were $\bar{X}$=95,18. According to this, gender was an influential factor in the satisfaction levels of undergraduate students with distance education applications.

Findings of the Second Research Question

The second research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education by age. The results of this question are presented in Table 5.

Table 5. Kruskal-Wallis Test Results for Mean Rank of Scale Scores by Age

Variable	Category	N	Mean	Standard Deviation	Mean Rank	Chi-Square	df	p
Age	20 or below	113	96,04	18,46	316,66	3,062	4	*0,548*
	21 years old	169	95,99	21,63	322,27			
	22 years old	171	97,22	21,31	328,49			
	23 years old	110	98,13	22,55	345,42			
	24 or above	99	98,10	26,33	353,93			

At the end of the Kruskal-Wallis test, no statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on the age variable (H(4)= 3.062, p=0.548. According to this, age was not an effective factor in the satisfaction levels of undergraduate students with distance education applications.

Findings of the Third Research Question

The third research question is whether there is a significant difference in the satisfaction levels of undergraduate students for distance education by the department. The results of the third question are summarized in Table 6.

Table 6. Kruskal-Wallis Test Results for Mean Rank of Scale Scores by Department

Variable	Category	N	Mean.	Standard Deviation	Mean Rank	Chi-Square	df	p	Difference
Department	GLL	60	97,50	20,51	341,53	50,048	12	***0,000****	
	AR	20	118,20	25,33	529,75				*(AR)>(PS)*
	BI	15	107,60	19,39	414,77				*(AR)>(FLL)*
	GE	23	98,13	22,74	339,04				*(AR)>(SO)*
	PY	9	91,33	26,16	303,67				*(AR)>(TLL)*
	FLL	71	86,54	24,04	255,13				*(AR)>(CH)*
	ALL	116	98,51	20,10	340,51				*(AR)>(ELL)*
	CH	56	96,33	25,54	328,49				*(AR)>(GLL)*
	MA	74	99,49	20,80	356,56				*(AR)>(MA)*
	PS	22	85,95	14,83	220,66				*(HI)>(FLL)*
	SO	65	95,34	21,20	309,89				
	HI	61	103,21	20,43	378,99				
	TLL	72	94,81	17,71	311,53				

At the end of the Kruskal-Wallis test, a statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on the department variable (H(12)= 50.048, p < 0.05). All binary groups that are the source of this significant difference are shown

in the table above. According to this, department, as a variable, was found to be an effective factor in the satisfaction levels of undergraduate students with distance education.

Findings of the Fourth Research Question

The fourth research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education by grade level. The results of the fourth question are shown in Table 7.

Table 7. Kruskal-Wallis Test Results for Mean Rank of Scale Scores by Grade Level

Variable	Category	N	Mean	Standard Deviation	Mean Rank	Chi-Square	df	p
Grade Level	2nd year	250	96,94	19,96	326,87	1,917	2	*0,383*
	3rd year	215	95,62	23,18	324,53			
	4th year	199	98,75	22,93	348,18			

At the end of the Kruskal-Wallis test, there was no statistically significant difference between the satisfaction levels of undergraduate students with distance education based on the grade level variable (H(2)= 1.917, p=0.383). According to this, grade level was not an effective factor in the satisfaction levels of undergraduate students with distance education.

Findings of the Fifth Research Question

The fifth research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education based on having regular Internet access. The results of the fifth question are summarized in Table 8.

Table 8. Variance Analysis Result Regarding Mean of Scale Scores by Regular Internet Access

Category	n	Mean	Standard Deviation	Source of Variance	Sum of Squares	sd	Mean of Squares	*f*	p
Yes	532	97,7782	21,8229	**Between Groups**	1948,49	2	974,25	2,023	0,133
No	30	96,7667	21,8805						
Partly	97	92,9072	22,6142	**Within Group**	315853,36	656	481,48		
Total	659	97,02	21,98	**Total**	317801,85	658			

At the end of the Variance Analysis, No statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on regular Internet access (F(2, 656)=2.023, p=0.133). According to this, regular Internet access was not found to be an effective factor in the satisfaction levels of undergraduate students with distance education applications.

Findings of the Sixth Research Question

The sixth research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education based on their distance education status before the epidemic. The results of the sixth question are summarized in Table 9.

Table 9. Mann-Whitney Test Results for Mean Rank of Scale Scores by Distance Education Status before the Epidemic (DESBE)

Variable	Category	N	Mean	Standard Deviation	Mean Rank	Rank Sum	Mann-Whitney U	p
DESBE	Yes	335	97,92	22,55	333,90	111857,50	48272,500	0,122
	No	310	95,55	21,20	311,22	96477,50		

At the end of the Mann-Whitney Test, there was no statistically significant difference between the satisfaction levels of undergraduate students with distance education based on their distance education status before the epidemic (U=48272,500, p = 0.122). According to this, distance education status before the epidemic was not found to be an effective factor in the satisfaction levels of undergraduate students with distance education.

Findings of the Seventh Research Question

The seventh research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education based on their self-efficacy perception of computer use skills. The results of the seventh question are summarized in Table 10.

Table 10. Variance Analysis Result Regarding Mean of Scale Scores by Self-Efficacy Perception of Computer Use Skills

Category	n	Mean	Standard Deviation	Source of Variance	Sum of Squares	df	Mean of Squares	*f*	p	Diff.
Very good **(5)**	147	101,85	23,13787					4,040	***0,003****	***(5)>(3)***
Good **(4)**	213	98,29	20,72073	**Between Groups**	7669,17	4	1917,29			
Average **(3)**	259	94,66	21,67946							
Poor **(2)**	36	89,83	23,76973							
Very poor **(1)**	6	87,00	14,93988	**Within Group**	311335,44	656	474,60			
Total	661	97,10	21,99	**Total**	319004,61	660				

At the end of the Variance Analysis, a statistically significant difference was found between undergraduate students' satisfaction levels with distance education based on their self-efficacy perceptions of computer use skills (F(4, 656)=4,040, p < 0.05). In the sample, the satisfaction levels of those who expressed their computer use skills as "quite good" were found to be $\bar{X}$=101.85, while the satisfaction levels of those who expressed it as "Average" were found to be $\bar{X}$=94.66. According to this, the self-efficacy perception of computer use skills was an effective factor in the satisfaction levels of undergraduate students with distance education.

Findings of the Eighth Research Question

The eighth research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education based on access means to distance education. The results of this question are presented in Table 11.

Table 11. Variance Analysis Result Regarding Mean of Scale Scores by Access Means to Distance Education

Category	n	Mean	Standard Deviation	Source of Variance	Sum of Squares	df	Mean of Squares	*f*	p
Personal Computer	643	97,23	22,06	**Between Groups**	1812,29	3	604,10		

Internet Cafe	4	103,50	7,55					1,254	0,289
Someone Else's Computer	11	84,91	18,40	**Within Groups**	317498,64	659	481,79		
Computers at University	5	96,20	20,14						
Total	663	97,06	21,96	**Total**	319310,94	662			

At the end of the Variance Analysis, no statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on access means to distance education (F(3, 659)=1,254, p=0,289). According to this, access means to distance education was not found to be an effective factor in the satisfaction levels of undergraduate students for distance education.

Findings of the Ninth Research Question

The ninth research question is whether there is a significant difference in the satisfaction levels of undergraduate students with distance education based on experiencing problems accessing distance education. The results of this question are presented in Table 12.

Table 12. Kruskal-Wallis Test Results for Mean Rank of Scale Scores by the Status of Experiencing Problems in Accessing Distance Education (SEPADE)

Variable	Category	N	Mean	Standard Deviation	Mean Rank	Chi-Square	df	p	Difference
SEPADE	Y	315	89,18	21,746	260,41	101,477	2	***0,000****	*(N)>(P)* *(N)>(Y)* *(P)>(Y)*
	N	112	112,60	19,08	462,12				
	Partly **(P)**	229	100,12	18,57	356,81				

At the end of the Kruskal-Wallis test, a statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on experiencing problems in accessing distance education (H(2)= 101.477, p <0.05). All binary groups that are the source of this significant difference are shown in the table above. According to this, experiencing problems in accessing distance education was an effective factor in the satisfaction levels of undergraduate students with distance education.

DISCUSSION AND CONCLUSION

This study examined the satisfaction levels of undergraduate students with distance education during the Covid-19 pandemic. Based on the gender variable, a statistically significant difference was found between the satisfaction levels of undergraduate students with distance education (U=49072, p< 0.05). According to this, male students (99.43±21.16) are significantly more satisfied with distance education than female students (95.18±22.40). This finding is also supported by studies conducted by Türkoğlu (2015), Fidan (2016), Öztaş & Kılıç (2017), Yenilmez, Turgut & Balbağ (2017), Er-Türküresin (2020), Yaprak & Koçak (2020), Buluk & Eşitti (2021). Male students' satisfaction levels are thought to be higher because male students' technology literacy is higher than female students. In addition, no difference was found in the research by Kışla (2005), Ateş & Altun (2008), Barış (2015), Yıldız (2016), Öztaş (2018), Karadağ & Yücel (2020), Nenko et al. (2020), Nenko, Kybalna & Snisarenko (2020), Terzi, Akalın & Erdal (2020), Malkawi, Bawaneh & Bawa'aneh (2021), Yakar & Yıldırım-Yakar (2021) on distance education satisfaction by gender. Based on the findings of this research and other studies in the literature, it is seen that

different results have been reached regarding the satisfaction levels of undergraduate students with distance education based on the gender variable.

There was no statistically significant difference between the satisfaction levels of undergraduate students with distance education based on the age variable (H(4)= 3.062, p=0.548). According to this, age was not an effective factor in the satisfaction levels of undergraduate students with distance education. Furthermore, in the studies conducted by Terzi, Akalın & Erdal (2020), and Yakar & Yıldırım-Yakar (2021), there was no difference in satisfaction with distance education based on age. However, in the findings of Kırmacı, Çakırel & Aslan's (2022) research, it was observed that as the undergraduate students' age increases, satisfaction increases, and they can devote more time to online courses, other courses, and themselves.

Based on the department variable, a statistically significant difference was found between the satisfaction levels of undergraduate students with distance education applications (H(12)= 50.048, p < 0.05). According to this, the department was found to be an effective factor in the satisfaction levels of undergraduate students with distance education applications. The departments with the highest satisfaction levels are Archeology, Biology, and History, and the departments with the lowest are Psychology, French Language and Literature, and Physics, respectively. Furthermore, in the studies conducted by Fidan (2016), Yakar, & Yıldırım-Yakar (2021), a significant difference was found between students' satisfaction levels with distance education applications based on the department. From the point of view of the department variable, it is seen that although the main difference between the departments is the verbal, numerical, and language type, this primary difference is ineffective in the attitude towards distance education.

Based on the grade level variable, no statistically significant difference was found between the satisfaction levels of undergraduate students with distance education (H(2)= 1.917, p=0.383). According to this, grade level was not an effective factor in the satisfaction levels of undergraduate students with distance education. This result is also similar to the findings of the studies by Ateş & Altun (2008), Karadağ and Yücel (2020), and Terzi, Akalın & Erdal (2020).

There was no statistically significant difference between the satisfaction levels of undergraduate students with distance education based on regular Internet access (F(2, 656)=2.023, p=0.133). According to this, regular Internet access was not an effective factor in the satisfaction levels of undergraduate students with distance education. This finding correlates with the research by Kırali & Alcı (2016). Öztaş & Kılıç (2017) and Er-Türküresin (2020) concluded that students with regular internet access look to distance education more positively than students who do not have regular internet access.

There was no statistically significant difference between the satisfaction levels of undergraduate students with distance education based on their distance education status before the epidemic (U=48272,500, p = 0.122). According to this, whether the respondent took a course in distance education before the epidemic was not an effective factor in the satisfaction levels of undergraduate students with distance education. This finding is also supported by the research of Yakar & Yıldırım-Yakar (2021). On the other hand, Yenilmez, Turgut & Balbağ (2017) concluded in their research that students who took distance education courses before the epidemic had a more positive attitude towards distance education.

A statistically significant difference was found between undergraduate students' satisfaction levels with distance education based on their self-efficacy perceptions of computer use skills (F(4, 656)=4,040, p < 0.05). In the sample, the satisfaction levels of those who expressed their computer use skills as "quite good" were found to be $\bar{X}$=101.85, while the satisfaction levels of those who expressed it as "average" were found to be $\bar{X}$=94.66. According to this, computer use skills effectively influenced undergraduate students' satisfaction levels with distance education. It has been determined that students with better

computer use skills have high satisfaction. In the studies by Ateş & Altun (2008), Sahin & Shelley (2008), Kışla (2015), Fidan (2016) and Yaprak & Koçak (2020), computer use skills were found to be effective on distance education satisfaction levels.

There was no statistically significant difference between the satisfaction levels of undergraduate students with distance education based on the access means to distance education ($F(3, 659)=1,254$, $p = 0.289$). According to this, the access means to distance education was not found to be an effective factor in the satisfaction levels of undergraduate students with distance education.

A statistically significant difference was found between the satisfaction levels of undergraduate students with distance education based on experiencing problems in accessing distance education ($H(2)= 101.477$, $p <0.05$). According to these findings, the presence or absence of access problems to distance education is a significant factor in the satisfaction levels of undergraduate students with distance education. Therefore, it has been determined that students who experience problems accessing distance education have low satisfaction. Studies by Gillies (2008), Lee & Choi (2011), and Kantoğlu, Torkul, & Altunışık (2013) support this finding.

The Covid-19 pandemic has rapidly spread across the globe, requiring states to take swift action against this virus. As part of the measures taken by the states, decisions were made to confine people to their homes, and vaccination efforts were initiated. Unfortunately, the Covid-19 pandemic, which has affected all areas of life, especially economic activities, has negatively affected education. In this process, efforts have been made to carry out education with distance education opportunities worldwide. Firstly, Turkish universities suspended education for a short time, and then it was decided to continue through distance education. Almost a similar process has been experienced all over the world.

From now on, universities that provide distance education should look for more effective services that will satisfy students by employing the latest technologies with the experience they have gained from the pandemic. As students' satisfaction levels using distance education systems increase, their learning will increase in parallel. The research results are noteworthy in making distance education applications more effective and efficient. Therefore, further research on distance education should be conducted to uncover and eliminate the problems faced in university practice and increase satisfaction with distance education.

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REFERENCES

Akbaba, B., Kaymakcı, S., Birbudak, T. S., & Kılcan, B. (2016). Üniversite öğrencilerinin uzaktan eğitimle Atatürk ilkeleri ve inkılap tarihi öğretimine yönelik görüşleri [University students' perceptions about teaching Atatürk's principles and Turkish revolution history with distance education]. *Kuramsal Eğitimbilim Dergisi [Journal of Theoretical Educational Science]*, *9*(2), 285-309. http://dx.doi.org/10.5578/keg.8238

Ateş, A., & Altun, E. (2008). Bilgisayar öğretmeni adaylarının uzaktan eğitime yönelik tutumlarının çeşitli değişkenler açısından incelenmesi [Investigating preservice computer teachers' attitudes towards distance learning regarding various variables]. *Gazi University Journal of Gazi Educational Faculty*, *28*(3), 125-145. https://dergipark.org.tr/tr/download/article-file/77108

Baltacı, A., Mercan-Annak, İ., Akbay, C., Akaydın, H., & Sökmensüer, T. Ş. (2021). The proposition of a distance education service satisfaction scale for university students. *İstanbul International Modern*

Scientific Research Congress II. 23-25 December, İstanbul. https://doi.org/10.6084/m9.figshare.19141826.v1

Barış, M. F. (2015). Üniversite öğrencilerinin uzaktan öğretime yönelik tutumlarının incelenmesi: Namık Kemal Üniversitesi örneği [Analyzing the university students' attitudes towards distance education: Namık Kemal University case study]. *Sakarya University Journal of Education*, *5*(2), 36-46. https://dergipark.org.tr/tr/pub/suje/issue/20639

Birişçi, S. (2013). Video konferans tabanlı uzaktan eğitime ilişkin öğrenci tutumları ve görüşleri [Attitudes and opinions of students on video conference based distance education]. *Journal of Instructional Technologies & Teacher Education,* *2*(1), 24-40. https://dergipark.org.tr/en/pub/jitte/issue/25080/264691

Basith, A., Rosmaiyadi, R., Triani, S. N., & Fitri, F. (2020). Investigation of online learning satisfaction during Covid-19: In relation to academic achievement. *Journal of Educational Science and Technology, 6*(3), 265-275. https://doi.org/10.26858/est.v1i1.14803

Buluk, B., & Eşitti, B. (2020). Koronavirüs (Covid-19) sürecinde uzaktan eğitimin turizm lisans öğrencileri tarafından değerlendirilmesi [Evaluation of distance learning by tourism undergraduate students in the process of coronavirus (Covid-19)]. *Journal of Awareness*, *5*(3), 285-298. https://doi.org/10.26809/joa.5.021

Council of Higher Education [CoHE]. 1981. Yükseköğretim kanunu [Law on higher education]. Date of Access: 05.11.2022 Retrieved From: https://www.mevzuat.gov.tr/mevzuatmetin/1.5.2547.pdf

Council of Higher Education [CoHE]. (2020). Uzaktan eğitime yönelik değerlendirme. Date of Access: 18.05.2020 Retrieved From: https://www.yok.gov.tr/Sayfalar/Haberler/2020/uzaktan-egitime-yonelik-degerlendirme.aspx

Dere, İ., & Demirci, E. (2021). Bilgisayar destekli öğretim yönteminin sosyal bilgiler derslerinde kullanımı [The use of computer-assisted teaching method in social studies lessons]. In Y. Değirmenci & A. Taşyürek (Eds.), *Uygulama örnekleriyle sosyal bilgiler öğretimi (Strateji-yöntem-teknik) [Social studies teaching with application examples [Strategy-method-technique]* (pp. 335-356). Ankara: Nobel.

Dere, İ., & Akkaya, A. C. (2022). Distance social studies courses in the pandemic period with the experiences of teachers. *Çukurova University Faculty of Education Journal, 52*(2), 1172-1206. https://doi.org/10.14812/cuefd.1035594

Doğan, S., & Tatık, R. Ş. (2015). Marmara Üniversitesi'ndeki uzaktan eğitim uygulamasının öğrenci görüşleriyle değerlendirilmesi [Evaluation of Marmara University distance education program according to the viwes of students]. *Route Educational and Social Science Journal*, *2*(1), 247-261.

Erol-Şahin A. N. (2019). Atatürk ilkeleri ve inkılap tarihi dersinin uzaktan eğitim yoluyla öğretilmesi hakkında öğretim elemanlarının görüşleri [Opinions of Instructors about Atatürk's principles and revolution history tezhing via distance learning]. *Gazi University Journal of Gazi Educational Faculty*, *39*(1), 477-502. https://dergipark.org.tr/tr/download/article-file/674457

Er-Türküresin, H. (2020). Covid-19 pandemi döneminde yürütülen uzaktan eğitim uygulamalarının öğretmen adaylarının görüşleri bağlamında incelenmesi [Examination of distance education practices conducted during the covid-19 pandemic regarding the views of preservice teachers]. *Milli Eğitim Dergisi*, *49*(1), 597-618. https://doi.org/10.37669/milliegitim.787509

Eygü, H., & Karaman, S. (2013). Uzaktan eğitim öğrencilerinin memnuniyet algıları üzerine bir araştırma [A study on the satisfaction perceptions of the distance education students]. *Kırıkkale University Journal of Social Sciences*, *3*(1), 36-59. https://dergipark.org.tr/en/pub/kusbd/issue/19375/205547

Fidan, M. (2016). Uzaktan eğitim öğrencilerinin uzaktan eğitime yönelik tutumları ve epistemolojik inançlar. *Hacettepe University Journal of Education*, *31*(3), 536-550. https://dx.doi.org/10.16986/HUJE.2016016666

Gillies, D. (2008). Student perspectives on videoconferencing in teacher education at a distance. *Distance Education, 29*(1), 107-118. https://doi.org/10.1080/01587910802004878

Günel, Y., & Güler, A. (2021). Koronavirüs (Covid-19) sürecinde üniversite öğrencilerinin uzaktan eğitim uygulamasına yönelik memnuniyet algılarının incelenmesi [Investigation of satisfaction perceptions of university students to the application of distance education during the coronavirus (Covid 19) Process]. *International Journal of Economic and Administrative Academic Research*, *1*(2), 54-73. https://www.ijerdergisi.com/index.php/ijer/article/view/15

İşman, A. (2011). *Uzaktan eğitim* [Distance education]. Ankara: Pegem.

Kantoğlu, B., Torkul, O., & Altunışık, R. (2013). E-öğrenmede öğrenci memnuniyetini etkileyen faktörlerin incelenmesine yönelik model önerisi [A study on the factors affecting student's satisfaction in e-learning: A model proposition]. *Business & Economics Research Journal, 4*(1), 121-141. https://www.berjournal.com/berjournal-ciltvolume-4-sayinumber-1-yilyear-2013.html

Karadağ, E., & Yücel, C. (2020). Yeni tip koronavirüs pandemisi döneminde üniversitelerde uzaktan eğitim: Lisans öğrencileri kapsamında bir değerlendirme çalışması [Distance Education at Universities during the Novel Coronavirus Pandemic: An Analysis of Undergraduate Students' Perceptions]. *Yükseköğretim Dergisi*, *10*(2), 181–192. doi:10.2399/yod.20.730688

Karasar, N. (2017). Bilimsel araştırma yöntemi, kavramlar, ilkeler teknikler *[Scientific research method]*. Ankara: Nobel.

Kırali, F. N., & Alcı, B. (2016). Üniversite öğrencilerinin uzaktan eğitim algısına ilişkin görüşleri [University student opinions regarding the perception of distance education]. *Journal of Istanbul Aydın University, 8*(30), 55-83. https://dergipark.org.tr/tr/pub/iaud/issue/30078/324645

Kırmacı, Ö., Çakırel, Ö. A., & Aslan, B. (2022). Kampüs öğrencilerinin çevrimiçi uzaktan eğitim deneyimleri üzerine bir araştırma [A research of campus students' experience in terms of online distance education]. *International Journal of Computers in Education*, *5*(1), 14-30. https://doi.org/10.5281/zenodo.7504709

Kışla, T. (2005). Üniversite öğrencilerinin uzaktan eğitime yönelik tutumları *[Attitudes of university students towards distance education]*. (Unpublished master thesis). İzmir: Ege University, Institute of Social Sciences.

Lee, Y., & Choi, J. (2011). A review of online course dropout research: Implications for practice and future research. *Educational Technology Research and Development*, *59*(5), 593-618. doi:10.1007/s11423-010-9177-y

Malkawi, E., Bawaneh, A. K., & Bawa'aneh, M. S. (2021). Campus off, education on: UAEU students' satisfaction and attitudes towards e-learning and virtual classes during Covid-19 pandemic. *Contemporary Educational Technology, 13*(1), 1-14. https://doi.org/*10.30935/cedtech/8708*

Nenko, Y., Kybalna, N., & Snisarenko, Y. (2020). The Covid-19 distance learning: Insight from Ukrainian students. *Revista Brasileira de Educação do Campo*, *5*, e8925. http://dx.doi.org/10.20873/uft.rbec.e8925

Özkılıçcı, G., & Uysal-Cantürk P. (2020). Bilişsel esneklik ile uzaktan eğitim memnuniyet ilişkisi: Negatif duygulanımın aracı rolü [Relationship between cognitive flexibility and satisfaction with distance education learning: Mediating role of negative affectivity]. *Istanbul Commerce University Journal of Social Sciences, 19*(39), 1167-1181. https://doi.org/10.46928/iticusbe.779478

Öztaş, S. (2018). Perceptions of the history department students about the distance education courses. *Journal of Education and Training Studies, 6*(3), 137-146. https://doi.org/10.11114/jets.v6i3.2993

Öztaş, S., & Kılıç, B. (2017). Atatürk ilkeleri ve inkılâp tarihi dersinin uzaktan eğitim şeklinde verilmesinin üniversite öğrencilerinin görüşleri açısından değerlendirilmesi (Kırklareli Üniversitesi örneği) [The evaluation of university students' opinians of teaching the Atatürk's principles and history of revolution course with distance education (Kırklareli University sample]. *Turkish History Education Journal, 6*(29), 268-293. https://doi.org/10.17497/tuhed.327979

Sahin, I, & Shelley, M. (2008). Considering students' perceptions: The distance education student satisfaction model. *Journal of Educational Technology & Society*, *11*(3), 216-223. http://www.jstor.org/stable/jeductechsoci.11.3.216

Simonson, M., Smaldino, S., & Zvacek, S. (2015). *Teaching and learning at a distance: Foundations of distance education* (6th Edition). Charlotte, North Carolina: Information Age Publishing.

Stratton, S. J. (2021). Population research: Convenience sampling strategies. *Prehospital and Disaster Medicine*, *36*(4), 373-374. https://doi.org/10.1017/S1049023X21000649

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, *50*(4), 1183–1202. https://doi.org/10.1016/j.compedu.2006.11.007

Sümer, M. (2016). Sanal derslere ilişkin öğrenci görüşlerinin incelenmesi [Investigation of learners' opinions registering virtual classes]. *Uşak Üniversitesi Sosyal Bilimler Dergisi [Usak University Journal of Social Sciences],* 9 (27/3), 181-200. https://dergipark.org.tr/tr/pub/usaksosbil/issue/24734/261547

Terzi, D., Akalın, R. B., & Erdal, B. (2020). Covid-19 salgınının sağlık alanındaki öğrencilerin eğitimine etkisi: Tekirdağ Namık Kemal Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu örneği [The effect of covid-19 outbreak on education of health science students: Example of Tekirdağ Namik Kemal University Health Services Vocational]. *Namık Kemal Tıp Dergisi*, *[Namık Kemal Medical Journal], 8*(3), 279-287. https://doi.org/10.37696/nkmj.751961

Türkoğlu, T. (2015). Meslek yüksekokullarında örgün öğretim programındaki öğrencilerinin uzaktan öğretim dersine karşı yaklaşımı [The attidudes of students at vocational schools formal edecation program on distance education course]. *Electronic Journal of Vocational Colleges 4. UMYOS Special Issue*, 31-38.

Tüzün, F., & Yörük-Toraman, N. (2021). Pandemi döneminde uzaktan eğitim memnuniyetini etkileyen faktörler [Factors affecting distance education during pandemic]. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilgiler Fakültesi Dergisi [Academic Review of economics and Administrative Sciences], 14*(3), 822–845. http://doi.org/10.25287/ohuiibf.780189

Ulusoy, K. (2009). Open education students' perspectives of distance teaching of the principles of Ataturk and the history of revolution. *Distance Learning*, *6*(3), 37-46.

World Healty Organaziton [WHO]. (2020). Turkey's Response to Covid-19: First Impressions. Ankara, Turkey. https://apps.who.int/iris/bitstream/handle/10665/335803/WHO-EURO-2020-1168-40914-55408-eng.pdf

Yakar, L., & Yıldırım-Yakar, Z. (2021). Eğitim fakültesi öğrencilerinin uzaktan eğitime karşı tutumlarının ve e-öğrenmeye hazır bulunuşluklarının incelenmesi [Investigation of attitudes towards distance education and readiness for e-learning of education faculty students]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi [Mersin University Journal of the Faculty of Education], 17*(1), 1-21. https://doi.org/10.17860/mersinefd.781097

Yaprak A., & Koçak M. (2020). Öğrenci memnuniyeti açısından uzaktan eğitimin değerlendirilmesi (Kastamonu Üniversitesi örneği) [Evaluation of distance education in terms of students satisfaction (Kastamonu University sample]. In H. Yılmaz, E. Yücel, & M. S. Öztürk (Eds.), *Yabancı dil öğretimine*

genel bir bakış IV [A general perspective on foreign language teaching IV] (pp. 46-64). Konya: Çizgi Kitabevi.

Yenilmez, K., Turgut, M., & Balbağ, M. Z. (2017). Öğretmen adaylarının uzaktan eğitime yönelik tutumlarının bazı değişkenler açısından incelenmesi [Investigation of prospective teachers' perceptions on distance education with respect to certain variables]. *Erzincan Üniversitesi Eğitim Fakültesi Dergisi*, *[Erzincan University Journal of Education Faculty],19*(2), 91-107. http://doi.org/10.17556/erziefd.305902

Yıldız, S. (2016). Pedogojik Formasyon eğitimi alan öğrencilerin uzaktan eğitime yönelik tutumları [The attitudes of the students having pedagogical formation training towards distance education]. *Bolu Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi [Journal of Abant Social Sciences], 16(1),* 301-329. https://doi.org/10.11616/basbed.vi.455852

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