Determining the Opinions of University Students on the Education They Receive with Technology During the Pandemic Process

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Abstract—In this study, it was aimed to determine the opinions of university students studying in the Department of Electrical Engineering about the distance education process they received during the pandemic. The quantitative research method was used in the research. The research consisted of 390 volunteer university students studying at 16 universities in Russia; the universe of the research was determined as the distance education system and the sample was determined as 'Microsoft Teams'. In order to collect the data of the research, a measurement tool called 'technology use' developed by the researchers was used and applied. For the measurement tool, help was received from experts in the field and have worked in these fields. The data were shared with university students via an online questionnaire and their participation was ensured and collected. When looking at the research, it was stated that university students frequently used their distance education centre (UZEM) infrastructure with Microsoft Teams infrastructure in the distance education process and they used Microsoft Teams elements in the activities. When the results of the research are discussed, they stated that the technology levels of the university students were high; that they learned the whiteboard and electric fields in the classroom activities; and that the topics covered and the questions solved in the lessons were high with the re-watch method.

Keywords—electrical engineer, university students, Microsoft teams, distance education

1 Introduction

When we look at the meaning of education in the literature, it is seen that it is stated as 'to develop an individual's abilities to the highest level that he can reach in a certain

process' [5]. It is known that as this time period progresses, unexpected variables may join or hinder the process from time to time [8]. It is known that wars, major disasters or epidemics from the past to the present have negatively affected all areas of life, as well as the field of education, and it is known that the COVID-19 pandemic, which has had a great impact all over the world, has caused problems in many areas [7]. It is also known that the social, economic and psychological effects of the pandemic were felt to a great extent by both educational institutions in the world and students in this time period [2]. Moreover, it is known that – as of the date of this writing – more than 200,000 cases and more than 5000 deaths have been recorded in the country [24]. It can be said that the loss of life and the negativities experienced in this process have negative effects in many areas of life. One of the areas where this effect is felt most is education [20]. It is known that the history of distance education dates back to the 1700s; it is known that it emerged in the form of letter education in many countries in Europe, as well as in many countries in the 18th and 19th centuries. It is also known that this practice, which became widespread in England, Germany and France, was later applied in different ways around the world [17].

It is known that COVID-19, which started to affect the whole world rapidly, started to spread widely as of January 2020. In this context, it is known that education was suspended for a short time in all universities, and then education continues to be provided in the direction of continuing distance education with digital opportunities [15]. The fact that the development of the distance education system of universities dates back to ancient times and that almost all universities have a previous infrastructure related to distance education made it easier for them to adapt quickly to this process that started with COVID-19. It is seen that the roots of the system of distance education in the world are an interdisciplinary field dating back almost three centuries [11]. It is known that the subject of distance education came to the fore almost two centuries after the first distance education application in the world. In Russia, it is known that after the 1990s, the first steps of distance education studies at the secondary education level were passed, albeit limited to a few initiatives [14] [16] [23]. Today, the first distance education institution in Russia has academic centres in more than 350 cities of the Russian Federation and 60 cities in the Independent Republics. Today, Russia sees distance education as the most important factor in modernising education in the country. Distance education in Russia is seen as an effective technology for providing a quality education that has all elements [3] [4] [10], because with distance education, the distance between the central and rural areas in Russia has been eliminated [6]. Thus, many social and economic problems in different parts of the country are solved [18].

The COVID-19 pandemic has shown its effect all over the world, and it is known that countries have started to seek ways to get rid of the negative effects of this process. It is also known that there are very few studies in the field so far. In order to fill this gap in the literature, to reveal the effects of the process and to start the search for solutions, it is necessary to conduct research in all branches of science. It is an inevitable fact that the effects of the pandemic, which will last for several years, will also have many different dimensions (psychological, sociological, technological, methodological etc.) in education [1]. Based on this fact, it has been considered important to reveal the awareness of the candidates who are expected to step into electrical engineering, while

the effects of the pandemic are still very hot. In this context, the aim of this research is to determine the opinions of university students studying in the electrical engineer department about the distance education they received during the pandemic.

1.1 Related Studies

Based on this research conducted by Hervás-Gómez et al. (2021), it is seen once again that university students have a positive relationship with digital and distance education, while it is necessary for education [12].

Fiş Erümit (2021) aimed to evaluate the activities related to the distance education process in primary, secondary and high schools in Turkey during the COVID-19 pandemic process, and as a result, the evaluations provided in this study helped instructional designers to continue their distance education activities targeting K–12 students, and they have expressed that they can help them rise; it was important that the research touches every audience [9]. It is thought once again that the instructional technologies used in the research will be suitable for all ages.

Radu et al. (2020) aimed to present the results of a student survey conducted in the university environment in Romania on the quality of the educational process on online platforms in the context of the COVID-19 epidemic [19]. The study stated that it was for the students of the Faculty of Engineering and the Faculty of Physical Education and Sports, and according to the results of the research, they concluded that most of the students were satisfied with the measures taken by the university during the quarantine period and the way the teaching–learning–evaluation process took place.

Stambekova et al. (2021), in their study, aimed to train university students in e-learning environments, and as a result, they concluded that university students' e-learning and distance education levels and levels are high. It is known that distance education and e-learning are two very close elements. It is known that when these two situations are well prepared, they benefit university students as seen in the related research [21]. When the researches conducted in the related research section are considered, it is seen that university students continue their education with distance education and technology during the pandemic period. This research also aims to support related researches.

1.2 Purpose of the research

In this study, it was aimed to determine the opinions of university students studying in the department of electrical engineering about the distance education process they received during the pandemic. Answers were sought to the following questions regarding the general purpose determined:

1. What are the digital environments that university students use during the distance education process?
2. What is the technology use situation of university students?
3. What are the views of university students on distance education?
4. Is there a difference between distance education situations according to gender?
5. What are the distance education situations according to age?

2 Method

In this section, the method used in the study, the information of the group participating in the study, the type and source of the data, the data collection tools and the statistics used in the research are included and described.

2.1 Research model

The method model considered in most studies is seen as a quantitative research model. In this study, the quantitative research method was used and the main purpose of the quantitative research method is to obtain information that is as objective as possible, free from bias, explaining the cause–effect relationship and generalisable from the sample to the population [13]. In other words, it can be called the compilation and collection of information collected from online surveys.

2.2 Working group/participants

The participating group of the research consisted of 390 university students who continue their education in various 16 universities in the Russian region. The measurement tool used in the research was applied to 390 university students with the help of an online questionnaire and was accepted.

Gender. In this section, the distribution of university students according to their gender are provided in Table 1.

Table 1. Distribution of university students by gender

Gender	**Male**		**Female**	
	F	***%***	***F***	***%***
Variable	204	52.30	186	47.70

When Table 1 is examined, the distribution of university students determined as the study group and research participants according to the gender variable has been examined, which also includes female university students. In the gender section, the findings reflect the actual gender distribution.

Digital environments used by university students in the distance education process. In this section, the use cases of digital media used by university students regarding distance education environments during the pandemic are investigated and examined. Detailed information is presented in Table 2.

Table 2. Distribution of university students according to the digital media used in the distance education process

Digital Media	**Microsoft Teams**		**WhatsApp**		**Google Meet**		**TeamLink**	
	F	***%***	***F***	***%***	***F***	***%***	***F***	***%***
Variable	320	82.05	23	5,90	15	3,85	32	8,20

When Table 2 is examined, the use cases of the digital media used by university students during the distance education process are examined. 23 people stated that they used WhatsApp, 3.85% (15 people) used Google Meet and 8.20% (32 people) stated that they used TeamLink. In this context, it is seen that Microsoft Teams was preferred the most during the pandemic process.

Age status. In this section, the age status of the university students in the study group was examined and detailed information is presented in Table 3.

Table 3. Distribution of university students by age

Age	18–22		23–25		26 and over	
	F	***%***	***F***	***%***	***F***	***%***
Variable	313	80.26	63	16.16	14	3.58

When Table 3 is examined, the distribution of university students in the study group according to their age status is taken into consideration and the relevant information is presented. In this context, when Table 3 is examined, 80.26% (313 people) are between the ages of 18 and 22, 16.16% (63 people) are between the ages of 23 and 25 and 3.58% (14 people) are 26 and above. In the age status section, the findings reflect the actual distribution.

2.3 Data collection tools

The data collection tool used in the research was created by the authors of the research; the data collection tool was examined by experts in the field of technology use and distance education and was simplified by removing the unsuitable items. A personal information form called 'technology use' measurement tool, which was applied to university students and developed by the researchers, was used. The content validity of the developed measurement tool was examined by experts, six professors working on distance education platforms and distance education, and unnecessary items were removed from the measurement tool and rearranged.

Personal information form (demographic data). In the personal information form, information such as age, gender and digital media usage environments are included.

Technology use data collection tool. A 5-point Likert-type questionnaire was prepared to get information about Microsoft Teams and distance education. 16 items of the measuring tool consisting of 18 items in total were used and 2 items were removed from the measuring tool, thanks to experts' opinions. University students' opinions were sought on two factorial dimensions: 'Technology use' and 'Microsoft Teams'. Cronbach's alpha reliability coefficient of the measurement tool as a whole was calculated as 0.95. The measuring points were 'strongly disagree' (1), 'disagree' (2), 'undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was also collected from university students in the form of an online environment.

2.4 Application

This study, which was made and compiled by the researchers, was applied to 390 volunteer university students who continue their education within the scope of 16 universities in the Russian region, in the form of live lessons, a webinar environment about technology use and Microsoft Teams. The webinar education environment was organised by showing it to experts in the field. It was planned to show visuals related to the use of technology and education within the scope of Microsoft Teams for university students. Within the 3 weeks of education, university students will be taught 'technology use', 'Microsoft Teams', 'OBS student information system' etc., regarding their live lessons during the pandemic process. Information such as distance education was given to university students in the form of distance education and university students were asked to participate every week on this subject. After the 3-week training, the online measurement tool and information form were applied to the university students and the data are given in the tables in the findings section. The education was distributed as five sections over the preferred Microsoft Teams application programme of most universities, and each determined section was arranged to be distributed over weeks to be limited to a maximum of 78 university students. The training programme was covered in a total of 40 minutes, 35 minutes of which were training and 5 minutes of question and answer. The measurement tool applied to university students was collected by means of an online questionnaire and transferred to the SPSS programme by coding in the computing software environment.

2.5 Analysis of data

In the analysis part of the data, statistical data obtained from university students were analysed in the Statistics programme using frequency (f), percentage (%), mean (M), standard deviation (SD), t-test and one-way ANOVA, respectively. The numerical values of the data obtained from the programme are given in tables, accompanied by comments in the findings section.

3 Results

In this section, the numerical findings obtained as a result of the analysis of the statistical data obtained in the research have been added to the tables, and various interpretations have been included in the direction of the findings.

3.1 Technology usage situations of university students

In Table 4, university students' technology usage status information is provided.

Table 4. Technology usage status of university students

Technology Use Cases	Mobile Phone		Tablet		Computer	
	F	***%***	***F***	***%***	***F***	***%***
Variable	270	69.24	48	12.30	72	18.46

In Table 4, the technology usage status of university students is examined and detailed information is presented. It was found that 69.24% (270 people) preferred mobile phones for distance education courses during the pandemic process, 12.30% (48 people) chose tablet computers and 18.46% (72 people) chose computers. It is seen that the mobile phone, which is in the hands of almost every student and called a mini computer, is used more widely.

3.2 University students' views on distance education

In this section, the views of university students on distance education are given. All the findings are shown in Table 5.

Table 5. Distance education views of university students

No	Technology Usage and Microsoft Teams		
		M	***S***
1	I can easily use technology for my live lessons.	4.82	0.38
2	I understood the use of technology better with the webinar I took.	4.72	0.37
3	I feel happy when using technology	4.53	0.39
4	I adjust the time setting myself when using technology.	4.41	0.62
5	While using technology, I take care not to use mobile data.	4.68	0.52
6	Thanks to technology, I think that I do not fall behind in my lessons.	4.70	0.71
7	I can use any material in the live lesson with Microsoft Teams.	4.75	0.62
8	I find the whiteboard effective in my department	4.58	0.52
9	Microsoft teams help me for my applied lessons	4.85	0.42
10	Drawing on presentations shared on Microsoft Teams helps me better understand the lesson	4.73	0.42
11	Chatting on Microsoft teams with the help of technology increases my interest in the lesson.	4.83	0.43
12	It gives me pleasure to change my image background in Microsoft Teams	4.81	0.42
13	Creating groups on Microsoft Teams increases my self-confidence in the course	4.41	0.46
14	I know what to do when I have a problem on Microsoft Teams.	4.65	0.53
15	I find the Microsoft Teams live lesson application effective	4.50	0.63
16	I would like to see the Microsoft Teams application in my other live lessons.	4.60	0.62
	Overall Average	4.80	0.61

When Table 5 is examined, it is seen that university students express their views on distance education. Although it can be seen that each answer has a different meaning, it can be said based on Table 5 that university students' views on technology and Microsoft Teams after education are high. 'Chatting on the internet increases my interest

in the lesson' had a mean of M=4.83. In addition, it was found that one of the most prominent expressions of the research was 'Changing the background of my image on Microsoft Teams gives me pleasure' with a mean of M=4.81. While it is seen that the students' opinions about this field related to technology and Microsoft Teams are quite high, another finding is that 'Microsoft Teams help me for my applied lessons' with a mean of M=4.85. Other findings of the research are 'I can easily use technology for my live lessons' with a mean of M=4.82 and 'I can use any material in live lessons with Microsoft teams' with a mean of M=4.75. In addition, another value of research is 'I know what to do when I have a problem on Microsoft Teams' with a mean of M=4.65, and finally, 'I think that I have not been left behind in my lessons thanks to technology' had a mean of M= 4.70.

When Table 5 is examined, it has been found that university students benefit from their applied lessons by participating in live lessons on technology and Microsoft Teams after technology education; they also want to see this application in their other lessons, as well as field lessons; and they give many more positive answers. In this context, since all the values in Table 5 have a positive meaning, it can be said based on the findings that university students have positive views about technology and Microsoft Teams.

3.3 Distance education situations by gender

In this section, the distance education status of university students according to the gender variable is examined and the information whether there is a significant difference or not is presented in Table 6.

Table 6. Distance education status by gender

	Gender	N	M	SD	Df	t	p
Distance Education Situations	Male	204	86.6	9.9	390	-1.437	.152
	Female	186	84.9	10.9			

When Table 6 is examined, the distance education status of the students according to the gender variable was examined and it was seen that there was no significant difference according to the gender criterion [t(390)= -1.437, p<.05]. When the distance education status of university students is examined, it is seen that male students have an average score of this field (M=86.6), while female students have an average score of distance education (M=84.9). In this context, it can be said in the findings part of the research that there is no difference between the distance education scores of male students compared to female students in this study.

3.4 Distance education situations by age

In this section, the use of distance education according to age criteria has been examined and detailed findings are presented in Table 7.

Table 7. Distance education status by age

Age	N	Order Average	SD	X2	P
18–22	313	80.26	3	1.878	.142
23–25	63	16.16			
26 and above	14	3.58			

When Table 7 was examined, it was found that there was no significant difference between the results of comparing the distance education status of university students according to age criteria ($\chi 2$ (3)= 1.878; P=.142; P>0.05). When the distance education results of university students are considered according to the age criteria, it is seen that the highest value is between the ages of 18 and 22, the second highest value is between the ages of 23 and 25 and the age range of 26 and above had a low value. It can be said that there is no significant difference between the distance education statuses of university students regarding the age criterion.

4 Discussion

Tumen Akyildiz (2020) aimed to examine the perceptions of university students regarding the pandemic distance education period in his study, which supports the scientific research, and as a result, it was concluded that students have time and space flexibility, students have more responsibility in learning and they feel more comfortable with distance education [25]. Considering the result of the research with the related research, it was concluded that the university students' knowledge of technology and distance education was high, and it is known as the most important finding of any research that the students continued their education during the pandemic period.

In the study conducted by Tabassum et al. (2021), they investigated how they could support the education of students regarding the pandemic, and as a result, they found that this process did not help students to close the education gap, that students got better with distance education, and also helped them find the education scenario of distance education from the teachers' points of view [22]. In this context, when the results of the research are taken into consideration, it has been concluded that university students pay attention to their mobile data while participating in their live lessons with technology and they find distance education applications effective and beneficial. It can be said that well-planned distance education studies with education provide positive benefits to students.

In the study of Uzunboylu et al. (2020), they aimed to combine formal education with distance education and aimed to combine education with Kahoot application, and as a result of the study carried out, they concluded that the 'Kahoot' programme is very beneficial for students and teachers. Based on the result of this research, it was concluded that the Microsoft Teams application provides positive benefits to university students in the study. In this context, it can be said based on two studies that such applications benefit university students positively [26].

5 Conclusion

When the results part of the research is considered, it is seen that we first come across the study group as the backbone of a research; all hypotheses given are illuminated by the study group of the research. In this context, the distribution of university students determined as the study group and research participants according to the gender variable was examined and it was concluded that 390 people participated. Digital environments are now appearing in every field and it is known that they are widely used. During the COVID-19 epidemic period, the fact that students carry out each of their events with distance education also reflects the result that this result is directly proportional. It is also known that the widespread use of Microsoft Teams application in every sense is directly proportional to the knowledge that university students will be one step ahead in their education. When the university environment is considered, it is also known as the fact that adult people carry themselves to a better level in educational institutions. In this context, age is very important.

Today, in education, it is seen that it takes its place in the forefront in the material used, as well as digital applications. In this context, among the results of the research, the technology usage status of university students was examined and it was concluded that they use mobile phones the most. It can also be expressed that mobile phone is a portable and smart technology that has many features. Opinions are known as an advantage and a road map in every sense; according to an opinion, every education can be shaped and organised. In this context, it is seen that university students express their views on distance education among the results of the research. Although it is seen that each answer has a different meaning, university students after education about technology and Microsoft teams It was concluded that the opinions of university students were high, that chatting over Microsoft teams with the help of technology increased their interest in the lesson, that changing the background of their images on Microsoft Teams gave them pleasure, Microsoft Teams would help them in applied lessons and applied lessons with the whiteboard feature in distance education. It has been concluded that they learn better, they can easily use technology for live lessons and they can use every material in live lessons with Microsoft teams.

The concept of gender is at the forefront in every research, it is known that if a research differs according to gender or not, it is known that the research problem reveals the problem. In this context, in this study, it was concluded that there was no difference between the distance education scores of male students compared to female students. When the final result of the research is considered, it has been examined whether there is a significant difference between the results of comparing the distance education status of university students according to age, and it has been concluded that there is no difference. When the distance education results of university students are considered according to age, it is concluded that the highest age range is 18–22. When the research is considered in general, it has been concluded that university students have a high view of technology and Microsoft education and continue their education. Thanks to technology, technology and distance education concepts are beneficial in field courses, and finally they want to see this education model in other courses. Although the strongest

aspect of this research is Microsoft Teams and distance education, it is thought that carrying out a similar study in another place and time will contribute to the research.

6 Suggestions

It is also important to reveal the technology and Microsoft Teams views of university students on distance education in terms of the evaluation of the studies carried out in this framework. On the other hand, the research is important because it is one of the studies evaluating student views on distance education at the university level in Russia. It is expected that with the results obtained in the research, the evaluations and suggestions made will contribute to distance education. In this respect, it is expected that the results and suggestions of the research will contribute to the future studies in terms of the development of distance education and technology, better preparation of the contents and more effective execution of the process. In this context, in this research, it is also among the suggestions that students' views on distance education activities in university environments during the COVID-19 process are better.

7 References

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