Determining the Knowledge Levels of University Students on Distance Education and the Google Meet Application Programme

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Abstract—The general aim of this study is to determine the knowledge levels of university students on distance education and the Google Meet application programme. The descriptive method was used in the research. The research was carried out in the spring term of 2020–2021, and consisted of 462 volunteer university students studying in the field of computer engineering at various universities in the Marmara region of Turkey. In order to determine the information of the participants, a measurement tool called 'distance education platforms' was used, which was developed by the researchers; the measurement tool was collected from the students with the help of an online questionnaire. The raw data obtained from the measurement tool were analysed with the SPSS programme and categorised to reveal their understanding levels. Based on the findings, it has been determined that although digital natives have good views on today's distance education and Google Meet topics, the level of understanding of the related concepts is quite high.

1 Introduction

Our education life is always at the forefront and it is known to consist of a knowledge community that has left its mark on human life. When society is considered, it is seen that it involves education somehow, and it is thought that their involvement in the education–teaching process will of course benefit them. Today, due to the pandemic, it is seen that face-to-face education is used as a distance education model [7]. It is seen that the distance education models that have come from the 1700s to today have changed

their shape with the developing technology and communication opportunities [2]. When the world is considered, it can be seen that it started with the aim of 'communicating by letter' from afar. Generally, it can be said that the developments and changes in information and communication technologies have an important effect on the historical change of explanations. It can also be said that these developments and changes have significantly changed the educational understanding of the institutions involved in the open and distance learning process, the technologies used, the roles and characteristics of the teacher and the learner [10]. It is known that the use of distance education in universities also supports formal education, and it is seen that education training is also supported [13].

Uzunboylu et al.'s (2019) research on the use of technology during the years 1990–2019 was examined and stated that the articles written on technology increased over the years [19]. In the literature, most researchers have defined distance education as a technology-centred system where the learner and the educator can meet in separate environments during the education process [17]. On the other hand, it can be realised that by using different electronic materials, it emphasises that the person is separated by time and space in the education process [5]. In the 21st century, it can be seen that different technological tools and equipment, such as social, economic, political and cultural developments that started at the beginning of the year, which increase technology use, web technologies and information and communication technologies, are included in the education process [15]. With the development of computer technology, web-based applications have come to the forefront in today's world. Frequently used communication tools such as letters, radio and television have been replaced by the Internet-based education process. Some of the reasons that require the use of technology in education can be given as the inadequacy of tools and equipment experienced in the education–teaching process, the fact that the classes are more crowded than they should be and appreciation of individual differences and abilities of the students.

Technological developments and devices with output are effective in catching up with the speed of the age and adapting to requirements. Technology has an impact on health, education, politics and social life, which include all activities related to human life. Education, which is of vital importance, is also in the attraction area of technological developments with new understandings and new concepts that have enriched and continue to enrich the learning and teaching process [14]. The increase in communication opportunities plays a major role in the dissemination of educational activities. Technology and the Internet affect education life as a part of the social formation that educates generations and prepares them for the future [4]. It is possible to explain the increase in Internet usage from year to year with the influence of the Internet in education channels. In today's world, access to information is provided through dictionaries, articles and archives, digital libraries, electronic encyclopaedias, digital books, blogs, discussion forums, social networks and web pages. Digital transformations distinguish the current period from all other periods with their features in accessing and distributing information [12].

1.1 Google Meet application in distance education

When the Google Meet platform is examined, it can be seen that there is a 'web interface' design in the computer interface of the application, which is visually opposite to other applications. The Google Meet platform is also used through the application website [11]. The two login buttons that the user will interact with are highlighted using size, and the design is kept simple. The colours on the buttons appear to have been created using the colours from the Google Meet logo, but they are not fixed. It changes from time to time according to the colours in the logo [3]. Empty areas are also supported with illustrations suitable for the purpose of the application. However, these images also change and sometimes they appear as photographs. In the texts used, the fonts are placed in large and small formats to ensure the principle of hierarchy in the design.

1.2 Related studies

Hallal et al. (2020) conducted a research by evaluating the strengths and weaknesses of the Google Meet tools; however, while changing the way of content delivery and evaluation, with the potential for minimum interruption due to insufficient Internet, the study makes use of ready-made online tools (e.g., Google Classroom) [6]. They emphasised that it is an online learning model. In this context, it can be seen that the Internet infrastructure is important in the studies in the research section of interest; it is also known that every educational work done with the Internet is based on speed.

In Nasution et al.'s (2021) study, they aimed to fulfil the task of distance education and student study service related to the prevention and management of the effect of COVID-19 in the field of education; as a result, they found that Internet infrastructures are good and online-based learning tends to be effective and works without any problems. Based on the relevant researches in this context, it can be seen that distance education systems get good results if they are used correctly in education [9].

In their research conducted in 2020, Faisal and Kisman stated that the development of the distance education service management software application model provides academics with opportunities to facilitate the interaction between students and lecturers by using online-based information technology communication services over the Internet. They concluded by arguing that learning with the education system can simplify the work, speed up the work, work correctly and be more productive because it is interactive and user-friendly. In this context, based on the relevant researches, it can be seen that the studies conducted with distance education are determined according to the learning objectives of the students. It can be said that the correct selection of materials and platforms used in distance education, as well as the strong infrastructure, will lead to learned gains in education.

1.3 Purpose of the research

The general purpose of this research is to determine the knowledge levels of university students on distance education and the Google Meet application programme. In

order to reach the problem situation in the research, answers to the following questions were sought:

1. What is the mobile technology usage status of university students?
2. What is the Google Meet (asynchronous) usage status of university students?
3. Is there a significant difference according to the gender variable of university students compared to the distance education platforms (Google Meet)?
4. What are the opinions of university students about Google Meet?
5. Is there a significant difference between university students' synchronous course status according to the gender variable?

2 Method

In this section, the method applied in the study, the study group, the type and source of the data, the data collection tools and the statistics used in the research are given.

2.1 Research model

The model considered in most studies is seen as a description; in this research, the descriptive method was used. The descriptive method is a research model that is included in the quantitative research methods and focuses on the examination of events [16]. In other words, it can be called the model of reaching the conclusion about the research by getting information from the people with the help of questionnaires and addressing the people by collecting information.

2.2 Working group/participants

In order to determine the knowledge levels of university students on distance education and the Google Meet application programme within the research, a study group consisting of 462 students in computer engineering programmes was assessed, continuing their education at universities in the Marmara region of Turkey. The measurement tool used in the research was applied to the 462 university students and accepted.

Gender. As can be seen in Table 1, the data of the university students, called the study group and the research participants, were examined and added to the table according to the gender variable, including female university students. In the gender section, the findings reflect the actual gender distribution.

Table 1. Distribution of university students by gender

Gender	Male		Female	
	F	*%*	*F*	*%*
Variable	234	50.64	228	49.36

Mobile technology use cases. In this section, the use of mobile technology in a day by university students in the Marmara region has been researched and examined. Detailed information is given in Table 2.

Table 2. Computer usage status of university students

Daily Mobile Technology Use Cases	F	%
1–3	107	23.16
4–7	132	28.56
8 hours or more	223	48.28

When Table 2 is examined and discussed, the mobile technology usage status of the university students in the study group and how often they are used during the day are discussed. The related information is added to the table by examining their usage status. While 28.56% (132 people) stated that they use mobile technology for 4–7 hours, 48.28% (223 people) stated that they use mobile technology for 8 hours or more.

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

Table 3. Distribution of university students by age

Age Conditions	F	%
18–22	268	58.01
22–26	168	36.37
27 and above	26	5.62

When Table 3 is examined, the distribution of university students in the study group according to their age is taken into consideration and the relevant information according to the age scale is added to the table. From Table 3, it can be seen that 58.01% (268 people) are between the ages of 18 and 22, 36.37% (168 people) are between the ages of 22 and 26, and 5.62% (26 people) are 27 and above, in the older age range. In the age 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, and the data collection tool was simplified by removing the unsuitable items from the research after being examined by experts in the field of Google Meet and distance education. A personal information form called 'distance education platforms' measurement tool applied to university students and developed by researchers was used. The content validity of the developed measurement tool was examined by experts, who were eight 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, daily mobile technology use cases and Google Meet usage cases are included.

Distance education data collection tool. A 5-point Likert-type questionnaire was prepared to get information about Google Meet and distance education platforms. 17 items of the measuring tool consisting of a total of 24 items were used and 7 items were extracted from the measuring tool, thanks to experts' opinions. The opinions of computer engineer candidates were sought from two factorial dimensions, such as 'predisposition to distance education platforms' and 'synchronous lessons' of university students. The Cronbach's alpha reliability coefficient of the measurement tool as a whole was calculated as 0.85. The measuring tools were 'strongly disagree' (1), 'disagree' (2), 'undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was also collected from university students in an online form.

2.4   Application

The research was conducted with the help of universities in the Marmara region of Turkey. A distance education environment was prepared as live lessons for 462 volunteer university students continuing their education in the Marmara region; it was organised by showing them to experts in the field of education. Within the 4-week training programme, 'distance education platforms', 'distance education systems', 'distance education practices' etc. were provided to the candidates of the computer engineer programme. Information, such as distance education, was given to university students in the form of distance education, and performance assignments were given from university students every week on this subject and the homework were collected online. Assignments were prepared online in order to ensure that the subject will be reinforced better. After the 5-week education programme, the measurement tool and information form were applied to the university students and the data are provided in the tables in the findings section. The training was determined by 5 sections through the Google Meet application programme, which is preferred by most universities, and each section was distributed over the weeks to be limited to a maximum of 94 university students; each training programme was processed in a total of 55 minutes, 40 minutes of which were training and 15 minutes of which were questions and answers on online education. In this case, university students were expected to participate in the training by using devices such as tablets, phones and computers with videos and microphones. The measurement tool applied to the 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 the data

In the analysis part of the data, statistical data obtained from university students were analysed in the Statistics programme by using frequency (f), percentage (%), mean (M),

standard deviation (SD) and *t*-test, respectively. The numerical values of the data obtained from the programme are given in the 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 provided in the tables, and various interpretations have been included in the direction of the findings.

3.1 Google Meet (asynchronous videos) usage cases of university students

In this section, the use of Google Meet (asynchronous videos) of university students is examined and the relevant information is given in Table 4.

Table 4. Google Meet (asynchronous videos) usage cases of university students

Google Meet Use Cases	F	%
1–3 times	128	27.70
4–6 times	130	28.14
7 and above	204	44.16
Total	420	100.00

Google Meet usage status of university students is examined and detailed information is presented in Table 4. The highest value of students using asynchronous videos processed with Google Meet during the day was 44.16% (204 people) who used it for 7 or more hours, followed by 28.14% (130 people) who used it for 4–6 hours and 27.70% (128 people) who used it for 1–3 hours. It is important for students to use the Google Meet platform for their education.

3.2 Google Meet platform results by gender of university students

When Table 5 is examined, the use of the Google Meet platform according to the gender variable of university students was examined, and it was seen that there was a significant difference [t(462)=6.41, p<.05]. Among the Google Meet platform usage values of university students, it can be seen that male students have distance education attitude scores (M=56.05), while female university students have Google Meet platform scores (M=45.53). In this context, in this study, it has been found that male students have higher Google Meet platform scores than female students.

Table 5. Distance education attitudes of university students by gender variable

University students	Gender	N	M	SS	sd	t	p
Google Meet Platform	Male	234	56.05	14.01	462	6.41	.00
	Female	228	45.53	13.04			

3.3 Views of university students on Google Meet application

When Table 6 is examined, it can be seen that university students express their views on the application of the Google Meet platform. Although it is seen that each answer has a different meaning, it can be said that based on Table 6 university students have a high opinion of the Google platform application after education. 'I can easily access' had a mean of M=4.72. In addition, the most prominent expressions of the research, 'I can adjust my device settings on the Google Meet application as I want' had a mean of M=4.72. While it is seen that the students' opinions about the Google Meet platform application are quite high, another finding 'I do not experience any disconnection in the Google Meet application' had a mean of M=4.63. Other findings of the research 'I can access the lecture notes shared over the Google Meet application whenever I want' had a mean of M=4.68 and 'I can access the Google Meet application from my phone' had a mean of M=4.62.

Table 6. pinions of university students on the Google Meet application

No	Distance Education System Opinions	M	S
1	I can easily access the Google Meet application	4.72	0.39
2	I can enter the Google Meet application from my phone	4.62	0.36
3	I can access the Google Meet application from my computer.	4.53	0.41
4	I can easily use the features given in the Google Meet application	4.30	0.75
5	I can make the presentation very simple in the Google Meet application.	4.60	0.51
6	I do not experience any disconnection in Google Meet app	4.63	0.70
7	I like the image quality of the course in the Google Meet application	4.47	0.60
8	Seeing screen sharing in the Google Meet application increases my interest in the lesson.	4.58	0.50
9	I can set my device settings as I want on the Google Meet application.	4.71	0.43
10	I can access the lecture notes shared via the Google Meet application whenever I want.	4.68	0.41
11	I know how to chat on Google Meet	4.30	0.48
12	Sharing my image with the Google Meet platform gives me happiness.	4.38	0.66
13	Getting authorisation through Google Meet increases my interest in the course.	4.52	0.61
14	I understand the lesson very well with the Google Meet application.	4.60	0.52
15	I would like to see the Google Meet application in my other courses.	4.43	0.62
16	I know who to apply to when I have difficulties with Google Meet	4.57	0.55
17	I find the Google Meet application enjoyable		
	Overall Average	4.42	0.61

When Table 6 is examined, it can be seen that university students attend live lessons on the Google Meet platform, watch asynchronous videos, want to see the Google Meet platform in their other lessons and give many more positive answers. In this context, it can be said based on the findings that the opinions of university students about the Google Meet platform application are positive, since all the values in Table 6 have a positive meaning.

3.4 Scores of university students' synchronous course situations by gender variables

When Table 7 is examined, the synchronous course scores of university students processed for the Google Meet application were examined according to the gender variable and it was seen that there was a significant difference [t(462)= -1,600, p<.05]. When the synchronous lesson scores of the university students are examined, it can be seen that male students had an average score for the answers to the synchronous lesson (M=3.95), while female students had live lesson scores (M=3.36). In this context, in this study, it was found that male students had high-er distance education scores than female students.

Table 7. Synchronous course status scores of university students according to gender variables

University students	Gender	N	M	SS	sd	t	p
Senkron Course	Male	234	3.95	.140	462	-1.600	.130*
	Female	228	3.36	.120			

4 Discussion

Wiyono et al. (2021) conducted research on the problems in Google Meet and Zoom applications, and this study aimed to explore and compare the use of these two applications, the problems that arise and the solution strategies to solve them in the course of teaching. In the results of the research, the most common problems encountered by the students were signal problems and Internet quotas. When these values were combined with the results of the research, they stated that university students do not experience any disconnection on the Google Meet application [19]. According to these two results, it can be said that Meliana et al. (2021) aimed to determine the differences in student learning outcomes by using the energy material in the life system of secondary school students and WhatsApp and the Google Meet platform in distance education during the COVID-19 pandemic; as a result, it was concluded that students using the Google Meet platform did not show any difference in their learning results [8]. When this result is combined with the results of the research, students who use the Google Meet application stated that they want to see this platform in other lessons and that they adapt better to their lessons with Google Meet. As the problem in each research differs, the work done with Google Meet can also differ.

In the study of Bakhmat et al. (2021), besides evaluating the satisfaction and acceptance rates of instructors from online education, they aimed to indicate the prominent problems and benefits. When combined with the result of the research, it was stated that even if the Internet infrastructure was bad, the courses taught in distance education did not experience any disconnection [1]. It can be said that a good education model is directly proportional to a good distance education platform. It is thought that using today's technology well and preparing well for students will always take education one step ahead; in this context, it can be said that studies with distance education always contribute to education, and the system used will always take students one step ahead.

It is thought that conducting this study at another time will benefit distance education platforms, students and future educators.

5   Conclusion

When the results of the studies are considered, it can be seen that the number of participants comes first; the number of participants in a study varies according to the model of the research; it can be seen that getting opinions from more people always contributes to and benefits the field. In this context, it was concluded that 462 university students participated in this study among the results of the research. Mobile technology has become an indispensable resource today and it can be seen that it is used in almost every home, every job and every school. Another result of the research is with regard to the mobile technology usage status of university students and how often they use mobile technology during the day; as a result, it was concluded that they use mobile technology for 8 hours or more. It can be said that this data is quite good so that students do not fall behind in their lessons in the pandemic environment. In the research, the course was taught on the Google Meet platform. In this context, another value of the research is seen as watching the courses taught with Google Meet. Watching the lessons over and over again in an environment that students like has the same meaning as providing permanent behaviours in education. Each topic covered with Google Meet is prepared to benefit the student; and in this context, it is thought that each statement of theirs will carry the research to the top. Another result of the research is the level of use of the Google Meet platform according to the gender variable of the university students. Among the Google Meet platform usage values, it has been concluded that the distance education attitude scores of male students are higher than that of female university students. In this context, it can be said that the Google Meet application has a greater effect on male students in this study.

It is known that opinions have always been at the forefront in research studies and the importance of opinions in the design of the research is very high. Another result of the research is determining the opinions of university students on the application of the Google Meet platform. It has been concluded that they can edit the device settings on the meet application whenever they want, that they do not experience any disconnection in the Google Meet application, that they can access the lecture notes shared through the Google Meet application whenever they want and that they can enter the Google Meet application with their phones. It has been concluded that they want to see the Google Meet platform in other courses and they gave many more positive answers. In addition, another value is on the synchronous lessons; synchronous lessons are the teaching model that is always planned for the student to design one step himself. When the synchronous course scores of the university students were examined, it was concluded that the answers given by the male students to the synchronous course were higher than the female students.

6   Suggestions

When the studies on distance education are discussed, it can be seen that synchronous and asynchronous situations are encountered, and combining these situations within the platform aims to create another dimension of education. In this context, this research shows its power in distance education once again while providing benefits for future generations. It is thought that it will make the research more powerful.

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