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Evaluation of the Emergency Remote Teaching Process During the COVID-19 Pandemic: Implications Based on Students' Views

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Abstract: This study aims to examine the level of students' satisfaction and opinions about the emergency remote teaching process during the COVID-19 pandemic in the Ondokuz Mayis University in Turkey. Based on the results a guide was constructed for universities to be prepared for emergency remote teaching situations. The study was designed as a survey method which is a quantitative research. Data was collected using an 8-section quantitative questionnaire with 53 close-ended questions. Participants were 3540 university students consisting of 150 graduate students and 3390 undergraduate students. The results indicated that 72.5% of participants (*n*= 2567) graded their distance learning experiences during the pandemic as moderately satisfactory or higher during the pandemic at the university. Based on the results, the highest satisfaction score is for the system including LMS and videoconferencing tools, and the lowest satisfaction score is for assessment and measurement methods. Moreover, attendance of synchronous lessons, regular instantaneous feedback provided by instructors, asynchronous activities and instantaneous interaction with instructors contributed to students' learning during the emergency remote teaching process in the pandemic. On the other hand, deficiency of face-to-face interaction, homework, technical problems during synchronous lessons, and motivational deficiencies were scored as obstacles. In addition, universities should be prepared for an alternative way of teaching for similar crises like the COVID-19 pandemic, and distance education technologies must have a supportive role in face-to-face learning in universities. Universities who were using emerging technologies before COVID-19 crisis had a comparative advantage over those who did not integrate new technologies into their education system.

Keywords: Distance education, distance teaching, higher education, Covid-19 pandemic, emergency remote teaching.

Highlights

What is already known about this topic:

- During the pandemic, universities adapted their traditional face-to-face teaching to distance teaching in a very short time.
- Universities that were using emerging technologies before the COVID-19 had a comparative advantage during the pandemic.

What this paper contributes:

- The study evaluates the emergency remote teaching in a state university based on 3540 students' views.
- System, synchronous lessons, and digital course content were the most satisfied components. Deficiency of face-to-face interaction, homework, technical problems, and motivational deficiencies were mentioned as obstacles.

Implications for theory, practice and/or policy:

- Alternative ways of teaching should be supported in universities.
- Technology should be integrated into face-to-face education.
- Instructors should be capable of using new technologies with new teaching pedagogies.

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Introduction

When the COVID-19 pandemic worsened all over the World, countries began to transfer their face-to-face education to distance as an attempt to limit the disruption caused by the COVID-19 disease (IAU, 2020; ILO, 2020; OECD, 2020; Radic et al., 2021; Traxler et al., 2020). The International Association of Universities (IAU) prepared a report to examine the impact of the COVID-19 pandemic on higher education around the world (IAU, 2020). The results reported that 85% of Europe, 60% of Asia & Pacific, 72% of America and 29% of Africa replaced classroom teaching with distance teaching and learning. Moreover, 12% of Europe, 36% of Asia & Pacific, 22% of America and 43% of Africa suspended teaching but the institutions in the region began to develop solutions. Finally, only 3% of Europe, 3% of Asia & Pacific, 3% of America and 24% of Africa cancelled teaching. On the other hand, it is reported that 90% of learners were unable to go to school by April 2020. In July 2020, more than 1.1 billion learners were still affected by the lockdown of schools (Traxler et al., 2020).

This situation made universities prepare new emergency remote teaching plans. The European Association for International Education conducted a survey for higher education institutions in the European Higher Education Area (Rumbley, 2020). Data was completed from 38 different countries. According to the results, 58% of survey respondents mentioned that their institution was currently implementing a response plan, 16% of the respondents had implemented no specific response plan and had no plans to develop one, 14% of the respondents had not yet implemented a specific response plan but was currently developing one, and finally, 12% of respondents were unsure whether their institution was currently developing or implementing a response plan.

During the pandemic, universities adapted their traditional face-to-face teaching to distance teaching in a very short time. Thus, differences between the universities consisting of technical infrastructure, readiness to distance teaching, experiences of distance teaching, the profile of instructors etc. affected the way they adapted their teaching to distance. Universities that were using emerging technologies before the COVID-19 crisis had a comparative advantage over those who did not integrate new technologies into their education system (ILO, 2020). In Turkey, the Council of Higher Education Institute prepared a guide titled “New Normalization Process in the Global COVID-19 Pandemic” for universities (COHE, 2020). In the guide, alternative ways of distance teaching were presented. In addition, a platform was created for all universities to share their digital course content as an open courseware to facilitate the transition process in universities especially in inexperienced ones.

Distance Education and Covid-19 Pandemic

During the COVID-19 pandemic and the quick transformation of face-to-face teaching to distance teaching, a new discussion point that emerges is whether this emergency teaching differs from a planned and structured distance education process. In some of the studies, distance teaching in the pandemic referred to “emergency remote teaching” (Bozkurt & Sharma, 2020; Hodges et al., 2020; Shisley, 2020). Emergency remote teaching is also referred to as the “… alternative and unplanned method for delivering instruction from a distance because they are not located in a classroom with their students.” (Shisley, 2020, p.2). Moreover, distance education was referred to as “… planned learning that … occurs in a different place from teaching and as a result requires special techniques for course design, special instructional techniques, special methods of communication …. as well as organizational and administrative arrangements.” (Moore & Kearsley, 1996, p.2). In the pandemic, since universities transformed their face-to-face teaching to distance teaching in a very short time, the needs of distance education like course design, special instructional techniques or training to stakeholders were missing. Thus, it was mentioned that the emergency remote teaching includes some components of distance education, and it is a way of learning and teaching online (Shisley, 2020) but they should not be put in the same equation (Bozkurt & Sharma, 2020). Furthermore, the main purpose of distance education is to provide a flexible form of education, but during the pandemic it was an obligation to provide distance education not an option (Bozkurt & Sharma, 2020). This is because education in the pandemic was called emergency remote teaching instead of distance teaching.

To analyze the consequences of emergency remote teaching during the COVID-19 pandemic many studies and reports were conducted. Xiao & He (2020) analyzed the emergency online classes during the COVID-19 pandemic based on the perceptions of both students and teachers. The study revealed that a variety of online tools were adopted by instructors during the pandemic, but preferences of teachers and students were not similar. In addition, 63.84% of students satisfied with their teachers, and only 2.15% of the students were not satisfied. A majority of the students satisfied with their online classes. Rotas & Cahapay (2020) aimed to describe the difficulties in the Philippines during remote teaching during the COVID-19 crisis. As a result of the study, unstable internet connectivity, inadequate learning resources, electric power interruption, vague learning contents, overloaded lesson activities, limited teacher scaffolds, poor peer communication, conflict with home responsibilities, poor learning environment, problems with finances, physical health compromises, and mental health struggles were revealed as difficulties in remote distance learning. Adnan & Anwar (2020) aimed to examine the attitudes of Pakistani higher education students towards emergency remote courses during the COVID-19 pandemic. The study highlighted that since the vast majority of the students are unable to access the internet, online learning is problematic in underdeveloped countries like Pakistan to produce desired results. Gope et al. (2021) reviewed the challenges and opportunities of the COVID-19 pandemic in higher education in India. In this study, most of the students suggested a project-based course curriculum irrespective of an offline or online mode of teaching. Moreover, health and safety protocols were suggested by the students. Sharma et al. (2021) examined the perceived effectiveness and factors affecting emergency remote learning practices of nursing students. As a result of the study, PowerPoint slides, document sharing, chat, e-mails, and video conferences were the tools that were used for classes. Respondents of the study preferred live classes over recorded classes. In addition, although increased student-teacher communication, cooperation between students and active learning were supported, the overall effectiveness of remote teaching was not high enough.

Furthermore, in the report of the International Association of Universities (IAU) the challenges and opportunities were examined for emergency distance teaching and learning (IAU, 2020). The transition process was investigated with three interconnected dimensions which were declared as (1) technical infrastructure and accessibility, (2) distance learning competencies and pedagogies, and (3) the field of the study. These dimensions have affected challenges and opportunities in different aspects. On the other hand, Traxler et al. (2020) prepared a report to help decision-makers around the world to use digital technology to combat the educational challenges produced by the current COVID-19 pandemic. One of the common challenges in the reports is related to digital divide. In low- and middle-income countries teaching, and learning is much more disrupted because of students who have no access to the internet to follow distance courses. Furthermore, since a different pedagogy is required for distance teaching, the level of readiness of teachers is another challenge for institutions. Institutions didn't have the necessary time to develop the teaching skills of staff to help them to adapt to online teaching. Finally, the varying needs of different fields of study have generated challenges for institutions. Examples are clinical medicine, veterinary studies, and also several disciplines depending on access to laboratories faced challenges because practices cannot be replaced by distance teaching and learning activities (IAU, 2020).

Emergency remote teaching is a way of creating a temporary solution to the crisis called the COVID-19 pandemic. Moreover, this solution benefits from the experiences of distance education (Bozkurt & Sharma, 2020). On the other hand, studies related to distance education focused on some key components including instructional and learning strategies, pedagogical models and constructs, and learning technologies (Dabbagh & Bannan-Ritland, 2005). In addition, to provide the maximum level of benefit to learners, the importance of planning a structured distance education program was mentioned (Bilgiç & Tüzün, 2020; Palloff & Pratt, 2007; Ustati & Hassan, 2013). In a study, 17 components were proposed to plan an applicable distance education program. These are topics of change, adult learners, infrastructure, support, training, instructional design, curriculum, communication, technology, quality control, copyright, universal access, cost, student services, rules, marketing, and www (Boehler, 1999). In another study, 9 core issues were mentioned to develop a successful web-based distance education

program. These are the program launching process, legislation, program structure, instructional design, assessment and evaluation, communication and interaction, support, technical issues, and program evaluation (Bilgiç & Tüzün, 2020). However, during the COVID-19 pandemic universities transformed their education to distance teaching approximately in a period of just a few weeks. There exists a critical question to answer: "Is it possible for a university to transform their face-to-face teaching to distance teaching in a few weeks period by focusing on these key components/issues?"

To answer this question, the first step is to evaluate the existing experiences of universities during the transfer of face-to-face teaching to distance teaching. Evaluation of a program is important to improve the program, to maximize the transfer of learning to behaviour and subsequent organizational results, and to demonstrate the value of training to the organization (Dabbagh & Bannan-Ritland, 2005; Kirkpatrick Partners, 2021). The Kirkpatrick model proposes four levels of learning evaluation including reaction (level 1), learning (level 2), behaviors (level 3) and results (level 4). The evaluation should be started with the first level and then should be transferred to the other levels of evaluation. Reaction level is the first step in which individuals' feelings about the training program were evaluated. Thus, it is important to have an idea about how learners of the system narrate these times in emergency remote teaching to create better solutions in a wider aspect (Bozkurt & Sharma, 2020). Moreover, education is one of the most important issues for countries to develop their economy and to provide a qualified labour force in the developing world (Al-Baadani & Abbas, 2020). Therefore, the sustainability of the education system in such a crisis is important for countries.

This study aims to evaluate the emergency remote teaching process in the Ondokuz Mayis University in Turkey during the COVID-19 pandemic by investigating the views of students. To accomplish the aim of the study the following questions will be addressed:

1- What was the level of satisfaction of students engaged in emergency remote teaching during the COVID-19 pandemic?
2- What do students think about the teaching during the COVID-19 pandemic?
3- What are the students concerning about emergency remote teaching in comparison to face-to-face teaching?
4- What is the students' attitude towards distance education after participating in the emergency remote teaching during the COVID-19 pandemic?

Methodology

This section describes the model, participants, data collection tools, data analysis, and research procedure of the study.

The Model of the study

The study was designed as a survey method which is a quantitative research (Creswell, 2008). Most of the people are familiar with surveys, and it is a common way to describe the opinions, behaviors, or characteristics of the population (Creswell, 2008). Descriptive statistics were used to answer the research questions.

Participants

To evaluate the system the views of stakeholders are important. Students are one of the important stakeholders to evaluate a learning environment based on their experiences since they had enough time in the learning environment to make judgements (Fraser, 1998). Thus, this study focused on students. The study group consisted of 3540 university students including 150 graduate students and 3390 undergraduate students who were attending different programs at the Ondokuz Mayis University which a state university in Turkey. The demographic profiles of the participants were presented in Table 1. In terms of gender, participants of the study consisted of 1426 (40.28%) male and 2114 (59.72%) female students. As can be seen in Table 1, 693 students from associate degree programs, 2697 students from

bachelor's degree program, 105 students from master's degree program and 45 students from PhD programs answered the questionnaire.

Table 1: Demographic Profiles of Participants by gender, continuing program level, year of study

	Number of students (n)	Percentages (%)
Gender		
Female	2114	59.72
Male	1426	40.28
Total	3540	100
Continuing Program Level		
Associate Degree	693	19.58
Bachelor's Degree	2697	76.19
Master's Degree	105	2.97
PhD/Doctorate	45	1.27
Total	3540	100
Year of Study		
Prep school	42	1.19
Year 1	892	25.20
Year 2	905	25.56
Year 3	699	19.75
Year 4	821	23.19
Year 5 (Medicine and Dentistry)	36	1.02
Year 6 (Medicine and Dentistry)	5	0.14
Graduate degree	140	3.95
Total	3540	100

The data about LMS usage, attending any virtual synchronous lesson and attending any distance education course before the COVID-19 pandemic were used to investigate participants' previous experience of distance education. According to data collected 57.66% of the participants used any LMS before, 47.88% of the participants attended any virtual synchronous lesson before, and 34.38 of the participants attended any distance education program before (Table 2).

Table 2: Participants Previous Experience on Distance Education and Related Tools

Previous Experience	Number of students (n)		Percentages (%)	
	Yes	No	Yes	No
Using LMS before COVID-19 pandemic	2041	1499	57.66	42.34
Attending any virtual synchronous lesson before covid-19 pandemic	1695	1845	47.88	52.12
Attending any distance education program before covid-19 pandemic	1217	2323	34.38	65.62

Data Collecting Tools

Data was collected using a quantitative questionnaire which was developed by the researcher. The questionnaire has 8 sub-sections with 53 questions, split into the following sections: (1) Demographic information, (2) Internet and distance education experiences, (3) Satisfaction, (4) General Evaluation, (5) Instructors and instructional process, (6) Support, (7) Comparison to face-to-face instruction, and (8) Attitude towards distance education. All questions were closed ended. A five-point Likert scale was used in the likert scale questions. A level of "1: Very Low" indicates the lowest level of satisfaction, and "5: Very Good" indicates the highest level of satisfaction.

To investigate the validity of the instrument, content validity was used. Content validity aims to examine the representativeness of all possible questions related to the objectives of the instrument, the content

areas, and the level of difficulty of the questions (Creswell, 2008). To substantiate the content validity of an instrument the questionnaire was sent to two experts. The questionnaire was finalized with a 95% consensus of the experts.

Data Analysis

Although 23302 participants answered the questionnaire, only 3540 participants completed the questionnaire. The collected data of 3540 participants were analyzed using the statistical analysis software SPSS 22. Descriptive statistics were used in the study. Means, standard deviations and frequencies were used as descriptive statistics.

Research Procedure

When the Covid-19 pandemic worsened in Turkey, at first universities paused their face-to-face education programs to take precautions. Then, an official notice was declared in the country for transferring the education to distance education technologies to limit the spread of the COVID-19 disease. In the university, the emergency remote teaching was planned in one week with the support of distance education center of the university. This center has been delivering the distance education since 2009. The university organized an emergency plan in a few days to deliver face-to-face courses over distance. Then in one week, the plan was applied to transform all courses into virtual classes. Since the university has 51871 students and 7360 courses, it was hard to serve distance teaching over existing distance education services. The university taught 7360 existing courses using Google Classroom since it provides technical infrastructure like servers (Ondokuz Mayis University, 2020). Students' data, instructors' data and courses were immediately transformed onto the Learning Management System (LMS) with the support of the distance education center. Furthermore, the university had an existing open courseware system in which instructors were encouraged to share their digital course content as open courseware. During the pandemic instructors had to create digital course content and add this content to the existing open courseware system. Then, all face-to-face courses were transferred into virtual classes as synchronous lessons. Videos and pdf documents were produced by the the distance education center to assist both instructors and students. Moreover, one to one technical assistance was provided from the distance education center including both instructors and students. Instructors were directed to use alternative assessment methods such as homework or projects. In addition, online exams were applied. Webinars were arranged for instructors to adapt alternative assessment methods into their instruction. The pathway that university followed was also visualized in Figure 1.

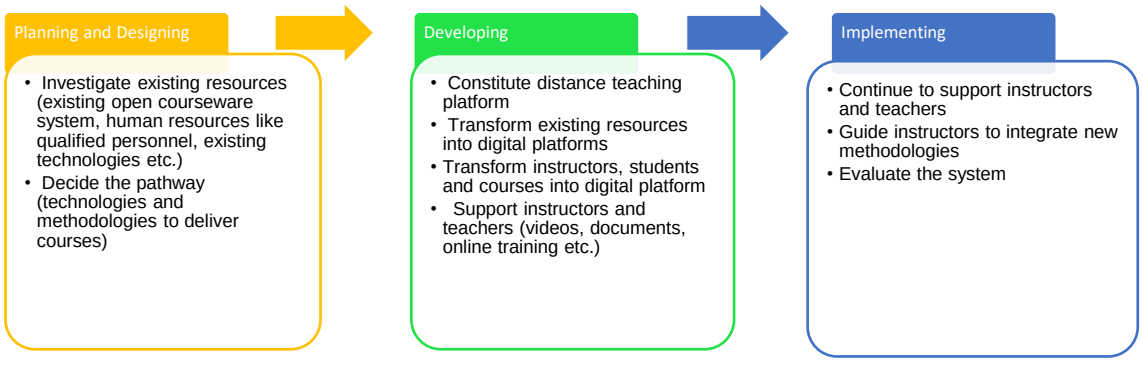


Figure 1: The pathway of the university

To evaluate the emergency remote teaching process the study focused on students' experiences and views. The post-training program questionnaires are one of the ways to evaluate the reactions of the participants of the training (Kirkpatrick Partners, 2021). In this study, data was collected with an online questionnaire. The link of the questionnaire was shared with the participants by an SMS message, by

e-mail, through social media channels, and also on the web site of the university. The participants were informed about the purpose of the study. Participation in the study was voluntary and anonymous.

Results

This section presents the results of the study in relation to the research questions.

Results regarding the satisfaction

In the satisfaction part of the survey, students' satisfaction was examined firstly as overall satisfaction towards the emergency remote teaching process during the COVID-19 pandemic. As it is shown in Table 3, 73% (n=2567) of the participants graded their emergency remote education experiences during the pandemic as moderately satisfactory or higher. 46% (*n*=1645) of the participants were also mostly satisfied with the emergency remote teaching during the COVID-19 pandemic. The overall satisfaction mean score of participants is 3.25.

Table 3: Overall Satisfaction level of students

	Satisfaction Level*											
	Very good		**Good**		**Moderate**		**Low**		**Very Low**		**Mean**	**Std. Deviation**
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**m**	**sd**
Overall satisfaction of distance education during pandemic	729	21	916	26	922	26	461	13	512	14	3.25	1.315

*Level of using "1-Very low" indicates the least satisfied, "5-Very good" indicates the most satisfied.

Satisfaction mean score is 3.73 for the system including LMS and videoconferencing tools, 3.31 for synchronous lessons, 3.27 for digital course content, 3.16 for support systems, and 3.06 for assessment and measurement methods (Table 4). The highest satisfaction score is for the system, and the lowest satisfaction score is for assessment and measurement methods. The university served online courses over Google Classroom and integrated its student management system with Google Classroom. Google Classroom provides LMS, and videoconferencing tools (Meet) combined in the system. Thus, participants mostly did not experience system based technical problems, system was graded with the highest satisfaction score.

Table 4: Satisfaction level of students based on different components of distance education

Satisfaction level based on different components of distance education		
	Mean (m)	**Std. Deviation (sd)**
Satisfaction of system including learning management system (LMS) and videoconferencing tools	3.73	1.274
Satisfaction of synchronous lessons	3.31	1.317
Satisfaction of digital course content	3.27	1.332
Satisfaction of support systems	3.16	1.372
Satisfaction of assessment and measurement methods	3.06	1.416

In addition, satisfaction was examined in relation to instructional process and support in more detail. The highest satisfaction mean score is 3.20 for the delivery of information and announcement in a regular manner (Table 5). Feeling isolated during distance education is a major reason for students to quit the system (Bilgiç & Tüzün, 2020). Thus, students should be informed with regular announcements about the course. Moreover, the satisfaction mean score for synchronous lessons is 3.15. In the literature, distance education was referred to as a "network of learners and teachers who travel electronic highways and meet in virtual classrooms" (Parker, 1999, p. 13). Thus, students' satisfaction about virtual classes is also important. In addition, interaction is mentioned as the process of learning.

Thus, interaction including the content-learner, learner-learner, and instructor-learner should be supported with current technologies. In the study, students scored 3.07 for the digital content provided during the courses. Furthermore, the satisfaction mean score of participants regarding homework is 3.06 which also implies that alternative ways of assessment and measurement should be enhanced.

Table 5: Satisfaction in relation to Instructional Process

Instructional Process		
	Mean (m)	**Std. Deviation (sd)**
Instructors delivered information and announcements in a regular manner.	3.20	1.414
Synchronous (Live) lessons were carried out effectively.	3.15	1.399
Forums in virtual classes were used effectively.	3.10	1.309
I could reach instructors whenever I needed.	3.10	1.390
I could communicate with instructors through various communication channels	3.08	1.405
Provided digital content was sufficient.	3.07	1.309
Interactivity was created in synchronous (Live) lessons.	3.06	1.372
Homework provided by instructors contributed to my learning process.	3.06	1.469

Support is also one of the important issues in distance education. The highest satisfaction mean score is 3.16 regarding the instant feedback provided by instructors. The satisfaction mean score for the helping materials provided in the transition process of face-to-face teaching to distance teaching is 3.07. In addition, participants scored 3.00 as they felt that there was always a person to assist them. During the emergency remote teaching, each department assigned 1 or 2 assistants to support students during the pandemic. Thus, students have alternative options both in the distance education center and in the faculty.

Table 6: Satisfaction in relation to Support

Support		
	Mean (m)	**Std. Deviation (sd)**
Instant feedback was provided by instructors.	3.16	1.370
Helping materials (videos and documents) provided in the transition process of face-to-face teaching to distance was sufficient.	3.07	1.359
Whenever I need course related support, I could reach support adequately.	3.06	1.352
Whenever I need technical assistance, I could reach support adequately.	3.03	1.344
I felt that there was always a person who could assist me in virtual classes.	3.00	1.373

Results regarding students' opinions about distance education during the COVID-19 pandemic

2358 (67%) students mentioned provided asynchronous content including videos, pdf documents, presentations etc. as the most effective component that contributed to students' learning during distance teaching during the COVID-19 pandemic (Figure 2). In the university, before the pandemic instructors were encouraged to provide digital content in an open courseware system, so instructors were somewhat prepared with the digital materials. Respectively 2294 (65%) students mentioned attendance to synchronous lessons, 1798 (51%) students mentioned regular instantaneous feedback provided by instructors, 1415 (40%) students mentioned provided asynchronous activities and, 1288 (36%) students mentioned that instantaneous interaction with an instructor contributed to student success. On the other hand, the lack of face-to-face instruction with the instructor, response time and absence of traditional classroom socialization were highlighted as obstacles to produce desired results in the emergency remote teaching during the pandemic (Adnan & Anwar, 2020). Thus, attendance to synchronous lessons, getting regular instantaneous feedback from instructors and instantaneous interaction with an instructor should be supported for effective emergency remote teaching.

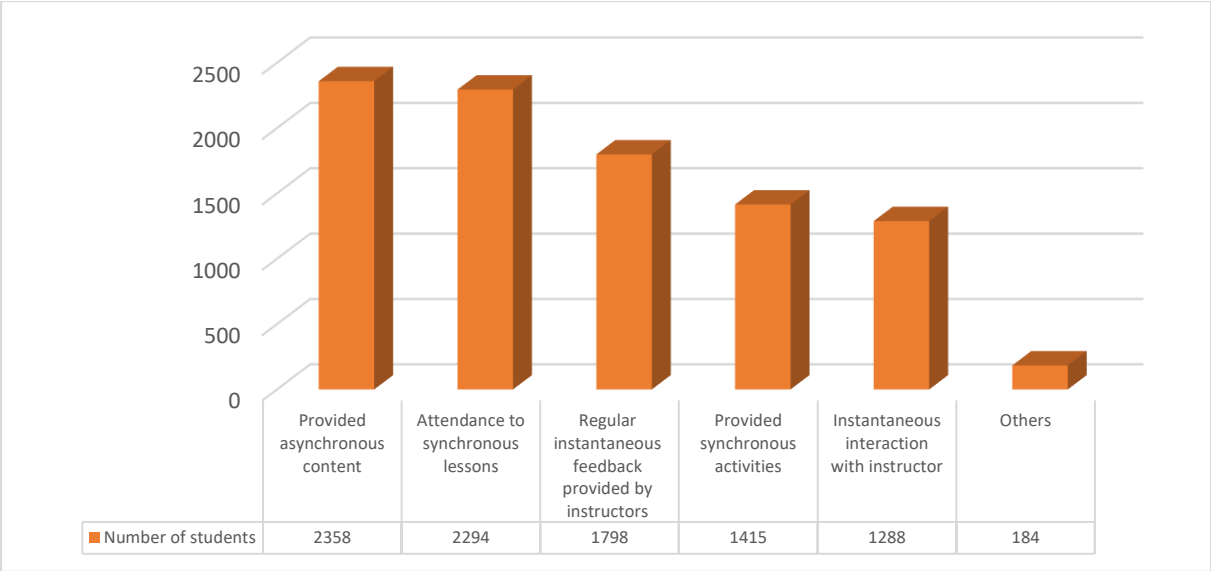
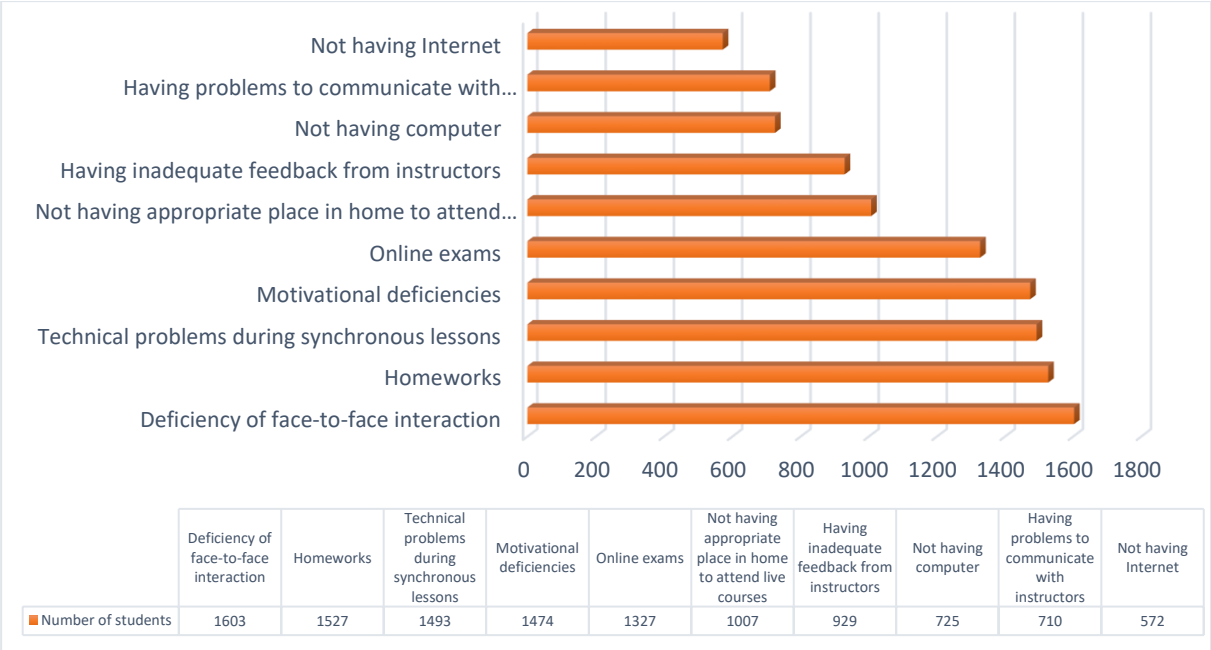


Figure 2: The most important components that contribute to student access during the emergency remote teaching during the COVID-19 pandemic

In addition to these, in the aspect of obstacles during emergency remote teaching in COVID-19 pandemic, 1603 (45%) students mentioned the deficiency of face-to-face interaction as the most (Figure 3). In the literature interaction has been mentioned as the most important issue in the success of distance learning (Mbwesa, 2014). An overload of homework was scored as the second highest obstacle by 1527 students (43%). Rotas and Cahapay (2020) also revealed poor peer communication, and overloaded lesson activities as difficulties during the COVID-19 pandemic. Since distance education is technology dependent, technical problems during synchronous lessons were mentioned as the third highest obstacle by 1493 students (42%). Unstable internet connectivity, electric power interruptions were also mentioned technology related difficulties in the literature (Rotas & Cahapay, 2020). 1474 of students (41%) indicated motivational deficiencies as obstacles during distance education in COVID-19 pandemic. As the pandemic spread around the world, in addition to educational problems, a vast majority of the students have been fighting with depression and anxiety (Islam et al., 2020; Rotas & Cahapay, 2020; Son et al., 2020). Furthermore, it is mentioned that mental problems are one of the most important leading obstacles to the academic success of students (Son et al., 2020). Thus, the motivation of students should also be supported during the distance teaching process.



	Deficiency of face-to-face interaction	Homeworks	Technical problems during synchronous lessons	Motivational deficiencies	Online exams	Not having appropriate place in home to attend live courses	Having inadequate feedback from instructors	Not having computer	Having problems to communicate with instructors	Not having Internet
Number of students	1603	1527	1493	1474	1327	1007	929	725	710	572

Figure 3: The most important obstacles that students struggle with during distance education in the COVID-19 pandemic

Instructor-student interaction mostly occurred with messaging in virtual classes (*n*=2379) and with e-mail (*n*=1588). In addition, WhatsApp was also used in classroom groups (*n*=1152) and in personal communication (*n*=763). Furthermore, student-student interaction mostly occurred in WhatsApp groups (*n*=2568) and personal communication (*n*=2265). Messaging in virtual classrooms (*n*=797) and e-mail (*n*=221) was used less among students (Figure 4).

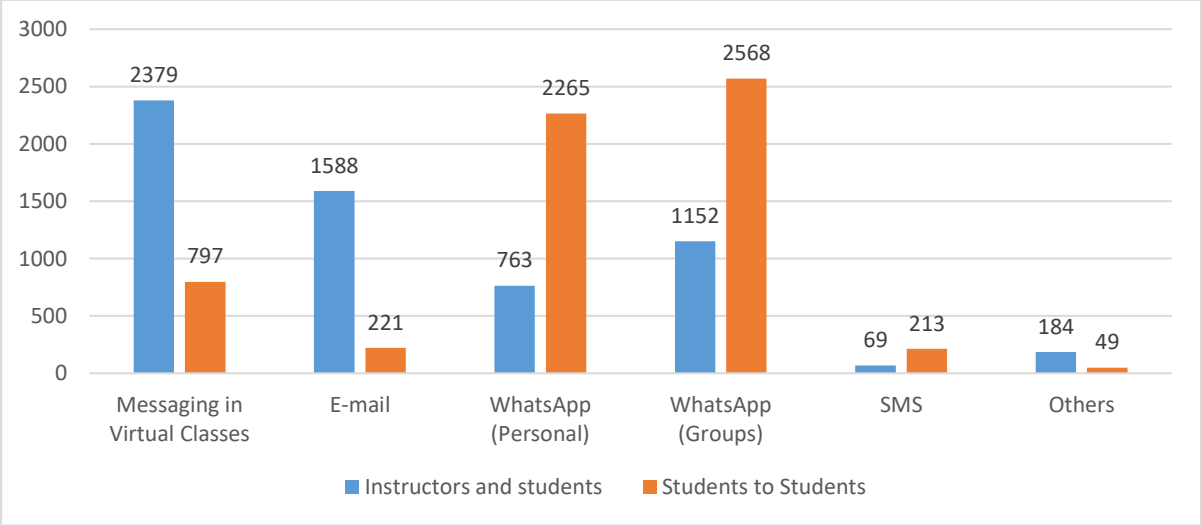


Figure 4: Communication channels (instructors and students, students and students)

Results regarding the views of students about the emergency remote teaching in comparison to face-to-face teaching

Students' views about emergency remote teaching in comparison to face-to-face teaching is also investigated. The mean score regarding the similarity of the course content provided in distance teaching and the course content provided in face-to-face teaching is 2.96 (Table 7). In addition, students scored 2.76 that distance teaching is easier than courses that attended face-to-face. Students also scored 3.13 for distance courses are more challenging. Much more effort was spent scored 3.25. Since students were unfamiliar with distance teaching and learning, they spent more effort, and it was harder to adapt

to. On the other hand, 60% of students (*n*=2100) thought that the same level of knowledge and skills were supported with emergency remote teaching. The mean score of gaining the same level of knowledge and skills is 2.88.

Table 7: Views of students about emergency remote teaching in comparison to face-to-face teaching

Views of students: Comparison of emergency remote teaching to face-to-face												
	Very good		Good		Moderate		Low		Very Low		Mean	Std. Deviation
	n	%	n	%	n	%	n	%	n	%	m	sd
I don't think that there is a difference between the course content provided in emergency remote teaching and the course content provided in face-to-face teaching	908	26	532	15	613	17	480	14	1007	28	2.96	1.565
I don't think that there is a difference that challenges me to understand the courses delivered by emergency remote teaching or face-to-face teaching.	773	22	510	14	602	17	570	16	1085	31	2.81	1.539
I think courses that I attended with emergency remote teaching is easier than courses I attended face-to-face.	665	19	450	13	795	22	626	18	1004	28	2.76	1.460
I think I was challenged much more in emergency remote teaching courses than face-to-face courses.	961	27	521	15	775	22	570	16	713	20	3.13	1.478
I think I spent much more effort in distance courses.	1075	30	585	17	743	21	419	12	718	20	3.25	1.499
I think that I acquired the same level of skills/knowledge in emergency remote teaching that I would acquire in face-to-face teaching.	643	18	591	17	866	25	579	16	861	24	2.88	1.420
It was hard to adapt myself in the transfer of face-to-face teaching to distance.	866	25	538	15	673	19	502	14	961	27	2.96	1.535

Results about students' attitude towards distance education

Students' attitude towards distance education is examined in relation to their experiences in emergency remote teaching during the COVID-19 pandemic. After students experienced emergency remote teaching during the pandemic, 43% (*n*=1523) of students mentioned that they would prefer to take some of the courses with distance teaching in the following semester. In addition, students' mean score to prefer taking some of their courses with distance education in the following semester is 3.04 (Table 8). On the other hand, 36% (*n*=1303) of students mentioned that similar knowledge and skills would be gained with distance education. In Table 8, students' mean score is 2.96 regarding gaining similar knowledge and skills. Furthermore, 40% (*n*=1414) of students mentioned that distance education is not an effective teaching method which has a mean score of 3.04. On the other hand, 39% (*n*=1361) of students thought that courses delivered with distance education would have effective outcomes. Addressing the students' needs and providing them with new experiences and skills will be beneficial to

motivate students to reuse the educational services (Alsabawy et al., 2016). Based on the data collected, 40% (*n*=1440) of students would think about attending training programs with distance education after the experience during the COVID-19 pandemic.

Table 8: Students' attitude towards distance education

Students' attitude towards distance education												
	Very good		Good		Moderate		Low		Very Low		Mean	Std. Deviation
	n	%	n	%	n	%	n	%	n	%	m	sd
After I experienced emergency remote teaching during the covid-19 pandemic,												
I would prefer to take some of my courses with distance education in the following semester.	1127	32	396	11	576	16	356	10	1085	31	3.04	1.647
I would think about attending training programs with distance education	966	27	474	13	712	20	416	12	972	28	3.01	1.563
I thought that I gained similar knowledge and skills with distance education as with face-to-face education.	757	21	546	15	877	25	517	15	843	24	2.96	1.452
I thought that distance education is not an effective teaching method.	923	26	491	14	737	21	591	17	798	22	3.04	1.500
I thought that courses delivered with distance education would have effective outcomes	731	21	630	18	898	25	491	14	790	22	3.01	1.427

Discussions

The aim of the present study was to evaluate the emergency remote teaching process during the COVID-19 pandemic in the Ondokuz Mayis University in Turkey. The process of emergency remote teaching in the university was evaluated based on students' views. Students are one of the most important stakeholders to take decisions (Gope et al., 2021). The result of the study shows that 73% of the participants graded their emergency remote teaching experiences during the pandemic as moderately satisfactory or higher. In addition, 46% of the participants also mostly satisfied with the emergency remote teaching during the pandemic. Furthermore, the system, synchronous lessons and the digital course content were the components students were most satisfied with in that order.

The success of a distance learning programme is mainly determined by the way in which the programme is structured (Ustati & Hassan, 2013). In the pandemic, universities transform their education system to distance platforms as an emergency plan to continue their education services. This was quick and unplanned action for most of the universities. When a distance program is adapted without careful planning, failure would be a foregone conclusion (Bilgiç & Tüzün, 2020). During the pandemic, universities had approximately 1-2 weeks to transform their face-to-face education to distance teaching which highlighted the importance of being ready for alternative ways of teaching with technology in universities. In the university, there exists a distance education center which has been serving distance education programs since 2009. Thus, the planning process of emergency distance teaching was easier

because of these experiences. The system including LMS and videoconferencing tool was selected in a few days among all the possible alternatives. The university had 51871 students and 7360 courses, so it was hard to serve remote teaching over the existing LMS system and on existing servers. Thus, Google Classroom was selected to transfer face-to-face courses to remote teaching. Since Google Classroom provide technical services like a server, the university did not experience technical problems caused by the LMS or videoconference system. Moreover, the university had an existing open courseware system in which there exists some amount of digital course content. Instructors were encouraged to create the digital course content to share on this platform. Furthermore, the support mechanism was also structured faster both for instructors and students. In addition to these, all courses, instructors, and students were moved onto the new distance education system in a week. Support videos and pdf documents were created and shared on the web immediately.

Infrastructure and online access to resources are prerequisites for moving to distance teaching and learning in an institution (IAU, 2020). The emergency remote teaching during the pandemic made some students struggle with poor internet connections to reach digital learning platforms (Li & Lalani, 2020; Onyema et al., 2020). In this study, only 20% of the participants mentioned not having a computer and only 16% of the participants mentioned not having the internet as an obstacle. Furthermore, the system was mentioned as the component students were most satisfied with since there were not any technical problems during courses. In a study, unstable internet connectivity caused by the geographic location was mentioned as one of the most recurring difficulties in the emergency remote teaching during the pandemic (Rotas & Cahapay, 2020). On the other hand, IAU (2020) reports that although 91% of the participants mentioned that they have infrastructure to communicate with their students and staff, also most of the institutions mentioned that the biggest challenge was to ensure a clear and effective communication channel with staff and students. In this study, 45% of the participants also mentioned that a lack of face-to-face instruction is one of the most important obstacles. As Moore (1989) implies that the distance between the teacher and the student might cause an important gap in distance education, in which distance does not just mean geographical. Transactional distance theory emphasizes continuous and effective contact between instructors and students, which also results in increased satisfaction of the students (Gavrilis et al., 2020). In this study 65% of the participants mentioned attendance to synchronous lessons, 51% of the participants mentioned regular instantaneous feedback provided by instructors, and 40% of the participants mentioned synchronous activities as contributors to the emergency remote teaching during the COVID-19 pandemic. In a study, the students mentioned overloaded lesson activities, and limited teacher scaffolds as difficulties in the emergency remote teaching during the pandemic (Rotas & Cahapay, 2020). In another study, students preferred live classes over recorded classes (Sharma et al., 2021). Therefore, it can be implied that feedback provided by instructors and effectively planned synchronous lessons were important for students.

In distance education, support is another important issue. In the literature, deficiency of student support systems including both academic and technical issues was mentioned as one of the most important obstacles in distance education (Folowo, 2007). Technical and academic support should be provided as online assistance (Ustati & Hassani, 2013). During the COVID-19 pandemic materials like videos and pdf documents were produced immediately to guide students about how to use the system. One-to-one technical support was also provided both in the faculty and in the distance education center.

The motivation of students is also essential to succeed with distance education. As a result of the study 42,15% of the participants mentioned technical problems and 41,63% of participants mentioned motivational deficiencies as obstacles. In the literature, a qualified teacher and independent self-motivated students are mentioned as two major components in distance education (Ustati & Hassan, 2013). In addition, strong student motivation facilitates the learning process of students (Simonson et al., 2008). In the literature, the mental effects of the COVID-19 pandemic on students were also studied (Islam et al., 2020; Son et al., 2020). The results of these studies showed that many of the students

were faced with depression and anxiety disorder during the COVID-19 pandemic. In addition, mental health problems and motivational deficiencies negatively affected the academic success of students.

Furthermore, alternative assessment is also a critical issue in distance education. In general, the most essential purpose of assessing should be to provide feedback to learners and instructors about learning gains (Simonson et al., 2008). However, the first reason for assessment is mainly to enable the instructor to give grades. Traditional methods like multiple choice tests, fill-in questions, short or long answer questions are already used to assign grades. In the study, 43% of students referred to homework, and 37% of students referred to online exams as obstacles during distance education. On the other hand, 51% of students mentioned regular instantaneous feedback provided by instructors as one of the important components that contributes to distance education. Thus, in distance education assessment should focus on assessing learners to provide immediate feedback. To produce frequent feedback, formative assessment is essential. Formative assessment is a process of collecting evidence of learning over a time (Miller, 2020). Therefore, alternative ways of assessment like performance assessment or e-portfolios should be developed to assess learning gains and to produce frequent feedback (Cova, 2010; Reeves, 2000). Project-based learning and problem-based learning activities also might be used as performance assessment. In addition, LMSs provide opportunities for formative assessment. The progress of students could be evaluated with participation to online forums and students' log records on LMS (You, 2016).

Conclusion and Suggestions

Lock of education during the pandemic leads universities to be aware of the importance of technology especially distance education technologies. A variety of technology-based strategies were adopted as alternatives to the traditional classroom activities including videoconferencing, online learning platforms, digital learning materials, and messaging platforms (ILO, 2020). Although it is mentioned that during the COVID-19 pandemic face-to-face teaching was transferred to online with insufficient conditions which resulted with poor experience, there is a belief that a new hybrid model of education will exist in the future as a result of these experiences (Li & Lalani, 2020). In the changing world, higher education institutes should be better prepared to deal with such crises with online ready to use resources (Bozkurt & Sharma, 2020). Universities who have no experience with distance education technologies, should make use of these technologies together with the new teaching methods. During the pandemic, instructors were required to use their skills and knowledge to teach remotely by using new teaching and learning techniques (Onyema et al., 2020). It was mentioned that successful applications of distance education during the COVID-19 pandemic occurred especially in universities whose instructors were trained about technology-based teaching methods and were using technology in education services before the COVID-19 crisis (ILO, 2020). Thus, in the digital age, online learning should not be considered as an alternative way of teaching, it must have a supportive role in face-to-face learning that occurs in physical classrooms (Bhuasiri et al., 2012; Zhou, 2016). Good teaching with technology can be achieved with the shift in existing practices in both content and pedagogy (Koehler et al., 2013). Instructors should enhance their technological and pedagogical skills to use technology for delivering digital content, for communicating with the students, and also to support students to use technology to learn and to understand the course content (Ustati & Hassan, 2013).

As a result, the following recommendations were presented for universities to enhance their way of teaching with technological developments together with new teaching methods in such a crisis:

- Universities should have alternative pathways to deliver instructional services. Moreover, universities should be aware of the existing resources related to the technology and human resources to respond to emergency situations with alternative ways of teaching.
- Providing interaction between instructor and students is important for students not to feel alone in the system. Thus, instructors should be aware of alternative ways of communication.

- Digital course content should be encouraged in universities. Universities need to serve digital course content to support open education. To accomplish this, universities should support instructors with professional development programs and with on-going assistance.
- Motivational deficiency is one of the important obstacles in the pandemic. Universities should support the motivational deficiencies of students.
- Technological problems like the internet connection, and having a computer are also important obstacles during the pandemic. Universities should use both synchronous and asynchronous opportunities to support students' alternative ways of remote learning.
- Alternative ways of assessment are also important. In the pandemic, most of the students complained about homework loads and online exams. Instructors should be supported to use alternative ways of assessment both in face-to-face and remote courses.
- Universities should integrate technological services like LMS into their face-to-face education. In addition, hybrid education should also be integrated into universities.

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