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Distance Education in Higher Education in the COVID-19 Pandemic Process: A Case of Isparta Applied Sciences University

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Abstract

Distance education is an education model where individuals are free from learning resources and have no time constraints. During the pandemic period, Isparta University of Applied Sciences continued its 2019-2020 Academic Year Spring semester with distance education with asynchronous lecture notes and synchronous live courses. The purpose of this research is to determine the knowledge and views of students about distance education in the Pandemic Process. Survey method was used in the research; the participants of the research were 1011 students are students at Isparta University of Applied Sciences during the COVID-19 pandemic process. In order to collect the data, a 5-point Likert questionnaire with 21 items was applied. The average, standard deviation and t-Test analysis of the data were done in the SPSS program. According to the results of this research, it was determined that the opportunities of the participants as having computer and internet affect their views on distance education.

Introduction

Distance education is an education model where individuals are free from learning resources and have no time limitation. Current developments in information technologies have helped the development of the global communication network with distance education applications. Communication has become an inevitable need for individuals living in the transmitted message. It has been made available on the internet today.

Al and Madran (2004) stated the features of web-based distance education systems as identifying and managing users, preparing course contents, managing courses, opening student-specific programs, homework and project submission/delivery, preparation and implementation of exams and tests, monitoring and examining student behavior, assessment of student success and interactive communication environments establishment and management. Every institution that provides distance education has the obligation to fulfill these features. Also distance education must meet different learning styles, so Costa et al. (2020) used some artificial intelligence algorithms to identify the relation of the students' learning styles with their behaviors in learning management system.

There are many studies on the possibilities and problems of distance education in the relevant literature. Valentine (2002) stated that despite being advantages of distance learning, there are problems that need to be resolved as the quality of instruction, hidden costs, misuse of technology, and the attitudes of instructors, students, and administrators. There are advantages of distance learning as enhances learning opportunities, improves learning outcomes and facilitates networking and collaboration; and disadvantages as lack of social interaction or participation, may cause a feeling of isolation, while absence of social atmosphere may minimize motivation and interaction and worsen discipline (Ainoutdinova et al., 2017). Mirkholikova (2020) stated the advantages of distance learning as Availability, flexibility and relatively economy of money and time and gives a person a specific set of knowledge and skills, and disadvantages of distance learning as limited choice of faculties/modules and limited private communication.

In addition to the studies on the possibilities and problems, there are studies on the comparison of distance education with formal education. More students prefer distance education to balance their other commitments more easily and integrating some of the best aspects of distance learning into traditional courses ensure some educational advantages for institutions as hybrid learning environment (Hannay & Newvine, 2006). Mollenkopf et al. (2017) stated that preservice teachers met expectations in their technology use and in their overall lesson planning and teaching, and that there was no significant difference in student performance between online and face-to-face program pathway. Cavalli (2017) studied comparison of on-campus and distance learning outcomes

in a composite material course and determined that distance students again reported lower confidence in their understanding of course concepts.

The existence of many positive and sometimes critical approaches about distance education will not affect the use of this education in some special cases. After the COVID-19 epidemic in 2020, it made the distance education model compulsory without space limitation and was used in many countries at all levels of education (Bansal, 2020; Setiawan, 2020). COVID-19 pandemic opened up opportunities to the country to upgrade its educational mode and transfer its attention to emerging technologies (Toquero, 2020). Crawford et al. (2020) studied 20 countries' higher education intra-period digital pedagogy responses to discuss university responses across the world and determined that one side of extreme universities did little to respond (e.g. social distance), most of the universities rapidly closed their face-to-face operations and moved to digitalized education, and some universities were already prepared blended or fully online offerings before pandemic.

During the COVID-19 pandemic process, the rapid transition to online education in higher education has forced the development of instructional strategy. Bao (2020) stated that the COVID-19 caused Chinese universities to close the campuses and forced them to initiate online teaching, and for summarizing current online teaching experiences for university instructors six specific instructional strategies are presented, as “high relevance between online instructional design and student learning”, “effective delivery on online instructional information”, “adequate support provided by faculty and teaching assistants to students”; “high - quality participation to improve the breadth and depth of student's learning”, and “contingency plan to deal with unexpected incidents of online education platforms”.

10 In March 2020, COVID-19 pandemic was announced by Republic of Turkey Ministry of Health. On March 12, the Higher Education Council announced that the formal education at universities was suspended as of March 16, 2020. Within the scope of COVID-19 measures, universities decided to apply the distance education model in the Spring semester of 2019-2020 Academic Year, by taking a senate decision.

Isparta University of Applied Sciences has started distance education with asynchronous course documents from March 23, 2020. Isparta University of Applied Sciences, which started synchronous courses as of March 30 has enabled students to continue their education with a distance education model during the pandemic process. Table 1 shows the distance education statistics performed in the 2019-2020 Spring Pandemic Semester, as number of loaded resources, number of live lessons, number of live class participants, number of access to asynchronous resources, number of attendance to the recorded live lesson, watched live lesson time, number of faculty members who made content input, number of students included in the distance education system, uploaded video size, uploaded file size and total file upload size.

Table 1. The Distance Education Statistics Performed in the 2019-2020 Spring Pandemic Semester

Data Name	Data
Number of loaded resources	13.245
Number of Live lessons	2.895
Number of live class participation	35.620
Number of access to asynchronous resources	170.372
Number of attendance to the recorded live lesson	34.350
Watched live lesson time	73.308
Number of faculty members who made content input	855
Number of students included in the distance education system	27.039
Uploaded video size	179 GB
Uploaded file size	35 GB
Total file upload size	214 GB

According to the data in Table 1, Isparta University of Applied Sciences has had an effective and successful education process during the pandemic process. However, it is important to investigate the views of students taking courses about distance education in this period. This research was carried out in order to determine the students' knowledge and opinions about distance education in the 2019-2020 Education and Training Spring Semester Pandemic Process. Findings from this research may shed light as distance education module, lectures and lecture notes and personal evaluation on distance education.

Method

In this research, distance education in higher education in COVID-19 pandemic process is discussed the case of Isparta University of Applied Sciences. The survey method is defined as "arrangements made in the whole universe or a group of samples or samples to be taken from it in order to reach a general judgment about the universe" (Karasar, 2008). In this study, the opinions of students about distance education performed in the COVID-19 pandemic process using the survey method are presented.

The study was carried out with the participation of Isparta University of Applied Sciences students during the Spring Semester Pandemic Period of 2019-2020. Volunteering and availability principles were taken as basis in determining the participants. A total of 1011 people, 612 of whom were Men (60.5%) and 399 were Women (39.5%), answered the questionnaire (see Table 2).

Table 2. Demographic Information of the Participants

Gender	Frequency	Percentage
Male	612	60.5
Female	399	39.5
Device Used in Distance Education		
Computer	466	46.1
Phone	530	52.4
Tablet	12	1.2
I don't have a device	3	.3
Computer Status		
Yes	551	54.5
No	460	45.5
Internet Connection Except Telephone		
Yes	536	53.0
No	475	47.0

Participants were asked about the device they preferred to use in distance education, and it was determined that the participants used 466 computers (46.1%) and 530 phones (52.4%) as devices. "Is there a computer that you can use separately even if you can access the distance education system over the phone?" question was asked, 551 participants answered this question as yes (54.5%). "Do you have an Internet connection except your phone Internet at home right now for access to the distance education system?" 536 of the students answered yes (53%) to the question.

In this study, the questionnaire questions were prepared by examining the survey studies prepared in this field and by taking the opinions of three experts who are experienced in distance education. At this stage, after the draft questionnaire questions were prepared, the questionnaire was conducted face-to-face with 10 people in order to improve the questionnaire, to eliminate possible problems and deficiencies in the process and to reach the targeted result reliably. After this application, the errors in the survey questions have been corrected and the necessary additions and deductions have been made and the survey questions have been finalized.

There are 21 items in the questionnaire, these items are represented by 3 themes: "distance education system", "lectures and lecture notes" and "personal evaluation", which were developed in order to examine students' views on distance education. The scale has a Cronbach Alpha reliability coefficient of 0.909 and was created using a 5-point Likert type. Average, standard deviation and t-test analyzes were performed in the SPSS program. The responses to the scale items were evaluated by using mean, standard deviation, frequency, percentage and t-test analyzes. The 5-point Likert scale used is an evaluation scale from 1 to 5, and the scale options and score ranges are given in Table 3 (Karadağ et al., 2008).

Table 3. Scale Options and Score Ranges

Options	Scale options	Score ranges
I totally agree	5	4.20–5.00
I agree	4	3.40–4.19
Undecided	3	2.60–3.39
I do not agree	2	1.80–2.59
I totally disagree	1	1.00–1.79

Results and Discussion

The 21-item survey conducted within the scope of this study was represented by 3 factors: “distance education module”, “lectures and lecture notes” and “personal evaluation”, and the findings are presented in these titles. Also, t test analysis is performed for computer and internet status of participants.

Distance Education Module

Before the start of the 2019-2020 Spring Semester Pandemic Period of Isparta University of Applied Sciences, faculty members uploaded the course documents to the Student Information System. In order to provide technical information about the processing of distance education, information guides were prepared for academicians and students, and published on the University website. Within the scope of distance education, all courses were processed with live course links in accordance with the 2019-2020 Spring Semester Course Schedule, and the taught courses were recorded in the registered courses category, so that students can access the course again.

There are 11 questionnaires about distance education documents and live lessons that participants can access via the Student Information System (see Table 3). Given the average values of the survey items, the participants said, “I know that I can access the records of the "LIVE COURSE" that I could not attend later and do it again.” ($\bar{X} = 4.14$), “I can quickly and easily access the “COURSE DOCUMENTS” in the Student Information System.” ($\bar{X} = 3.73$) and “I regularly follow the “COURSE DOCUMENTS” in the Student Information System.” ($\bar{X} = 3.60$) answered the questionnaire at the level I agree. In addition, hard copies of the course documents were sent to students without internet access.

While students are satisfied in accessing the course documents and accessing registered and live classes; They stated that they were not satisfied with the quality of video ($\bar{X} = 2.43$) and sound ($\bar{X} = 2.33$) of system during live lessons in the distance education system (see Table 4). The students were informed about the internet and device quality, and the students were informed about the internet and device quality, users are informed about the audio and camera optimizations that should be done when the internet speed slow down. Part of this problem has been solved with the fact that the courses can be followed by the courses registered in the student information system.

Table 4. Questionnaire Items about Distance Education Module

No	Items	\bar{X}	Sd
1	I regularly follow “LIVE COURSES” within the distance education system.	3.18	1.402
2	I can access the "LIVE COURSES" within the distance education system quickly and easily.	2.82	1.485
3	I know that I can access the records of the "LIVE COURSE" that I could not attend later and do it again.	4.14	1.424
4	I regularly follow “REGISTERED COURSES” within the distance education system.	3.22	1.460
5	I can access the “REGISTERED COURSES” within the distance education system quickly and easily.	3.10	1.538
6	I regularly follow the “COURSE DOCUMENTS” in the Student Information System.	3.60	1.418
7	I can quickly and easily access the “COURSE DOCUMENTS” in the Student Information System.	3.73	1.468
8	I am satisfied with the AUDIO quality of the system during live lessons in the distance education system.	2.33	1.373
9	I am satisfied with the VIDEO quality of the system during live lessons in the distance education system.	2.43	1.414
10	I am satisfied with the "TECHNICAL SUPPORT" given about the solutions of the problems in the distance education system.	2.61	1.466
11	In general, the level of satisfaction of the module's work and intelligibility.	2.63	1.407

Lectures and Lecture Notes

The 4 questionnaires about live lectures and lecture notes academicians uploaded to the student information system, are presented in Table 5. The participants stated that they are satisfied with the compliance of the Instructors with the system and the “LIVE COURSE” narrations ($\bar{X} = 3.44$) and live courses duration ($\bar{X} = 3.40$).

Table 5. Questionnaires about Lectures and Lecture Notes

No	Items	\bar{X}	Sd
12	I am satisfied with the compliance of the Instructors with the system and the “LIVE COURSE” narrations.	3.44	1.461
13	I am satisfied with the “COURSE DOCUMENTS” in the Student Information System and their content.	3.26	1.459
14	I am satisfied with the “LIVE COURSE PROGRAM” and “COURSE HOURS” within the distance education system.	2.99	1.552
15	I am satisfied with “LIVE COURSES DURATION” within the distance education system.	3.40	1.520

Self-Evaluation

In this part of the survey, students have personal assessments about their own opportunities. “I find distance education more efficient compared to formal (face to face) education.” ($\bar{X} = 1.85$) item has the lowest average (see Table 6). When participants compared formal education and distance education, it was determined that they thought formal education was more efficient. In addition, the satisfaction level of the participants and family members who studied in formal education and encountered distance education during the pandemic process “Overall, my level of satisfaction with distance education” ($\bar{X} = 2.34$) and “My family members or relatives think positively about the distance education system.” ($\bar{X} = 2.37$) is lower than the answers given to the items.

“What are you satisfied with your internet connection and access status?” ($\bar{X} = 2.59$) is at the limit of disagree. One reason why internet satisfaction is low is that the internet is used a lot throughout the country in the pandemic process (Ting et al., 2020). Therefore, the internet satisfaction used by the user, which is one of the most important factors for the realization of distance education, is low. The students said, “I can always find my own (closed to external factors) or a suitable environment while studying distance education.” ($\bar{X} = 2.86$) and “Thanks to distance education, I can save my time and turn to my other interests.” ($\bar{X} = 2.93$), the items are at the level of indecision.

Table 6. Questionnaire Items about Self-evaluation

No	Items	\bar{X}	Sd
16	What is your satisfaction with your internet connection and access status?	2.59	1.459
17	I can always find my own (closed to external factors) or a suitable environment while studying distance education.	2.86	1.564
18	I find distance education more efficient compared to formal (face to face) education.	1.85	1.377
19	Thanks to distance education, I can save my time and turn to other interests.	2.93	1.591
20	My family members or relatives think positively about the distance education system.	2.37	1.470
21	Overall, my level of satisfaction with distance education	2.34	1.424

Computer Condition

“Is there a computer that you can use separately even if you can access the distance education system over the phone?” question was asked, 551 participants answered this question as yes (54.5%). Whether there was a significant difference between groups when answering the questionnaire of computer status was analyzed by using t-test. In Table 7, it was determined that there was a significant difference in all questionnaire items according to the results of the information whether the computer is available or not ($p < 0.05$). It was determined that students who have a computer were more likely to participate in all the items in the questionnaire than those without a computer. Therefore, the fact that individuals have a computer affects their views on distance learning module, lectures, lecture notes and personal evaluations.

Table 7. Computer Condition and Survey Items t-Test Analysis

No	Items	Answer	\bar{X}	Sd	F	P
Distance Education Module						
1	I regularly follow "LIVE COURSES" within the distance education system.	Yes	3.54	1.281	7.365	0.000
		No	2.75	1.420		
2	I can access the "LIVE COURSES" within the distance education system quickly and easily.	Yes	3.33	1.409	2.393	0.000
		No	2.21	1.336		
3	I know that I can access the records of the "LIVE COURSE" that I could not attend later and do it again.	Yes	4.43	1.192	113.780	0.000
		No	3.79	1.592		
4	I regularly follow "REGISTERED COURSES" within the distance education system.	Yes	3.59	1.368	2.277	0.000
		No	2.77	1.439		
5	I can access the "REGISTERED COURSES" within the distance education system quickly and easily.	Yes	3.58	1.441	0.072	0.000
		No	2.52	1.448		
6	I regularly follow the "COURSE DOCUMENTS" in the Student Information System.	Yes	3.94	1.262	29.824	0.000
		No	3.18	1.483		
7	I can quickly and easily access the "COURSE DOCUMENTS" in the Student Information System.	Yes	4.19	1.216	70.367	0.000
		No	3.18	1.554		
8	I am satisfied with the AUDIO quality of the system during live lessons in the distance education system.	Yes	2.66	1.393	15.735	0.000
		No	1.95	1.245		
9	I am satisfied with the VIDEO quality of the system during live lessons in the distance education system.	Yes	2.80	1.426	18.568	0.000
		No	1.97	1.259		
10	I am satisfied with the "TECHNICAL SUPPORT" given about the solutions of the problems in the distance education system.	Yes	3.00	1.440	0.050	0.000
		No	2.14	1.360		
11	In general, the level of satisfaction of the module's work and intelligibility.	Yes	3.07	1.355	0.447	0.000
		No	2.11	1.285		
Lectures and Lecture Notes						
12	I am satisfied with the compliance of the Instructors with the system and the "LIVE COURSE" narrations.	Yes	3.89	1.217	61.815	0.000
		No	2.91	1.546		
13	I am satisfied with the "COURSE DOCUMENTS" in the Student Information System and their content.	Yes	3.71	1.298	14.394	0.000
		No	2.73	1.464		
14	I am satisfied with the "LIVE COURSE PROGRAM" and "COURSE HOURS" within the distance education system.	Yes	3.37	1.494	0.220	0.000
		No	2.54	1.498		
15	I am satisfied with "LIVE COURSES DURATION" within the distance education system.	Yes	3.87	1.314	44.112	0.000
		No	2.85	1.564		
Self-Evaluation						
16	What is your satisfaction with your internet connection and access status?	Yes	3.14	1.425	20.104	0.000
		No	1.92	1.197		
17	I can always find my own (closed to external factors) or a suitable environment while studying distance education.	Yes	3.38	1.500	5.930	0.000
		No	2.24	1.407		
18	I find distance education more efficient compared to formal (face to face) education.	Yes	2.13	1.517	118.232	0.000
		No	1.51	1.098		
19	Thanks to distance education, I can save my time and turn to other interests.	Yes	3.30	1.540	0.195	0.000
		No	2.48	1.534		
20	My family members or relatives think positively about the distance education system.	Yes	2.75	1.512	30.806	0.000
		No	1.91	1.278		
21	Overall, my level of satisfaction with distance education	Yes	2.72	1.458	31.141	0.000
		No	1.89	1.241		

Internet Condition

"Do you have an Internet connection except your phone Internet at home right now for access to the distance education system?" 536 of the students answered yes (53%) to the question. A t-Test was applied to determine whether the presence of an external telephone connection in the participants' home affects their views (see Table 8). There was a significant difference in all of the questionnaire items according to the availability of internet at home except the telephone internet ($p < 0.05$). It has been determined that those who have the Internet are more

involved in all the items. It was determined that the participants' having internet expect the phone affects their opinions about distance education.

Table 8. t-Test Analysis of Survey Items with the Availability of Non-Telephone Internet

No	Items	Answer	\bar{X}	Sd	F	P
Distance Education Module						
1	I regularly follow "LIVE COURSES" within the distance education system.	Yes	3.51	1.281	10.044	0.000
		No	2.82	1.442		
2	I can access the "LIVE COURSES" within the distance education system quickly and easily.	Yes	3.31	1.406	0.384	0.000
		No	2.26	1.372		
3	I know that I can access the records of the "LIVE COURSE" that I could not attend later and do it again.	Yes	4.35	1.242	67.283	0.000
		No	3.90	1.572		
4	I regularly follow "REGISTERED COURSES" within the distance education system.	Yes	3.51	1.387	1.793	0.000
		No	2.88	1.467		
5	I can access the "REGISTERED COURSES" within the distance education system quickly and easily.	Yes	3.54	1.453	0.471	0.000
		No	2.60	1.479		
6	I regularly follow the "COURSE DOCUMENTS" in the Student Information System.	Yes	3.86	1.285	30.456	0.000
		No	3.29	1.500		
7	I can quickly and easily access the "COURSE DOCUMENTS" in the Student Information System.	Yes	4.17	1.239	65.590	0.000
		No	3.24	1.550		
8	I am satisfied with the AUDIO quality of the system during live lessons in the distance education system.	Yes	2.62	1.365	5.736	0.000
		No	2.02	1.312		
9	I am satisfied with the VIDEO quality of the system during live lessons in the distance education system.	Yes	2.73	1.390	2.114	0.000
		No	2.09	1.364		
10	I am satisfied with the "TECHNICAL SUPPORT" given about the solutions of the problems in the distance education system.	Yes	2.96	1.450	0.071	0.000
		No	2.21	1.382		
11	In general, the level of satisfaction of the module's work and intelligibility.	Yes	2.99	1.349	3.887	0.000
		No	2.23	1.365		
Lectures and Lecture Notes						
12	I am satisfied with the compliance of the Instructors with the system and the "LIVE COURSE" narrations.	Yes	3.79	1.276	37.857	0.000
		No	3.06	1.557		
13	I am satisfied with the "COURSE DOCUMENTS" in the Student Information System and their content.	Yes	3.62	1.317	15.896	0.000
		No	2.86	1.507		
14	I am satisfied with the "LIVE COURSE PROGRAM" and "COURSE HOURS" within the distance education system.	Yes	3.30	1.502	1.398	0.000
		No	2.64	1.534		
15	I am satisfied with "LIVE COURSES DURATION" within the distance education system.	Yes	3.78	1.365	23.319	0.000
		No	2.97	1.572		
Self-Evaluation						
16	What is your satisfaction with your internet connection and access status?	Yes	3.32	1.340	30.715	0.000
		No	1.76	1.102		
17	I can always find my own (closed to external factors) or a suitable environment while studying distance education.	Yes	3.44	1.465	2.628	0.000
		No	2.22	1.415		
18	I find distance education more efficient compared to formal (face to face) education.	Yes	2.10	1.509	83.308	0.000
		No	1.56	1.150		
19	Thanks to distance education, I can save my time and turn to other interests.	Yes	3.31	1.536	0.519	0.000
		No	2.49	1.542		
20	My family members or relatives think positively about the distance education system.	Yes	2.80	1.487	21.166	0.000
		No	1.88	1.288		
21	Overall, my level of satisfaction with distance education	Yes	2.67	1.449	16.391	0.000
		No	1.97	1.300		

Conclusion

This study presents the information and views of students about distance education in the 2019-2020 Education and Spring Semester Pandemic Period. Hung and Wati (2020) stated that the challenge for educators is how to make education in the pandemic more 'humane' and 'embodied' by creating a balance between technology use and humanity in education. Keskin and Kaya (2020) has highlighted that assessment of the advantages and disadvantages of emergency structured web-based distance education can be important for seeing the reflections of the period and proper configuration of such trainings in the pandemic period. According to the results of this research that takes students opinions into account, it has been revealed that the participants have internet connection other than computer and telephone in the house of more than half of them, so it should be taken into consideration that the participants are not sufficient and give their opinions about distance education according to these opportunities.

It was determined that the students in the questionnaire participated in the item on the distance education module, where they access the live education documents, live lessons and registered lessons, the records of the most live lessons can be accessed and repeated later. Turchynova et al. (2020) emphasized the comprehensibility, accessibility and repeatability features of distance education in their research. In addition, the participants stated that they are satisfied with the lecturer's compatibility with the system and live lectures and live lessons. When participants compared formal education and distance education, it was determined that they thought formal education was more efficient. When the questionnaires were analyzed by t-test according to having a computer and having a non-telephone internet, it was determined that the participants' internet and non-telephone internet affects their views of distance education.

The COVID-19 pandemic has not yet ended and the world health organization is now talking about the second wave scenarios of the epidemic. Therefore, most universities will continue their education with distance education during the pandemic process, and this process will lead to changes in education after the pandemic. Murphy (2020) studied COVID-19 and emergency eLearning and claimed that consequences of the securitization of higher education for post-pandemic pedagogy may increase access to education in rural communities due to personal or financial circumstances, the flexibility of asynchronous eLearning may provide wider access, also hybrid or blended forms may help improve the quality of face-to-face teaching by moving content delivery online and focusing in-person sessions on active learning within traditional higher education institutions. Toquero (2020) stated that higher education institutions thereby need to seize the opportunity to strengthen its evidence-based practices, provide accessible mental health-related services, and make the curriculum responsive for pandemic situations such as COVID-19.

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