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Academics' perception and practices of online education during the Covid-19 pandemic: The case of Turkey

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Abstract

COVID-19 affected higher educational institutions around the world. This study focused on academics' perceptions and practices of online education based on their academic discipline and previous online education experience. The survey research design used and an e-survey was conducted in May 2020, during which the lockdown restrictions were rather tight in Turkey. The analyzes were carried out on the responses of 8,242 academics' using the omnibus chi-square test and t-tests. The results point out that academics' time allocation to preparation for courses, student counselling, and lectures are varying due to their academic disciplines. Generally, academics have a negative perception of online education though there is a difference between the experienced ones and others. In particular, academics with online education experience exhibited lower negative perceptions of online education than those lacking such experience. Maybe one of the most problematic parts of this transition process for academics is how to ensure the reliability of exams. Our results showed that even the academics with online education experience have a higher level of distrust towards educational measurement and evaluation methods.

1. Introduction

The COVID-19 pandemic has affected higher education on a global scale never encountered before. According to World Bank on April 9th, 2020, universities and other tertiary education institutions were closed in 175 countries and communities, and over 220 million post-secondary students have had their studies ended or disrupted due to COVID-19 (World Bank, 2020). Different approaches to tackle the COVID-19 crisis have been implemented in different universities within different countries. Several universities ended the spring semester immediately. Some universities have a temporary halt to learning to design online learning and redevelop curriculum, and others move to remote online teaching the same day

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of their closure (Crawford et al., 2020). Although many universities provide online programs, the efforts made to continue teaching all courses online during the pandemic period have not been easy (UNESCO, 2020).

The concepts of distance education, online education, remote education, and e-learning have been used interchangeably over time with the opportunities provided by the developing technology. The core characteristic of distance education is the physical separation of student and instructor (Wedemeyer, 2010). Distance education is not a new concept; it has existed since the early half of the nineteenth century at the university level. Distance teaching universities were established to overcome geographical and economic barriers of students who were unable to attend courses at campus-based classes (Bell & Tight 1993; Volery & Lord, 2000). Distance education, which was initially carried out with traditional printed education materials and letters, has been replaced by electronic educational materials with the development of technology, communication of students with faculty through online programs, and evaluation of student engagement and even provide feedback through learning management systems. Even though there is no consensus on the definition of online education, providing distance education in a virtual environment can be defined as online education. Terms are often used interchangeably without meaningful differences (Guri-Rosenbilt, 2005; Moore et al., 2011). According to some researchers, the practices performed during the COVID-19 pandemic period should be considered as an emergency remote education or emergency online delivery rather than distance or online education (Bates, 2021; Williamson et al., 2020). Nowadays, emergency remote teaching is not an option; it is a temporary solution to an immediate problem (Bozkurt & Sharma, 2020). In this article, all forms of emergency remote learning/teaching activities through internet/online delivery are referred to as online education. However, we preferred the words distance, remote, or online in accordance with the usage context in the survey application.

Universities have 7.9 million students during the 2019-2020 academic year in Turkey. The Council of Higher Education (CoHE) is the constitutional governing body responsible for coordinating, supervising, and monitoring all 203 public and foundation universities in Turkey. Recommendations regarding measures to be taken by higher education institutions during the pandemic period announced by CoHE are:

- On February 4th, higher education institutions were asked to take necessary measures and announce protective measures.
- On March 11th, (the day of the detection of the first COVID-19 case in Turkey) Coronavirus Commissions were established in the universities.
- On March 12th, education was suspended for one week in all higher education institutions from March 16th, which was later prolonged to the whole semester. Universities could use online education methods synchronously or asynchronously for all courses, which form part of their formal education programs for the spring semester of the 2019-20 academic year.
- On March 19th, the proficiency exams for postgraduate programs, meetings of thesis monitoring committees, and thesis defences could also be held in the digital environment, provided that the necessary infrastructure was established and that the examination process was recorded and could be audited.
- On March 23rd, CoHE Courses Programme was established, which consists of open course resources such as books, lecture notes, presentations, and videos that were submitted to universities needing digital course materials.
- On March 31st, taking into consideration that some students do not have the opportunity to continue online education, they have been allowed to defer their enrollment in the spring semester of the 2019-2020 academic year.

- Due to the difficulties many academics face concerning distance education and content preparation in the digital environment, the course Introduction to Digital Education Environments has been launched online.
- On May 7th, decisions involving a series of measures to raise awareness for students with disabilities in online education send to universities.
- On May 27th, instead of conducting face-to-face exams in universities, it was proposed that digital possibilities or alternative methods such as homework and projects to be preferred as a measurement and evaluation principles of the pandemic period by university boards.

In the pandemic period, universities with distance education centers started online education in a short time, while academics learned how to teach online using online education systems through 'online education'. On the other hand, some universities in Turkey did not have the necessary infrastructure that could not go beyond sharing notes with their students. Even if the university had the necessary infrastructure or was able to provide it and academics had qualifications, at this point the first condition for students to access online education was whether they had physical facilities (internet connection, computer, or good learning environments). According to TurkStat's (2020), Information and Communication Technology Usage Survey, households with access to the internet is 90.7% in Turkey.

2. Literature

Academics' lecturing practices (Hativa, 1995), time used for teaching and preparation (Smeby, 1996), teaching methods (Neumann, 2001), curriculum development, communication with their students, the methods they use while assigning homework, or doing exams (Neumann et al., 2002) were different among different academic disciplines in traditional education. These differences were also evident in online courses based on disciplinary quadrants. We can broadly cluster academic disciplines into four main groups: hard pure (such as maths and science), soft pure (social sciences, fine arts, religious studies), hard applied (engineering, design) and soft applied (educational sciences, health sciences, languages, law) disciplines each with their own characteristics (Becher, 1989; Smith et al., 2008). According to Smeby (1996), hard disciplines spend less time than soft disciplines in lesson preparation and teaching. Humanists and social scientists spent the most time to lesson preparation, while natural scientists, medical faculty members, and technologists spent less. Although supervision is directly related to the number of students, medical faculty members spent the most time on supervision per student, humanists, and social scientists the least. In online education, some researches suggest that the amount of time and effort to develop, and teach an online course is higher than the face-to-face course (Lin et al., 2012; Meyer, 2011). Findings from Marek et al. (2021) survey of faculty experiences in converting classes to distance learning in the COVID-19 pandemic revealed that most respondents experienced much higher workloads and stress than in face-to-face classes. Although discipline-related differences in teaching time, student counselling, and other aspects of teaching and amount of time to converting classes to online education are well documented, to the authors' knowledge no prior study has examined the time allocation difference between traditional education and online education based on academic disciplines. In this study, we ask academics from different disciplines whether there is a change during the pandemic in the time they devote to preparation for the course, delivering the course and student counselling, and the direction of the change if any.

Researchers have shown that academics report being more pessimistic than optimistic about online education in the pre-pandemic period (Allen & Seaman, 2012). According to Johnson et al. (2020), regardless of online teaching experience, many academics reported that they were using new technologies and a large volume of faculty respondents expressed feelings of stress and anxiety during the early weeks of the pandemic in the United States. However, experience with online education has a positive effect on academics' perceptions of online education (Bunk et al., 2015; Dolloph, 2007; Marek et al., 2021). Ulmer et al. (2007) examined the perceptual differences among higher education faculty members, pointing out

that academics with experience responded favorably to questions about distance education, while those without experience were less receptive. A growing body of research exists on academics' perception of online education but there is limited literature that compares the perception of online education across academic disciplines and online teaching experience. This study focuses on how academic disciplines and online teaching experience influence academics' perceptions of online education. We tested whether perceptions of online education change based on academic discipline and previous online education experience.

This research aims to observe the academics' perceptions and practices of online education during the pandemic period by studying the variations of their attitude to online education with respect to their academic disciplines and previous online education experience.

Subsequently, the study was guided by the following research questions:

Is there any difference between the academics' time allocated to preparation for courses, lectures, and student counselling during the pandemic period based on their academic discipline?

How does academics' perception of online education differ according to their academic discipline?

Is there any difference in academics' perceptions of online education according to their online teaching experience?

After the COVID-19 pandemic seen in Turkey, the academics who had never taught online before found themselves teaching online. This study provides information regarding academics' time allocation changes and priorities of perception in online education according to academic disciplines. The results will enable the higher education administrators to take necessary measures and support for academics from different disciplines. Furthermore, this study will have considerable contributions through its findings to stakeholders to determine the academics' perception of positive and negative aspects of online education compared to face-to-face education. Data gathered also provide information on teaching practice preferences after the pandemic.

3. Methodology

This research is conducted through a combination of both descriptive and exploratory survey research designs. The survey research design is used to describe the present situation, to determine individual opinions, and to evaluate the system (Creswell, 2013). To gain better insight into the transition of higher education institutions during the pandemic period, an e-survey has been conducted. With the use of online surveys, one can reach a broader set of individuals without large costs and thereby might have a higher number of responses. However, there are legitimate concerns regarding sampling error and nonresponse rate in online surveys (Kalantari et al., 2011). We choose this methodology as the face-to-face interview was not possible during the pandemic. Yet, there were important changes to be captured while academics were trying to transition to online teaching methods.

3.1. Data Collecting Tool

For studying the impact of measures taken about to the pandemic, a survey form was developed and sent out under the 'The Effects of the Isolation Period on Academics' title. The general survey that consists of 21 items (64 statements) was developed by the researchers based on the relevant literature (Allen & Seaman, 2012; Bunk et al.; Smeby, 1996). It was designed to determine the impacts of the COVID-19 pandemic on the life of academics in Turkey. The general survey included demographics, age, marital status, academic title, and household status at the time of the lockdown, the teaching responsibilities, changes in workload and academic activities, household chores, childcare responsibilities, and time allocated to personal matters items. Firstly, the survey was examined by experts in the field of educational measurement and evaluation, sociology, higher education, and Turkish language regarding content validity and comprehensiveness of

items. A pilot study was conducted to evaluate the efficacy of the items using 100 academics' responses. Based on statistical results, some items were revised, some words were changed with their synonyms to make the items clearer, and two items were removed due to irrelevance. Among the entire population of 174,568 faculty members working at 203 state and foundation universities as of 2020, the survey link was sent to 80,776 faculty members whose e-mail addresses were accessible from public sources. The survey link was sent by e-mail with a cover letter, the procedure for completing the survey, and information about voluntary participation. The survey was implemented as a web survey and optimized for use on both computer and mobile devices, Google forms and Typeform application interfaces were used. The implementation was carried out between May 1-31, 2020, during which the lockdown restrictions were rather tight.

In this study, we used 12 items out of 21 items of the general survey. These 12 items were related to demographic information, online teaching experience before the pandemic, online education practices, time allocation changes in academic activities, methods used for measurement and evaluation, perceptions of online education, and teaching preferences after the pandemic period. Participants responded to three statements related to changes in the time allocation patterns during the lockdown period. Academics reported on their time allocation changes for preparation for course/s, lecturing, and student counselling. Responses on the survey ranged from Decreased, Unchanged, to Increased. Online education perception items include eight statements and asked academics to report to what extent they agreed to given statements is using a 3-point agreement scale. Responses are on the Likert scale with the options Disagree, No idea, and Agree. Finally, the academics selected teaching preferences after the pandemic period among five statements.

3.2. Study Group

A total of 8,242 academics participated in this study, and the response rate of the survey is 10.2%. The gender and title distribution of the population and sample are provided in Table 1.

Table 1.

Population and Sample Distributions

	N %	***n %***
Gender		
Male	54.8	50.1
Female	45.2	49.9
Titles		
Research Asisstant	29.1	22.8
Lecturer*	21.5	20.9
Assistant Professor	23.6	26.4
Associate Professor	9.5	13.0
Professor	16.3	16.9

** A lecturer in the Turkish Higher Education System is responsible only for teaching. The lecturer is named Öğretim Görevlisi in Turkish. These individuals may or may not hold a PhD degree.*

When we look at the main indicators of the academic population reported by CoHE (2019) in Table 1, males and females constitute 54.8% and 45.2% of the population. These percentages are 50.1% and 49.9% of the sample, respectively. Regarding academic titles, the distribution of the sample is similar to the population distribution; therefore, no weighting was necessary. Thus, the sample of this study is assumed to be a representative sample of academics employed at higher education institutions in Turkey.

Demographic information such as age, title, and areas of academic disciplines of the academics are summarized in Table 2.

Table 2.

Demographic Characteristics of Academics

	n	*%*
Age		
22-30	1,693	20.5
31-40	2,988	36.3
41-50	2,047	24.8
51-60	1,196	14.5
61 and above	318	3.9
Titles		
Research Assistant	1,878	22.8
Lecturer	1,721	20.9
Assistant Professor	2,178	26.4
Associate Professor	1,072	13.0
Professor	1,393	16.9
Areas of Academic Discipline		
Educational Sciences	664	8.1
Science and Mathematics	670	8.1
Languages	387	4.7
Fine Arts	280	3.4
Law	218	2.6
Divinity (Islamic)	338	4.1
Architecture, Planning, & Design	291	3.5
Engineering	994	12.1
Health Sciences	1,810	22.0
Social, Humanities, & Administrative Sciences	2,136	25.9
Sport Sciences	162	2.0
Agriculture, Forestry, & Fisheries	292	3.5

Academics' online teaching experience before the pandemic, online education practices and methods used for measurement and evaluation during the pandemic, and teaching practices preferences after the pandemic are summarized in Table 3.

Table 3.

Educational Practices of Academics Before, During and After the Pandemic Period

	n	*%*
Online teaching experience before the pandemic		
Experienced	1,503	18.2
Non-experienced	6,739	81.8
Online education practices during the pandemic*		
Synchronous	4,508	54.7
Asynchronous	2,588	31.4
Sharing course materials	3,758	45.6
Academics that do not provide online education during the pandemic		
Educational Sciences	111	16.7
Science and Mathematics	158	23.6
Languages	63	16.3
Fine Arts	46	16.4
Law	90	41.3
Divinity (Islamic)	99	29.3
Architecture, Planning, & Design	63	21.6
Engineering	250	25.2
Health Sciences	680	37.6
Social, Humanities, & Administrative Sciences	541	25.3
Sport Sciences	47	29.0
Agriculture, Forestry, & Fisheries	83	28.4
Methods used for measurement and evaluation during the pandemic*		

Homework	5,051	61.3
Online, open book exam	780	9.5
Online, closed book exam	345	4.2
Online, multiple-choice exam	1,915	23.2
Online, audio, and video oral exam	555	6.7
Presentation and discussion of the homework in an online course/class	1,072	13.0
Remote work and requesting video record	331	4.0
Adaptive exam	382	4.6
Giving exam questions online and asking for answer images that are solved manually on paper in a given time	810	9.8
Teaching practices preferences after the pandemic		
The traditional system should be essential; online education should only be used as a complementary/supporting.	4,433	53.8
Theoretical courses and exams should be online; applied courses should be face-to-face.	282	3.4
All theoretical courses should be online, applied courses and exams should be face-to-face.	956	11.6
All theoretical and possible applied courses and exams should be online.	234	2.8
Online education should not be used unless necessary.	2,337	28.4

**More than one option can be chosen.*

As can be seen from Table 3, only 21.3% of the academics stated that they had the experience of teaching online before the pandemic period. Also, it was asked 'How they did online lessons in the pandemic period?'. 54.7% of the academics stated that they teach in real-time (synchronously), 31.4% of them stated that they recorded the lesson on the video and uploaded it to the system (asynchronous), and 45.6% of them are sharing course materials.

During the pandemic period, the rate of those who did not teach online courses is 27% on average. When the distribution is analyzed in terms of academic disciplines, the highest rate belongs to health sciences (37.6%), followed by divinity with 29.3%.

Similarly, the academics were asked which methods they used/will use for measurement and evaluation in online courses. 61.3% of the academics used homework and 23.2% of them used online multiple-choice exams for measurement and evaluation purposes. In this period, the usage of other measurement and evaluation methods is relatively low.

Finally, participants were asked about their teaching practice preferences after the pandemic period. 53.8% of the academics choose the option of 'Traditional system should be the essential, and online teaching should be used only as a complementary/supporting.', 28.4% of the academics choose the option of 'Online teaching should not be used unless necessary.' On the other hand, only 2.8% of the academics choose the option of 'All theoretical and possible applied courses and exams should be online.'.

3.3. Data Analysis

First, an omnibus chi-square test of independence was performed to examine the academics' time allocation changes during the pandemic period and their perceptions of online education based on their academic disciplines. The main purpose of the study is to take a snapshot of the situation in the pandemic period; for that reason, follow up tests have not been performed based on academic disciplines. Since academic disciplines gathered under 12 different headings by CoHE, it was not feasible to look at the differentiation of each academic discipline with others. The perception of online education statements was investigated using t-test analysis to test the mean difference between experienced and non-experienced academics. Options "*Disagree*", "*No idea*", and "*Agree*" were recoded as -1, 0, and 1, respectively. Two-tailed independent sample t-test analysis was conducted on each statement and Cohen's d was used to calculate the effect size. According to the cut-off values specified by Cohen (1992), the effect is interpreted as small ($d = 0.20$), medium ($d = 0.50$), and large ($d = 0.80$) effect. All analyses reported in this study were carried out using SPSS version 22 (IBM, 2013).

3.3.1 Time allocation changes during the pandemic period based on academic discipline

All omnibus chi-square results for time allocation changes during the pandemic period based on academic discipline are collated in Table 4.

Table 4.

Omnibus Chi-Square Results for Time Allocation Changes

		Academic Discipline													
Statements	**Options**	Educational Sciences %	Science and Mathematics %	Languages %	Fine Arts %	Law %	Divinity (Islamic) %	Architecture, Planning, & Design %	Engineering %	Health Sciences %	Social, Humanities, & Administrative Sci. %	Sports Sciences %	Agriculture, Forestry, & Fisheries %	Total %	χ^2 n
Time allocated to preparation for course(s)	Decreased	13.0	15.4	11.0	12.4	21.3	20.4	8.3	15.3	24.5	14.5	15.6	17.3	16.8	165.34*
	Unchanged	29.0	30.2	29.5	24.8	33.0	39.8	29.8	26.1	30.0	32.1	31.9	31.9	30.4	
	Increased	58.0	54.3	59.5	62.8	45.7	39.8	61.9	58.6	45.5	53.4	52.5	50.8	52.9	7,4107,410
Time allocated to student counselling	Decreased	27.6	34.6	25.5	15.9	35.0	35.1	14.7	34.5	44.0	30.5	26.8	36.3	32.9	224.38*
	Unchanged	29.6	36.4	34.7	35.1	35.0	38.1	37.9	36.1	29.6	34.1	34.1	38.9	33.8	6,8266,826
	Increased	42.8	29.0	39.8	49.0	30.0	26.9	47.4	29.4	26.4	35.4	39.1	24.8	33.3	
Time allocated to lecture	Decreased	51.0	49.9	49.9	35.8	38.5	49.6	29.6	44.1	49.2	48.3	45.5	46.2	47.0	101.35*
	Unchanged	28.8	28.4	28.3	33.9	44.1	28.1	35.6	31.7	32.5	31.1	23.9	27.5	31.1	
	Increased	20.2	21.7	21.8	30.4	17.4	22.3	34.8	24.2	18.3	20.6	30.6	26.3	22.0	6,9806,980

*$p < .001$; $df = 22$.

As can be seen in Table 4, there are statistically significant differences between the academics' time changes allocated to preparation for courses ($p < .000$), for student counselling ($p < .000$), and for lectures ($p < .000$) during the pandemic period based on their academic discipline. When 16.8% of the academics reported that time allocated to preparation for courses decreased, 52.9% of them reported that time allocated to preparation for courses increased. As expected, among the academic disciplines, the highest decrement is reported by health sciences (24.5%). On the other hand, the highest increment time allocated to preparation for courses reported by fine arts (62.8%). Although the time allocation for student counselling varies according to academic disciplines, the percentage of decreased, increased, and unchanged are approximately similar (33%). The highest decrement time allocated to student counselling is reported by health sciences (44%). Besides, 22% of the academics reported that the time allocated to lecture increased, whereas 47% of them reported decreased.

3.3.2 Perception of Online Education Based on Academic Discipline

Omnibus chi-square results for perceptions of online education based on academic discipline presented in Table 5.

Table 5.

Omnibus Chi-Square Results for Perceptions of Online Education

		Academic Discipline														
Statements	**Options**	Educational Sciences %	Science and Mathematics %	Languages %	Fine Arts %	Law %	Divinity (Islamic) %	Architecture, Planning, & Design %	Engineering %	Health Sciences %	Social, Humanities, & Administrative Sci. %	Sports Sciences %	Agriculture, Forestry, & Fisheries %	Total %	χ^2 / *n*
Online education is more effective than face-to-face education since learning time and pace are determined by the students.	Disagree	72.1	73.9	74.7	71.1	67.4	76.0	65.6	69.2	66.2	73.7	70.4	73.3	70.9	77.5*
	No idea	14.2	16.0	13.7	14.3	17.0	14.5	20.6	14.3	20.3	15.4	15.4	19.2	16.5	
	Agree	13.7	10.1	11.6	14.6	15.6	9.5	13.7	16.5	13.5	10.9	14.2	7.5	12.6	8,242
Online education does not motivate students to engage with the course.	Disagree	15.8	10.1	12.4	18.2	13.8	7.7	23.7	13.0	11.0	10.2	11.1	10.3	12.2	103.2*
	No idea	10.8	11.8	10.6	15.7	13.8	8.9	12.0	12.0	14.8	11.0	13.6	12.7	12.3	
	Agree	73.3	78.1	77.0	66.1	72.5	83.4	64.3	75.1	74.1	78.7	75.3	77.1	75.7	8,242
Online education reduces the motivation of the instructor to give high quality lectures.	Disagree	32.4	23.3	33.1	34.6	29.8	20.7	44.0	29.0	23.8	26.0	25.3	23.6	27.2	114.3*
	No idea	18.8	15.5	15.8	17.5	13.3	14.5	13.4	18.0	19.4	17.1	17.3	15.8	17.3	
	Agree	48.8	61.2	51.2	47.9	56.9	64.8	42.6	53.0	56.8	56.9	57.4	60.6	55.5	8,242
It is advantageous for the instructor to be able to use educational materials repeatedly in online education.	Disagree	15.8	17.6	17.3	20.7	17.0	15.1	14.8	13.2	16.5	15.6	17.9	18.8	16.1	56.5*
	No idea	17.8	21.2	24.8	23.6	21.6	21.0	24.7	18.2	24.6	23.3	22.8	27.4	22.5	
	Agree	66.4	61.2	57.9	55.7	61.5	63.9	60.5	68.6	58.9	61.0	59.3	53.8	61.4	8,242
Since education material can be used repeatedly in online education, it reduces the need for educators in the medium term.	Disagree	54.2	48.5	49.9	53.2	51.8	45.9	57.0	47.8	40.0	46.6	40.7	44.9	46.7	97.8*
	No idea	16.0	19.1	21.4	21.1	17.9	19.8	19.6	17.7	22.9	20.1	29.6	26.4	20.4	
	Agree	29.8	32.4	28.7	25.7	30.3	34.3	23.4	34.5	37.1	33.3	29.6	28.8	32.8	8,242
Online education provides a great cost advantage as it eliminates place and related expenses.	Disagree	17.8	24.0	21.7	19.3	19.3	14.2	17.5	18.0	18.1	15.9	21.0	25.3	18.3	80.9*
	No idea	13.0	17.6	14.2	18.6	15.1	13.0	15.5	14.6	18.2	13.5	18.5	17.5	15.5	
	Agree	69.3	58.4	64.1	62.1	65.6	72.8	67.0	67.4	63.8	70.6	60.5	57.2	66.2	8,242
Although online education offers advantages, it is not an alternative to face-to-face education.	Disagree	8.1	6.9	4.4	7.1	6.9	5.6	9.6	8.1	5.5	6.2	4.9	3.4	6.4	51.9*
	No idea	10.1	8.1	9.0	8.9	9.2	5.3	12.0	10.4	11.4	8.4	7.4	6.8	9.4	
	Agree	81.8	85.1	86.6	83.9	83.9	89.1	78.4	81.5	83.1	85.4	87.7	89.7	84.2	8,242
The reliability of measurement and evaluation activities in online education is low.	Disagree	12.7	6.9	8.3	20.0	7.3	5.6	15.1	8.4	6.1	9.6	6.8	6.8	8.8	158.6*
	No idea	10.7	11.0	10.6	17.9	10.6	8.3	18.2	7.4	12.3	11.7	7.4	11.3	11.3	
	Agree	76.7	82.1	81.1	62.1	82.1	86.1	66.7	84.2	81.6	78.8	85.8	81.8	79.9	8,242

**p < .001; df = 22.*

As shown in Table 5, differences in perception of academics towards online education also vary between academic disciplines. Most of the academics (70.9%) disagree with the statement that 'Online education is more effective than face-to-face education since learning time and learning pace are determined by the students.', whereas only 12.6% of them agree with this expression. The disagreement rate is the highest

(76%) among the divinity discipline. Academics also strongly (75.7%) agree that 'Online education does not motivate students to engage with the course'. The agreement rate is the highest (83.4%) also for the divinity (Islamic). Moreover, academics also agree that (55.5%) 'Online education reduces the motivation of the instructor to give high-quality lectures.', disagreement rate with this statement is 27.2%, but among the academic disciplines, the highest disagreement rate belongs to architecture, planning, and design (44%). While 61.4% of the academics think that 'It is advantageous to use educational materials repeatedly in online education.', only 32.8% of them agree with 'Since education material can be used repeatedly in online education, it reduces the need for educators in the medium term.'. The highest agreement rate with this statement belongs to the health sciences (37.1%). Besides, 66.2% of the academics agree that 'Online education provides a great cost advantage as it eliminates place and related expenses.', whereas 18.3% of the academics disagree with this statement. Academics strongly agree with the view that (84.2%) 'Although online education offers advantages, it is not an alternative to face-to-face education.'. Finally, academics strongly agree that (79.9%) 'The reliability of measurement and evaluation practices performed in online education are low.'. Academic disciplines that can provide individualized assignments such as fine arts discipline, percentage of disagreement with this statement is (20%) relatively high compared to the other academic disciplines (8.8% overall). However, it can be said that the trust towards online measurement and evaluation is quite low even in fine arts.

3.3.3 Perception of Online Education Based on Online Teaching Experience

Perception of online education based on online teaching experience results from independent t-tests, presented in Table 6, indicated statistically significant results for seven statements out of eight. Since violating the assumption of homogeneity of variances, non-integer degrees of freedom were presented. To calculate the effect size Cohen's *d* statistics were used (Cohen, 1992).

Table 6.

Perceptions of Online Education Based on Previous Online Education Experience

Statements	Experienced (*n*=1,503)		Non-experienced (*n*=6,739)				
	M	***SD***	***M***	***SD***	***df***	***t***	***d***
Online education is more effective than face-to-face education since learning time and pace are determined by the students.	-0.50	0.77	-0.60	0.69	2062.70	4.96*	0.14
Online education does not motivate students to engage with the course.	0.55	0.76	0.66	0.67	2045.09	-5.18*	0.15
Online education reduces the motivation of the instructor to give high-quality lectures.	0.14	0.90	0.31	0.85	2143.66	-6.68*	0.19
It is advantageous for the instructor to be able to use educational materials repeatedly in online education.	0.52	0.75	0.44	0.76	2232.08	3.83*	0.11
Since education material can be used repeatedly in online education, it reduces the need for educators in the medium term.	-0.15	0.89	-0.14	0.88	2204.08	-0.71	0.01
Online education provides a great cost advantage as it eliminates place and related expenses.	0.53	0.77	0.47	0.79	2271.44	2.85*	0.07
Although online education offers advantages, it is not an alternative to face-to-face education.	0.72	0.62	0.79	0.53	2030.90	-4.25*	0.12
The reliability of measurement and evaluation activities in online education is low.	0.63	0.70	0.73	0.60	2009.01	-5.16*	0.15

*$p < .001$.

The examination of the first statement indicates a significant difference between academics with experience compared to those without experience ($p < .001$). Negative mean values for both groups reveal that academics on average disagree that 'Online education is more effective than face-to-face education since

learning time and pace are determined by the students.'. However, non-experienced academics disagreement with this statement is higher than experienced academics.

The second statement, 'Online education does not motivate students to engage with the course.' also differs between experienced and non-experienced academics ($p < .001$). Non-experienced academics ($M = 0.66$) on average, perceive that online education does not motivate students to engage with the course compare to academics with experience ($M = 0.55$).

The third significant statement is, 'Online education reduces the motivation of the instructor to give high-quality lectures.' ($p < .001$). On average, the agreement level of academics without experience ($M = 0.31$) with this statement is higher than academics with experience ($M = 0.14$).

Experienced and non-experienced academics differ on the statement, 'It is advantageous for the instructor to be able to use educational materials repeatedly in online education.' ($p < .001$). On average, both academics with ($M = 0.52$) or without ($M = 0.44$) experience agree that using educational materials repeatedly is advantageous in online education.

The only non-significant statement is 'Since education material can be used repeatedly in online education, it reduces the need for educators in the medium term.' ($p = .593$). Mean values indicate that academics with ($M = -0.15$) or without ($M = -0.14$) experience neutral with this statement.

In terms of academics' scores on the statement 'Online education provides a great cost advantage as it eliminates place and related expenses.', experienced academics ($M = 0.53$) are found to be significantly ($p < .001$) more positive than non-experienced academics ($M = 0.47$).

Another significant difference between experienced and non-experienced academics is the seventh statement 'Although online education offers advantages, it is not an alternative to face-to-face education.' ($p < .001$). On average, both groups of academics strongly agree that online education is not an alternative to face-to-face education. Although non-experienced academics ($M = 0.79$) seem to strongly agree more than experienced academics ($M = 0.72$).

The last significant statement in terms of experienced and non-experienced academics are 'The reliability of measurement and evaluation activities in online education is low.' ($p < .001$). Academics without experience ($M = 0.73$) strongly agree with this statement comparing academics with experience ($M= 0.63$).

Although seven out of eight statements indicate a significant difference, Cohen suggested that $d = 0.2$ be considered a small effect size. It means that the difference between the two groups' means is less than 0.2 standard deviations. As can be seen from Table 6, *d* statistics indicate very small effect sizes (Cohen, 1992).

In summary, both groups of academics have a negative perception of online education. However, as can be seen from mean values academics who experienced in online teaching before the pandemic period have relatively lower negative perceptions of online education than those who do not have online education experience.

4. Conclusion and Suggestions

The results of this study outline the current state of education practices during the pandemic period in Turkey. Only one-fifth of the academics had online teaching experience, and the transition to online education was unplanned and rapid. Some academics did not give online lessons during the 2020 spring semester. The highest rate of not providing online education belongs to the health sciences discipline. It is an expected result since these people cope with the pandemic in the frontline. Academics' perceptions of online education are negative, and more than half of them think that the traditional system should be as a basis and that online education should only use as a support in the post-pandemic period.

The findings of this study suggest that the variability between academics' time allocated to preparation for courses, student counselling, and lectures according to their academic disciplines. Except for divinity,

academics from all academic disciplines reported that time allocated to preparation for courses increased. Due to face-to-face education being suspended, academics should redesign their lessons for the online environment, which is a time-consuming and demanding process even in the pre-pandemic period (Anglin & Anglin, 2009; Bolliger & Wasilik, 2009; Fein & Logan, 2003). Through a design group, university administrators should support academics in developing educational materials suitable for the online environment, such as interactive multimedia-supported teaching materials. Considering the priorities of academic disciplines, academics who frequently use mathematical operations and drawings may be supported with additional equipment such as a graphic pad and drawing pen, albeit those who prioritize laboratory experiments assist with virtual laboratories and simulation tools for online education. On the other hand, most of the academics reported that the time allocated to lecture decreased. It was thought that the main reason for this decrement is the shortened lesson duration. Due to insufficient storage capacity, some universities have shortened lesson duration.

Findings from this study also indicate academics' perceptions of online education is negative and differentiate based on academic discipline. Overall, these findings are in accordance with findings reported by Allen and Seaman (2012) and Harrison et al. (2017). A combination of factors may be effective on negative perceptions of online education, such as disciplinary differences in academics' view about the knowledge students expected to acquire, practical requirements, assessment differences, and demand for a work-based learning environment. According to Coughlan and Perryman (2011), the practical requirements of teaching-related disciplines such as health and social care academics may prioritize face-to-face learning activities, and science discipline academics may prioritize conducting laboratory experiments. On the other hand, media-rich subjects such as fine arts and architecture, planning, and design may more effectively use online education. University administrations supporting academics by considering the priorities of different academic disciplines may contribute positively to the online education perceptions of academics.

It is crucial to highlight that academics have a negative perception of online education, but there is a difference based on their experience. Academics with online education experience exhibited lower negative perceptions of online education than those lacking such experience. The findings are directly in line with previous results (Alshangeeti et al., 2009; Freitas & Paredes, 2018; Hunt et al., 2014; Ulmer et al., 2007). Being familiar with the concept supports the positive perception of online education. Although online education is not optional during the pandemic period, academics gain experience in this process positively contributes to speeding up the transition to online education. However, academics tended to agree that online education can not be an alternative to face-to-face education. While discussions that the pandemic period may be an opportunity for transformation in higher education, especially academics who did not have online education experience before the pandemic period may have developed a negative perception against online education due to negative experiences such as lack of knowledge or skills to design online courses, the inadequacy of the training given (Bolliger & Wasilik, 2009), and technical problems (Yamamoto & Altun, 2020).

Moreover, maybe one of the most problematic parts of this transition process for academics is how to perform measurement and evaluation practices, and to ensure the reliability of exams (Nguyen et al., 2020). According to a recent survey by Wiley (2020), 93% of the instructors believe that students are more likely to cheat online. Our results go beyond previous reports, showing that even the academics who have online education experience have a higher level of distrust towards educational measurement and evaluation methods. The source of doubts about online measurement and evaluation in online education is that it is very difficult to prevent and control students from cheating (Şenel & Şenel, 2021), plagiarism, and other ethical violations. Most of the online tests conducted in Turkey during the pandemic did not provide reliable monitoring for students (Acar-Güvendir & Özer-Özkan, 2021; Özalkan, 2021; Tüzün & Toraman, 2021). To alleviate the concerns of academics, anti-cheating technologies such as online proctoring systems, and safe browsers that prevent students from searching or accessing programs should be operated.

There are limitations of this study. The analysis methods are more descriptive than statistical modeling. It is also worth noting that this study's scope covers only higher education institutions in Turkey. Moreover, maybe one of the main reasons for such a negative perception is the implementation time of the survey in which the lockdown period was intense; people may have felt in obscurity during these unprecedented times of uncertainty.

Online education created a tremendous change in the way instruction is delivered. It was required new skills not only for academics but also for university students. Additional research is also needed to investigate to perceptions and needs of university students who had to switch to online education in the middle of the 2020 spring semester due to the pandemic. Besides, solutions should be developed for students that reinforce their professional competencies through workplace internships, teaching practices, and clinical practices (UNESCO, 2020). Universities should also follow the problems faced by disadvantaged students, and students in different disability groups to take measures for different needs.

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