

# The Instructors' Competencies and Experiences in Online Teaching

Sezer Kose Biber

*Istanbul University-Cerrahpasa, Turkey*

Sevda Kucuk

*Ataturk University, Turkey*

Irfan Simsek

*Istanbul University-Cerrahpasa, Turkey*

Tuncer Can

*Istanbul University-Cerrahpasa, Turkey*

This study aims to examine the online teaching processes of instructors in higher education in detail and reveal their online teaching competencies. The study employed a convergent parallel mixed method design, where the comparative method was used in the quantitative part of the research and the qualitative part was designed as a descriptive case study. The data were collected from 490 online instructors in various departments of a state university in Turkey. A questionnaire was used to reveal the instructors' practices, experiences, opinions, and online teaching competencies in the emergency remote teaching process. The results indicated that instructors mostly preferred Zoom for synchronous and Canvas for asynchronous applications in online education. The online teaching competencies of instructors in pedagogy, technology, and facilitation dimensions were found to be quite high, while course administration competencies were intermediate. According to the qualitative dimension of the research, most of the instructors reported a significant increase in workload due to online education. They also cited the advantages of online education as well as the pedagogical and technical difficulties encountered.

**Keywords:** teaching competencies, online instructors, online higher education, covid-19 pandemic, online teaching

---

*Sezer Kose Biber is an assistant professor at the Department of Computer Education and Instructional Technology, Istanbul University-Cerrahpasa, Türkiye, and can be reached at [sezer@iuc.edu.tr](mailto:sezer@iuc.edu.tr)*

*Sevda Kucuk is an associate professor of the Department of Computer Education and Instructional Technology, Ataturk University, Türkiye, and can be reached at [sevdakucuk@atauni.edu.tr](mailto:sevdakucuk@atauni.edu.tr)*

*Irfan Simsek is an associate professor of the Department of Computer Education and Instructional Technology, Istanbul University-Cerrahpasa, Türkiye, and can be reached at [irfan@iuc.edu.tr](mailto:irfan@iuc.edu.tr)*

*Tuncer Can is an associate professor of the Department of English Language Teaching, Istanbul University-Cerrahpasa, Türkiye, and can be reached at [tcan@iuc.edu.tr](mailto:tcan@iuc.edu.tr)*

DOI: <https://doi.org/10.37120/ijttl.2022.18.2.01>

Accepted in March 1, 2023

Published in May 1, 2023

## INTRODUCTION

The pandemic has necessitated educational institutions to adapt to new ways of providing their services. The universities and other higher education institutions have rapidly gone on to emergency remote and online teaching because of the pandemic (Johnson et al., 2020). While this situation has brought the demand for online education to its peak, it has also created an urgent need for moving the existing courses of educational institutions to online environments, realizing effective learning, ensuring teacher and student satisfaction, and performing assessment and evaluation activities in online environments. In this process, where all educational institutions have switched to emergency remote teaching, access to technological tools and the Internet has become very important. In recent years, access to technology has been quite high, especially in higher education in developed countries; devices such as smartphones, tablets, and laptops are readily available to students and faculty members (Alexander et al., 2019).

According to TUIK (2020) data, 99.8% of individuals at the higher education level in Turkey use mobile technologies actively, and 98.7% have Internet access. However, the instructors need support in using the technologies effectively in the educational environment (Galaneck & Gierdowski, 2020). In higher education studies regarding the use of technologies, the faculty, administrators, and staff report obstacles such as time investment, workload balance, complexity, diffusion of technology, and return on investment when using technology more for the business (Ertmer, 1999; Lederman, 2017; Polly et al., 2020). However, current conditions require a rapid change and transformation process to overcome these obstacles in higher education. In the new normal, the faculty must be prepared to teach in online, blended, and face-to-face modes. Higher education institutions are moving to new models for online programs (Brown et al., 2020). During the pandemic process, the instructors quickly transformed their courses into an online format. Students were offered course content through learning management systems. In addition, communication and interaction with students were extended through applications such as whiteboards, chat rooms, discussion forums, quizzes, and surveys. It is very important to use these platforms effectively in online education.

Moving a course online requires new ways of thinking about teaching and learning (Bates, 2000), and online tutors need to go beyond the competencies required by the traditional environment. Therefore, defining new competencies was required for the instructors who found themselves teaching compulsory online classes during the pandemic process. When the relevant literature is examined, it is seen that the competencies of online tutors should have been the subject of many studies. When these studies are examined, although there are some differences between them, online instructors' competencies are generally categorized in terms of technology/technical skills, communication skills, leadership, pedagogical knowledge, instructional design, facilitating, active teaching, content development, management, and evaluation (Anderson et al., 2019; Berge, 1995; Chickering & Gamson, 1999; Farmer & Ramsdale, 2016; Goodyear et al., 2001; Klein & Fox, 2004; Reid, 2002).

## LITERATURE REVIEW

Various researchers have defined online teaching competencies and looked at various aspects of the teaching process. Some looked at the attitude and philosophy of the instructors in terms of teaching and learning, the ways instructors build learning communities, the online class administration, the workload management, and the ability to use technology (Bigatel et al., 2012), whereas others dwelled on the ability of instructors to establish a social presence, design and plan online courses, handle student problems, evaluate and improve the system

(Savery, 2005). Albrahim (2020) also classifies the skills and competencies required for teaching online courses in higher education as (a) pedagogical skills, (b) content skills, (c) design skills, (d) technological skills, (e) management and institutional skills, and (f) social and communication skills.

Wang et al. (2019) have found that the instructors' competencies in online teaching are not affected by their gender and age if they are beginners; however, their educational level and experience in online teaching and learning impacted their competence. The more time spent teaching online, the greater confidence or self-efficacy is observed regarding the competencies of online instructors (Gosselin et al., 2016), and fewer challenges are expected during online classes (Bailey & Lee, 2020). Moreover, instructors who found themselves teaching online courses and had to start using new technologies like LMS reported needing more training and support from their institutions, and this leads to comfort and ease of use (Bove & Conklin, 2020; Wang et al., 2019).

Wolfe and Uribe (2020) claim that instructors could enhance genuine interaction with their students online as well by providing meaningful assignments, purposeful feedback, and helpful tools. Regarding success in online courses, Martin et al. (2020) posit that using facilitation strategies like contacting students in many ways and providing timely responses and feedback on assignments and projects is of vital importance. The transitioning process to online teaching necessitated the majority of instructors making changes to the assignments or exams, and almost half of the instructors lowered the volume of workload for students, created opportunities for guidance and support for their students, and provided more access to online digital materials (Johnson et al., 2020). As for the most common challenges that instructors face while conducting online courses and moving from traditional face-to-face classes online, the instructors indicate that not only designing and organizing online teaching and evaluation of students' performances are the biggest challenges (Wang et al., 2019) but also helping students with technical problems (Bailey & Lee, 2020).

## **RATIONALE AND IMPORTANCE**

As the number of undergraduate students enrolling in online programs and courses increases (Hussar & Bailey, 2020), the demand for quality education is also increasing day by day, making it a necessity. Especially during the pandemic period, educational institutions all over the world underwent an urgent transformation. The instructors transferred the courses they taught face-to-face to online environments. Instructors without prior online teaching experience had to use various online educational platforms and tools. However, it has become a necessity to design and implement courses befitting online education and to organize assessment and evaluation activities accordingly. While this rapid transition process provides an advantage for students and teachers in terms of ensuring continuity of education, it has also brought various difficulties and problems. At this point, it is vital to determine the experiences, needs, and aspirations of online instructors, identify the problems they encounter in the online environment, develop solutions, ensure continuity in online learning environments, and improve the education process. This study examines the online teaching processes of instructors in higher education in detail and reveals their online teaching competencies. The data obtained from the study is thought to guide educational institutions in creating more effective online learning environments.

## **METHOD**

This research was designed using a convergent parallel mixed method design. The comparative method was used in the quantitative part of the study to investigate the differences between two or fewer groups or cases in terms of information types such as

success, attitude, and opinion (McMillan & Schumacher, 2014). The qualitative part of the research was designed as a descriptive case study, which is a widely used approach in the qualitative research (Silverman, 2006). The most distinctive feature of a qualitative case study is the in-depth investigation of one or a few situations. In other words, the factors related to a situation are investigated in a holistic approach with a focus on how they affect the relevant situation and how they are affected by it (Cohen et al., 2013; Silverman, 2006).

### *PARTICIPANTS*

The data were collected from instructors during the midterm of the 2020–2021 fall semester at a large state university in Turkey. Specifically, the data were collected from 490 online instructors (258 females, and 232 males) who work in various departments within the faculties of health, engineering, and social sciences. Table 1 presents the demographic characteristics of the participants.

Table 1. *Demographic characteristics of online instructors*

		N	%
Gender	Male	232	47.3
	Female	258	52.7
Age	25-39 years	110	22.4
	40-49 years	184	37.6
	50 years and above	196	40.0
Academic Experience	1-10 years	122	24.9
	11-20 years	166	33.9
	21 years and above	202	41.2
Instructors' Discipline	Engineering	181	36.9
	Health	201	41.0
	Social Science	108	22.1

Courses in online education were delivered using synchronous and asynchronous methods. Synchronous courses were conducted on the days and times determined in line with the course schedules prepared by the faculties on applications such as BigBlueButton, Zoom, and Google Meet. Asynchronous activities, such as resource sharing, assignments, and discussion activities for courses, were carried out through content management systems like Canvas and Google Classroom, which also serve as student information systems.

To support the online education process at the university, in-service training was provided to lecturers to enhance their technological and techno-pedagogic competence. Guides and help videos for the use of systems and platforms for the online education process were also prepared and made available to the instructors.

### *DATA COLLECTION PROCESS*

A questionnaire was developed to reveal the instructors' practices, experiences, opinions, and online teaching competencies in the online teaching process. The questionnaire consisted of four parts. In the first part of the questionnaire, there were questions to reveal the demographic characteristics of the teachers. In the second part, there were multiple-choice and open-ended questions aimed at revealing the synchronous and asynchronous platforms, educational material preferences, and controls in the online teaching process of the tutors. The third part of the questionnaire included eight items in a 6-Likert type (0: None... 5: Very Frequent) in which the trainers stated which features of the LMS platforms they used. In the last part of the questionnaire, the online teaching competencies scale of the instructors developed by the (Simsek et al. (2021) was used.

The scale consists of 15 items on a 5-Likert scale (from 1: strongly disagree to 5: strongly agree) and comprises four factors: online instructors' competencies: pedagogy (5 items),

facilitation (3 items), technology (3 items), and course administration (4 items). The total variance of the scale is 64%, and the Cronbach alpha is 0.83.

### DATA ANALYSIS

In the study, the descriptive, chi-square test of homogeneity, and Kruskal Wallis-H statistical methods were used for quantitative data. To check the normality of the distribution, skewness, and kurtosis values were utilized. Non-parametric tests were used since assumptions could not be provided. In the analysis of qualitative data, categories, and codes were created by content analysis. In addition, opinions from the participants were presented as direct quotations.

## FINDINGS

### ONLINE TEACHING PLATFORM USAGE

In the study, Table 1 presents the online teaching platform usage preferences of online instructors, indicating the percentage and frequency values. The results revealed that the instructors mostly preferred Zoom ( $f = 378$ , 77.1%) and Google Meet ( $f = 171$ , 34.9%) platforms for the synchronous training processes. It was determined that Canvas LMS ( $f = 228$ , 46.5%) was used the most in the asynchronous education process, followed by Google Classroom ( $f = 73$ , 14.9%). When Table 2 is examined, it is understood that the instructors mostly teach their courses on asynchronous platforms.

Table 2. *Online instructors' online teaching platforms usage preferences*

		Yes		No	
		<i>f</i>	%	<i>f</i>	%
Synchronous	Zoom	378	77.1	112	22.9
	Google Meet	171	34.9	319	65.1
	BigBlueButton	29	5.9	461	94.1
	Microsoft Teams	28	5.7	462	94.3
Asynchronous	Canvas	228	46.5	262	53.5
	Google Classroom	73	14.9	417	85.1
	Student Information System	189	38.6	301	61.4

The LMS preferences for the asynchronous training process of the instructors are determined by the online exam features offered by the LMS, the file size that can be downloaded, synchronization with applications such as calendar, e-mail, the usefulness of the features such as announcement, assignment, the usefulness of the interface, the modular structure, and the advanced discussion forum features. Participant opinions regarding those are as follows:

*"In terms of making exams fairer and in terms of preventing cheating in exams"*

*"Smooth work, features such as announcement, homework sending, integrated with Google Drive and calendar"*

*"Creating a question bank for easier grading in different exam types"*

*"Ease of exam conduction, more user-friendly interface access, the opportunity to have live courses at the same time"*

*"Modular structure, scoring discussion forum, integration with the Student Information System, advanced online exam reporting."*

Platform preferences for the synchronous training process of online trainers were influenced by the features of the platforms (Figure 1). In the free version of the Zoom platform, the time limit and the number of participants have caused the instructors to diverge

on different platforms. Alternatively, the Zoom platform's classroom management features, whiteboard feature, allowing group work (breakout rooms), advanced screen sharing, and remote desktop access features were the reasons for preference. On the other hand, the features that made the instructors find the platform useful are audio/video quality, reliability, integration with the LMS used, automatic integration with the calendar, and automatic lecture recording on the drive.

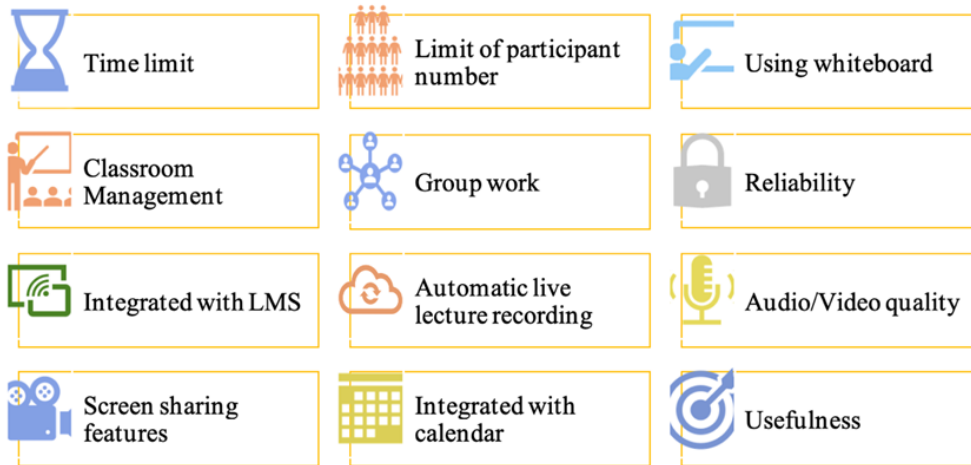


Figure 1. The preference reasons for online instructors' synchronous platform usage.

The instructors stated that the advanced virtual classroom features of Zoom influenced their preferences, but the time limit affected the course process negatively. On the other hand, the instructors who preferred Google Meet also mentioned its advantages, such as course recording and sharing features, no time limit, resolution adjustment according to connection speed, and integration with Google Calendar. Participants' opinions regarding these are as follows:

*"I prefer Zoom because the breakout rooms that allow group work are created, but the 40 minutes cut has a very negative effect because the courses are divided."*

*"Zoom allows uninterrupted communication, a simple interface, and functional tools (note taking, whiteboard, breakout rooms, share screen, etc.)."*

**LMS PLATFORMS' USAGE PURPOSE**

Instructors' usage levels of LMS platforms' features are presented in Table 3. It was determined that the instructors mostly used LMS platforms for sharing the course contents ( $M = 4.55, 76\%$ ), messaging with students ( $M = 3.66, 46\%$ ), and making announcements ( $M = 3.42, 42\%$ ). It was also observed that they used homework ( $M = 2.94, 26\%$ ) and online exams ( $M = 2.92, 33\%$ ) moderately. The use of calendars ( $M = 2.11, 19\%$ ), the creation of lecture modules ( $M = 2.0, 18\%$ ), and the use of discussion forums ( $M = 1.32, 6\%$ ) are found to be very low.

Table 3. Online instructors' usage of LMS platforms' features

	Mean	%	0: Never	1	2	3	4	5:Very frequently
Sharing course contents	4.55	76	1.2	1.0	2.7	7.3	11.8	75.9
Messaging	3.66	46	5.9	6.3	10.4	16.1	15.7	45.5

Adding announcements	3.42	12.4	5.9	9.4	13.7	16.3	42.2
Assigning homework	2.94	13.7	11.0	12.7	19.4	17.1	26.1
Online exams	2.92	21.4	8.8	8.0	13.1	15.7	33.1
Calendar	2.11	33.3	12.9	12.0	12.9	9.8	19.2
Creating course modules	2.06	34.1	12.0	13.1	13.5	9.2	18.2
Discussion forms	1.32	49.8	14.5	11.2	9.0	9.2	6.3

**EDUCATIONAL MATERIAL USAGE**

Educational materials used by the instructors in the online education process are presented in Figure 2. It is seen that the instructors mostly preferred presentation materials ( $f = 470$ , 43%) and videos ( $f = 279$ , 25%), followed by open courseware materials ( $f = 216$ , 20%). Animation ( $f = 72$ , 6%), simulation ( $f = 40$ , 4%), and games ( $f = 24$ , 2%) are less commonly used materials.

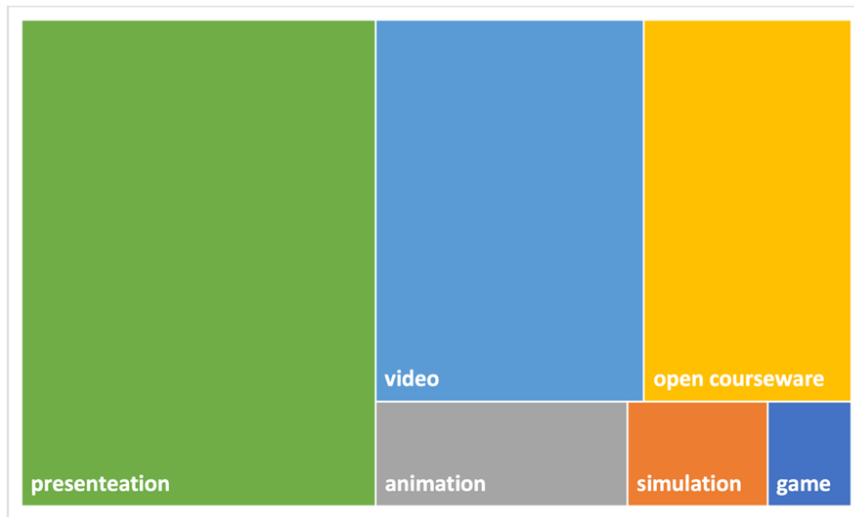


Figure 2. Online Instructors Used Educational Materials During Online Education

Whether the instructors’ educational material usage preferences differ according to age and discipline was examined with the chi-square test. As can be seen in Table 4, differences according to age have been determined in the use of video and game materials. It has been found that teachers between the ages of 25-39 use these materials at a significantly higher level. As seen in Table 4, the use of these materials decreases as the age range increases.

Table 4. Differences in educational material usage preferences according to age

	n						$\chi^2$	p
	25-39 years		40-49 years		50 and above			
	Yes	No	Yes	No	Yes	No		
video	75 (69%)	35 (31%)	108 (59%)	76 (41%)	96 (49%)	100 (51%)	10.967	.004
game	11 (10%)	99 (90%)	9 (5%)	175 (95%)	4 (2%)	192 (98%)	9.582	.008

As seen in Table 5, the instructors’ use of presentation, open courseware, and game materials show significant differences according to their fields. In the field of health, presentations are preferred more, open courseware materials are significantly preferred more in the field of engineering, and game materials are preferred more in the social field.

Table 5. Differences in educational material usage preferences according to discipline

	n						$\chi^2$	p
	Engineering		Health		Social			
	Yes	No	Yes	No	Yes	No		
presentation	173 (96%)	8 (4%)	199 (99%)	2 (1%)	98 (91%)	10 (9%)	12.339	.002
open courseware	103 (57%)	78 (43%)	57 (28%)	144 (72%)	56 (52%)	52 (48%)	34.881	.000
game	0 (0%)	191 (100%)	8 (4%)	193 (96%)	16 (15%)	92 (85%)	32.487	.000

### ONLINE TEACHING COMPETENCIES

The levels of online teaching competencies of the instructors are presented in Table 6. Instructors consider themselves competent the most in the pedagogy ( $M = 4.68$ ) dimension. Their competence in the dimensions of technology ( $M = 4.19$ ) and facilitation ( $M = 4.17$ ) is also determined at a high level. However, the competence of course administration ( $M = 3.26$ ) is intermediate.

Table 6. Instructors' online teaching competencies

	Mean	SD
Pedagogy	4.68	.395
Technology	4.19	.710
Facilitation	4.17	.813
Course administration	3.26	.890
Total	4.07	.526

The study also examined if the instructors' online teaching competencies differ by age. As seen in Table 7, teachers' general online teaching proficiency levels differ significantly according to age, but the effect size of this is low ( $p < .05$ , Cohen's  $d = .311$ ). Significant differences were also found in the technology, course administration, and facilitation dimensions. The effect sizes of the differences in the course administration and facilitation dimensions were low, and the maximum effect size was medium (Cohen's  $d = .506$ ) in the technology dimension. Specifically, the online teaching competencies of instructors between the ages of 25-39 were significantly higher in these dimensions and in the overall total. However, there was no significant difference in pedagogy competence based on age.

Table 7. Instructors' online teaching competencies according to age

	Age	N	Mean Rank	df	$X^2$	p	Cohen's d
Pedagogy	25-39 years	110	251.07	2	.796	.681	N/A
	40-49 years	184	238.72				
	50 years and above	196	248.74				
Facilitation	25-39 years	110	284.46	2	11.419	.003	.281
	40-49 years	184	237.65				
	50 years and above	196	231.00				
Technology	25-39 years	110	288.57	2	31.243	.000	.506
	40-49 years	184	264.19				
	50 years and above	196	203.78				



Course Administration	25-39 years	110	275.34	2	12.070	.002	.291
	40-49 years	184	218.99				
	50 years and above	196	253.64				
Total	25-39 years	110	288.60	2	13.513	.001	.311
	40-49 years	184	237.58				
	50 years and above	196	228.74				

Another focal point that was examined in the study was whether the instructors differed in online teaching competencies according to their study field. As seen in Table 8, instructors' general online teaching proficiency levels and course administration competencies differ significantly in favour of social science, but their effect size is low ( $p < .05$ , Cohen's  $d < .5$ ). There was no significant difference in pedagogy, facilitation, or technology competencies according to their disciplines ( $p > .05$ ).

Table 8. *Instructors' online teaching competencies according to discipline*

	Age	N	Mean Rank	df	$X^2$	p	Cohen's d
Pedagogy	Engineering	181	244.22	2	1.471	.479	N/A
	Health	201	239.50				
	Social Science	108	258.81				
Facilitation	Engineering	181	243.74	2	1.460	.482	N/A
	Health	201	239.66				
	Social Science	108	259.32				
Technology	Engineering	181	259.02	2	3.789	.150	N/A
	Health	201	231.48				
	Social Science	108	248.93				
Course administration	Engineering	181	232.47	2	11.265	.004	.279
	Health	201	235.66				
	Social Science	108	285.65				
Total	Engineering	181	242.54	2	7.725	.021	.218
	Health	201	230.96				
	Social Science	108	277.53				

#### INSTRUCTORS' VIEWS TOWARD ONLINE EDUCATION

According to the data obtained from multiple-choice and open-ended questions to determine the opinions of the instructors on the online education process, the majority of the instructors stated that their workload in online education had increased either partially ( $f = 196$ , 40%) or significantly ( $f = 165$ , 34%). 26% of the instructors reported that their workload did not increase. Additionally, most instructors expressed interest in teaching one or more courses in the future through blended ( $f = 358$ , 73%) or fully online ( $f = 321$ , 66%) formats.

Through content analysis of the instructors' opinions about the online education process, the themes expressing advantages and disadvantages were created, as seen in Figure 3. Under the advantage theme, usefulness, technology-enhanced learning, and flexibility categories emerged. It is emphasized that online education is more suitable for mass and adult education,

graduate level and social/basic sciences, and theoretical courses. It is stated that online education supports the creation of technology-enhanced learning environments with the use of Web 2.0 tools, multimedia materials, simulation/virtual labs, interactive methods, and materials as well. It has been affirmed that the flexible structure of online education increases accessibility, complies with the new norm, and provides student satisfaction. On the other hand, the pedagogical and technical difficulties of online education are also mentioned. Difficulties for pedagogical class participation, engagement, communication, and interaction, lack of socialization, and practical courses were revealed. Technically, problems such as audio/webcam, network/bandwidth, and exam security are also expressed.

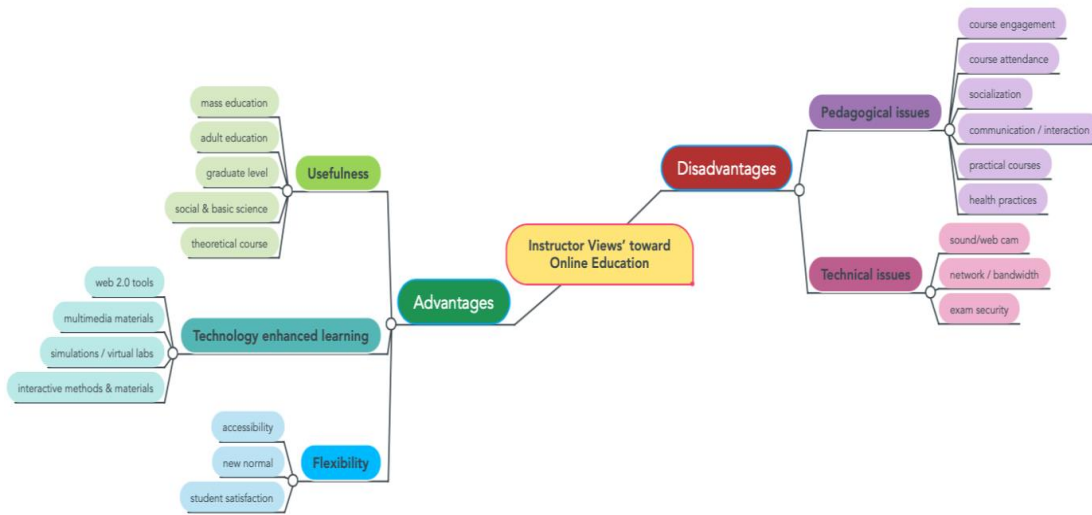


Figure 3. Instructor views toward online education

## DISCUSSION

In this study, the instructors' online teaching competencies and their experiences were examined in detail. The study revealed that the instructors preferred Zoom the most and then Google Meet for synchronous applications in the online teaching process. As a matter of fact, Zoom has become one of the most preferred synchronous communication environments for both business and educational purposes (Tenebruso, 2020; Xie et al., 2020).

As a matter of fact, as has happened all over the world (Johnson et al., 2020; Xie et al., 2020), instructors in higher education institutions in Turkey have also offered their courses synchronously via videoconferencing. The classroom management features of the Zoom platform, the whiteboard feature, group work (breakout rooms) prospects, advanced screen sharing and remote desktop access features, and LMS integration were the reasons why the instructors preferred this platform. As Correia et al. (2020) posited in their studies, Zoom stands out more than other videoconferencing software in terms of supporting concrete experience, reflective observation, abstract conceptualization, and active experimentation in four experiential learning modes. The instructors also deviated to Google Meet, which allows them to automatically save and share courses on Google Drive, is integrated with Google Classroom, and has no time limit. As a matter of fact, concerns regarding the security and privacy of student data are raised in this process (Correia et al., 2020; Trust, 2020).

The instructors preferred Canvas the most as it was provided by the university free of charge for asynchronous activities, followed by the Student Information System. Canvas has grown rapidly in recent years and is one of the most highly preferred LMSs all over the world with its features (Fathema & Akanda, 2020; Xie et al., 2020). It is thought that depending on their previous usage habits, the instructors use this platform due to the content management system features of the student information system, such as sharing the course content and

assigning homework, as well as basic communication and interaction features such as messaging with students. In the pandemic process, it can be said that with the complete transition of the instructors to online teaching, they started to use the existing features of these platforms for more than just sharing the course materials for asynchronous education. However, parallel to the literature, it is understood that the advanced features offered by LMS systems are still not fully used by instructors (Dahlstrom et al., 2014; Fathema & Akanda, 2020). LMS was mostly used for sharing the course contents. It is moderately used for messaging, adding announcements, assigning homework, and creating online exams. Calendar, course module creation, and discussion forum features were used at a low level. In parallel, Rhode et al. (2017) state that discussion boards are used less by tutors in their work. The instructors used presentation materials in the online education process the most, followed by videos and open education resources. As a matter of fact, many instructors who did not have online teaching experience before had difficulty converting face-to-face classes into online courses quickly (Bailey & Lee, 2020; Cruickshank, 2020). Videos have been among the most used educational materials in emergency remote teaching during the pandemic process (Johnson et al., 2020). The use of videos is high when the instructors record synchronous sessions and then present them to the students via LMS. During the pandemic process, open course platforms, scientific databases, and the fact that many institutions and organizations provided educational resources openly and free of charge to users may have increased the use of open educational resources. On the other hand, animation, simulation, and games were less commonly used materials. Instructors need to prepare such materials for their courses themselves, but it is time-consuming too. In addition, it requires having the competence to use the tools to develop these applications. In the literature, it is revealed that instructors face difficulties in using and integrating such tools and applications (Bennett et al., 2012; Brooks & Pomerantz, 2017; Hull & Dodd, 2017; Polly et al., 2020).

As the age level increases, the rate of use of video and game materials decreases. It can be commented that younger instructors learn the use of material preparation applications faster and use such applications to develop materials. Although the presentation materials are used at a high rate in each discipline, their use in the field of health is significantly higher. It can be said that theoretical lectures in the field of health are given to large groups at the same time, so they are preferred in order to transfer more information in a short time. Open courseware materials are used by almost half of the tutors in every discipline, but their use in engineering has become more prominent. Parallel to this, it is stated that MOOCs will come to the fore in the engineering education (Sezgin & Cirak, 2020). In the literature, it is stated that time and academic workload create barriers to the integration of technology-enhanced strategies (Dailey-Hebert et al., 2014; Gregory & Lodge, 2015; Johnson et al., 2012; Polly et al., 2020; Watty et al., 2016).

The online teaching competencies of the instructors in pedagogy, technology, and facilitation dimensions are quite high, while course administration competencies are intermediate. The pedagogical role of the instructors is vital in facilitating student learning, engagement, and motivation. Moreover, having clear goals, encouraging participation and contribution to the course, and encouraging discussions are among the pedagogical strategies (Bawane & Spector, 2009; Berge, 1995; Martin et al., 2020). The instructors seem to have adapted their face-to-face classroom strategies to the online teaching process. The high level of technology competencies of the instructors indicates that they can effectively use the hardware and software tools required by distance education and solve the technical problems they encounter on their own. Technology usage anxiety is a significant barrier that can be overcome by experiencing the use of technology (Johnson et al., 2012; Polly et al., 2020). It can be interpreted that the use of technological tools by instructors in the pandemic process through experiential learning increases their technological competence. On the other hand, the facilitation of the process is crucial in online teaching by being present and available,

sharing expertise online and modeling for the students, and by the instructor's timely response and feedback (Bawane & Spector, 2009; Martin et al., 2018, 2019; Reid, 2002; Shank, 2004). Instructors are making efforts to support their students in every aspect so that education can continue uninterrupted in this emergency remote teaching process. However, teachers seem to have difficulties in course administration, such as organizing the courses in a modular structure, using the discussion forum and other existing features, and organizing activities that will increase communication and interaction. Previous studies suggest that low self-efficacy, fear of technology, lack of training, a complex interface, and design tutorials are important factors in effective usage behaviors of LMS (Fathema et al., 2015; Sinclair & Aho, 2018).

Younger instructors' online teaching competencies are significantly higher overall. It can be interpreted that younger instructors adapted to online teaching faster in this emergency transformation process. In parallel with this, it was found that younger trainers' ICT competencies were higher (Pardo, 2012). Wang et al. (2019) revealed that age has no effect on online teaching proficiency. Therefore, there is no consensus on the effect of age on the online teaching competence of instructors.

Online education is effective for adult education; it is an important opportunity offered by the digital age; it provides flexible learning; and it is particularly effective for mass education in crowded classrooms. Moreover, it has been mentioned that online education is very suitable for social and basic sciences, theoretical courses, and graduate courses; it enables the use of interactive methods and materials; increases awareness and use of Web 2.0 tools; and provides a tendency to use virtual labs. On the other hand, the pedagogical and technical difficulties of online education are also asserted. Although emergency remote teaching is a temporary process, it has enabled instructors to experience online teaching and see it through their own eyes, enhancing awareness of its advantages and disadvantages. In parallel with these results, previous studies have revealed similar advantages and limitations of online education (Ferri et al., 2020; Mukhtar et al., 2020).

## CONCLUSION

According to the results obtained, it is recommended to provide teachers with just-in-time training and workshops at appropriate times towards technology integration and use of digital technologies, as well as establish a peer network, use a community of practice, and provide effective examples for online teaching. Technological tools and applications are used in different ways and amounts in the courses of each discipline. For this reason, it will be more effective to design workshops with small groups and customize them for each area. With this training, it should be ensured that teachers move away from teacher-centered methods and materials and tend to align with student-centered methods. Instructors may encounter complex and field-specific problems when using LMS. Higher education administrators should evaluate the LMS usage levels of the teachers and the problems they encounter and develop strategies to provide personalized, individual, technical, and pedagogical support in line with the needs of the faculty. In addition, higher education institutions should establish policies on intellectual property and examine technologies in terms of security before adopting them. The efforts of instructors to learn digital tools and their participation in the offered training within their busy schedules can be suggested by intuition by supporting them with awards and incentives that show that their time and efforts are appreciated and valued. In this new normal, it is important for high-quality education that instructors now focus on designing their courses for online learning and that they are supported by intuition in this process.

The study has uncovered comprehensive and extensive experience and competence results from the data collected from instructors from different fields teaching online at a major

university in Turkey. However, collecting data from a single university and the results being based on self-reported data are the limitations of the study. Future studies can be expanded by collecting data from different universities and countries. Multiple data sources, including interviews, observations, system logs, and student learning outcomes, could be used for future studies. The effects of the demographic features of the instructors on online teaching competencies can be investigated in more detail with the data collected from the larger sample. In addition, a wider assessment can be made by collecting data from managers, technical staff, and students.

## REFERENCES

- Albrahim, F. A. (2020). Online teaching skills and competencies. *Turkish Online Journal of Educational Technology - TOJET*, 19(1), 9–20.
- Alexander, B., Ashford-Rowe, K., Barajas-Murphy, N., Dobbin, G., Knott, J., McCormack, M., Pomerantz, J., Seilhamer, R., & Weber, N. (2019). *EDUCAUSE horizon report: 2019 higher education edition* (p. 44). EDUCAUSE Center for Analysis and Research. <https://library.educause.edu/~media/files/library/2019/4/2019horizonreport.pdf>
- Anderson, T., Rourke, L., Garrison, R., & Archer, W. (2019). Assessing teaching presence in a computer conferencing context. *Online Learning*, 5(2), Article 2. <https://doi.org/10.24059/olj.v5i2.1875>
- Bailey, D., & Lee, A. (2020). Learning from experience in the midst of Covid-19: Benefits, challenges, and strategies in online teaching. *Computer-Assisted Language Learning Electronic Journal*, 21(2), 176–196.
- Bates, A. W. (2000). *Managing technological change: Strategies for college and university leaders*. Wiley.
- Bawane, J., & Spector, J. M. (2009). Prioritization of online instructor roles: Implications for competency-based teacher education programs. *Distance Education*, 30(3), 383–397. <https://doi.org/10.1080/01587910903236536>
- Bennett, S., Bishop, A., Dalgarno, B., Waycott, J., & Kennedy, G. (2012). Implementing web 2.0 technologies in higher education: A collective case study. *Computers & Education*, 59(2), 524–534. <https://doi.org/10.1016/j.compedu.2011.12.022>
- Berge, Z. L. (1995). The role of the online instructor/facilitator. *Educational Technology*, 35(1), 22–30.
- Bigatel, P. M., Ragan, L. C., Kennan, S., May, J., & Redmond, B. F. (2012). The identification of competencies for online teaching success. *Journal of Asynchronous Learning Networks*, 16(1), 59–77. <http://dx.doi.org/10.24059/olj.v16i1.215>
- Bove, L. A., & Conklin, S. (2020). Learning strategies for faculty during a learning management system migration. *Online Journal of Distance Learning Administration*, 23(1), 1–10.
- Brooks, D. C., & Pomerantz, J. (2017). *ECAR study of undergraduate students and information technology, 2017* (p. 41). EDUCAUSE Center for Analysis and Research. <https://er.educause.edu/~media/files/library/2017/10/studentitstudy2017.pdf>
- Brown, M., McCormack, M., Reeves, J., Brooks, D. C., & Grajek, S. (2020). *2020 EDUCAUSE horizon report: Teaching and learning edition* (p. 58). EDUCAUSE Horizon Report. [https://library.educause.edu/~media/files/library/2020/3/2020\\_horizon\\_report\\_pdf](https://library.educause.edu/~media/files/library/2020/3/2020_horizon_report_pdf)
- Chickering, A. W., & Gamson, Z. F. (1999). Development and adaptations of the seven principles for good practice in undergraduate education. *New Directions for Teaching and Learning*, 1999(80), 75–81. <https://doi.org/10.1002/tl.8006>

- Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education*. Routledge.
- Correia, A.-P., Liu, C., & Xu, F. (2020). Evaluating videoconferencing systems for the quality of the educational experience. *Distance Education, 41*(4), 429–452. <https://doi.org/10.1080/01587919.2020.1821607>
- Cruickshank, S. (2020, March 12). *How to adapt courses for online learning: A practical guide for faculty*. The Hub. <https://hub.jhu.edu/2020/03/12/how-to-teach-online-courses-coronavirus-response/>
- Dahlstrom, E., Brooks, D. C., & Bichsel, J. (2014). *The current ecosystem of learning management systems in higher education: Student, faculty, and IT perspectives* (p. 27). EDUCAUSE Center for Analysis and Research. <https://library.educause.edu/-/media/files/library/2014/9/ers1414-pdf.pdf>
- Dailey-Hebert, A., Mandernach, B. J., Donnelly-Sallee, E., & Norris, V. R. (2014). Expectations, motivations, and barriers to professional development: Perspectives from adjunct instructors teaching online. *Journal of Faculty Development, 28*(1), 67–82.
- Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development, 47*(4), 47–61. <https://doi.org/10.1007/BF02299597>
- Farmer, H. M., & Ramsdale, J. (2016). Teaching competencies for the online environment. *Canadian Journal of Learning and Technology, 42*(3), 1–17. <https://doi.org/10.21432/T2V32J>
- Fathema, N., & Akanda, M. H. (2020). Effects of instructors' academic disciplines and prior experience with learning management systems: A study about the use of Canvas. *Australasian Journal of Educational Technology, 36*(4), Article 4. <https://doi.org/10.14742/ajet.5660>
- Fathema, N., Shannon, D., & Ross, M. (2015). Expanding the technology acceptance model (tam) to examine faculty use of learning management systems (LMSs) in higher education institutions. *MERLOT Journal of Online Learning and Teaching, 11*(2), 23.
- Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online learning and emergency remote teaching: Opportunities and challenges in emergency situations. *Societies, 10*(4), 86–104. <https://doi.org/10.3390/soc10040086>
- Galanek, J. D., & Gierdowski, D. C. (2020). *ECAR study of community college faculty and information technology, 2020* (p. 20). EDUCAUSE Center for Analysis and Research. <https://er.educause.edu/-/media/files/library/2020/5/commcollfaculty2020.pdf?la=en&hash=2692B305F9B9FABA166A47C2A5F532B86F855BFC>
- Goodyear, P., Salmon, G., Spector, J. M., Steeples, C., & Tickner, S. (2001). Competences for online teaching: A special report. *Educational Technology Research and Development, 49*(1), 65–72. <https://doi.org/10.1007/BF02504508>
- Gosselin, K. P., Northcote, M. T., Reynaud, D., Kilgour, P. W., Anderson, M., & Boddey, C. (2016). Development of an evidence-based professional learning program informed by online teachers' self-efficacy and threshold concepts. *Online Learning Journal, 20*(3), 178–194. <http://dx.doi.org/10.24059/olj.v20i3.648>
- Gregory, M. S.-J., & Lodge, J. M. (2015). Academic workload: The silent barrier to the implementation of technology-enhanced learning strategies in higher education. *Distance Education, 36*(2), 210–230. <https://doi.org/10.1080/01587919.2015.1055056>
- Hull, K., & Dodd, J. E. (2017). Faculty use of Twitter in higher education teaching. *Journal of Applied Research in Higher Education, 9*(1), 91–104. <https://doi.org/10.1108/JARHE-05-2015-0038>

- Hussar, W. J., & Bailey, T. M. (2020). *Projections of Education Statistics to 2028* (NCES 2020-024; p. 153). U.S. Department of Education. <https://www.accs.edu/wp-content/uploads/2020/06/NCES-Projections-of-Education-Statistics-to-2028.pdf>
- Johnson, N., Veletsianos, G., & Seaman, J. (2020). U.S. faculty and administrators' experiences and approaches in the early weeks of the COVID-19 pandemic. *Online Learning, 24*(2), 6–21. <https://doi.org/10.24059/olj.v24i2.2285>
- Johnson, T., Wisniewski, M. A., Kuhlemeyer, G., Isaacs, G., & Krzykowski, J. (2012). Technology adoption in higher education: Overcoming anxiety through faculty bootcamp. *Journal of Asynchronous Learning Networks, 16*(2), 63–72. <http://dx.doi.org/10.24059/olj.v16i2.240>
- Klein, J. D., & Fox, E. J. (2004). Performance improvement competencies for instructional technologists. *TechTrends, 48*(2), 22–25. <https://doi.org/10.1007/BF02762539>
- Lederman, D. (2017). *Lack of faculty time and training limits digital learning more than resistance does, study finds*. Inside Higher Ed. <https://www.insidehighered.com/digital-learning/article/2017/06/14/lack-faculty-time-and-training-limits-digital-learning-more>
- Martin, F., Budhrani, K., Kumar, S., & Ritzhaupt, A. (2019). Award-winning faculty online teaching practices: Roles and competencies. *Online Learning, 23*(1), 184–205. <http://dx.doi.org/10.24059/olj.v23i1.1329>
- Martin, F., Wang, C., & Sadaf, A. (2018). Student perception of helpfulness of facilitation strategies that enhance instructor presence, connectedness, engagement and learning in online courses. *The Internet and Higher Education, 37*, 52–65. <https://doi.org/10.1016/j.iheduc.2018.01.003>
- Martin, F., Wang, C., & Sadaf, A. (2020). Facilitation matters: Instructor perception of helpfulness of facilitation strategies in online courses. *Online Learning, 24*(1), 28–49. <https://doi.org/10.24059/olj.v24i1.1980>
- McMillan, J. H., & Schumacher, S. (2014). *Research in education: Evidence-based inquiry* (7th ed.). Pearson Education.
- Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during Covid-19 pandemic era. *Pakistan Journal of Medical Sciences, 36*(COVID19-S4), 27–31. <https://doi.org/10.12669/pjms.36.COVID19-S4.2785>
- Pardo, C. G. (2012). Information and communication technology competence of the university of northern philippines-college of teacher education faculty. *UNP Research Journal, 21*(1), Article 0.
- Polly, D., Martin, F., & Guilbaud, T. C. (2020). Examining barriers and desired supports to increase faculty members' use of digital technologies: Perspectives of faculty, staff and administrators. *Journal of Computing in Higher Education, 33*, 135–156. <https://doi.org/10.1007/s12528-020-09259-7>
- Reid, D. (2002). A classification schema of online tutor competencies. *Proceedings of International Conference on Computers in Education, 2*, 1049–1050. <https://doi.org/10.1109/CIE.2002.1186147>
- Rhode, J., Richter, S., Gowen, P., Miller, T., & Wills, C. (2017). Understanding faculty use of the learning management system. *Online Learning, 21*(3), 68–86.
- Savery, J. R. (2005). Be vocal: Characteristics of successful online instructors. *Journal of Interactive Online Learning, 5*(2), 141–152.
- Sezgin, S., & Cirak, N. S. (2020). The role of MOOCs in engineering education: An exploratory systematic review of peer-reviewed literature. *Computer Applications in Engineering Education, 1*–19. <https://doi.org/10.1002/cae.22350>

- Shank, P. (2004). *Competencies for online instructors*. Learning Peaks LLC. <http://www.savie.qc.ca/CampusVirtuel/Upload/Fichiers/instructorcompetence08.pdf>
- Silverman, D. (2006). *Interpreting qualitative data*. Sage Publications.
- Simsek, I., Kucuk, S., Biber, S. K., & Can, T. (2021). *Development of an online teaching competency scale for university instructors* (No. 2). *13(2)*, Article 2. <https://doi.org/10.5944/openpraxis.13.2.137>
- Sinclair, J., & Aho, A.-M. (2018). Experts on super innovators: Understanding staff adoption of learning management systems. *Higher Education Research & Development*, *37(1)*, 158–172. <https://doi.org/10.1080/07294360.2017.1342609>
- Tenebruso, J. (2020, September 1). *Why Zoom stock rocketed to a new all-Time high today*. Yahoo News. <https://news.yahoo.com/why-zoom-stock-rocketed-time-194300535.html>
- Trust, T. (2020). *The 3 Biggest Remote Teaching Concerns We Need to Solve Now*. EdSurge News. <https://www.edsurge.com/news/2020-04-02-the-3-biggest-remote-teaching-concerns-we-need-to-solve-now>
- TUIK. (2020). *Hanehalkı Bilişim Teknolojileri (BT) Kullanım Araştırması [Household Information Technologies (IT) Usage Survey]* (No. 33679; Turkish Statistical Institute). [https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanim-Arastirmasi-2020-33679](https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2020-33679)
- Wang, Y., Wang, Y., Stein, D., Liu, Q., & Chen, W. (2019). Examining Chinese beginning online instructors' competencies in teaching online based on the activity theory. *Journal of Computers in Education*, *6(3)*, 363–384. <https://doi.org/10.1007/s40692-019-00140-w>
- Watty, K., McKay, J., & Ngo, L. (2016). Innovators or inhibitors? Accounting faculty resistance to new educational technologies in higher education. *Journal of Accounting Education*, *36*, 1–15. <https://doi.org/10.1016/j.jaccedu.2016.03.003>
- Wolfe, K. A., & Uribe, S. N. (2020). What we wish we would have known: Tips for online instructors. *College Teaching*, *68(2)*, 57–59. <https://doi.org/10.1080/87567555.2020.1711701>
- Xie, X., Siau, K., & Nah, F. F.-H. (2020). COVID-19 pandemic – online education in the new normal and the next normal. *Journal of Information Technology Case and Application Research*, *22(3)*, 175–187. <https://doi.org/10.1080/15228053.2020.1824884>