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Assessment in online education during the COVID-19 pandemic: from the perspective of university instructors

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Abstract

Educational activities, including assessment have continued globally in the form of "emergency remote education" since the start of the COVID-19 pandemic. The purpose of this study is to explore university instructors' opinions about assessment methods in online education during the COVID-19 pandemic. Case study design was employed in line with the research questions. Data were collected from 199 instructors working at different universities in Turkey via an online survey developed by the researchers. Content analysis was applied to analyze the data. The results revealed that instructors' most frequently applied methods were homework, online multiple-choice tests, online presentations, online tests including open-ended questions, and projects. Instructors encountered problems such as inadequate level of ICT access, reliability issues, infrastructural inadequacy of institutions, institutional enforcement, requiring more effort for instructor, difficulties in applied courses, and rapid transition to online education. Instructors' preferences toward assessment were to change the assessment methods and revert to traditional methods as well as increase student engagement and integrate ICT. The results of this study reveal the opinions of instructors about assessment in online education and inform practitioners about the applied methods, possible problems, and preferences that may help others adapt quickly to remote assessment.

Keywords: e-assessment, online education, university instructors, COVID19.

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Üniversite Öğretim Elemanlarının Gözünden COVID-19 Pandemi Sürecinde Verilen Çevrimiçi Eğitimde Ölçme ve Değerlendirme

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Öz

COVID-19 pandemisinin başından beri ölçme ve değerlendirmeyi de kapsayan eğitim faaliyetleri dünya genelinde "acil uzaktan eğitim" şeklinde devam ettirilmiştir. Bu çalışmanın amacı üniversite öğretim elemanlarının COVID-19 pandemisi sürecinde verilen çevrimiçi eğitimde kullandıkları değerlendirme teknikleri ile ilgili görüşlerini ortaya çıkarmaktır. Araştırma desenlerinde durum çalışması bu çalışma kapsamında kullanılmıştır. Veriler araştırmacılar tarafından geliştirilen çevrim içi anket ile Türkiye'deki farklı üniversitelerde çalışan 199 öğretim elemanı tarafından doldurulmuştur. Verilerin analizinde içerik analizi kullanılmıştır. Araştırma sonuçları öğretim elemanlarının en çok kullandıkları ölçme tekniğinin ödev, çoktan seçmeli soru içeren çevrim içi testler, sunum, açık uçlu soru içeren çevrim içi testler ve projeden oluştuğunu göstermektedir. Öğretim elemanları bilgi ve iletişim teknolojilerine yetersiz erişim, güvenirlik sorunları, kurumların yetersiz altyapısı, kurumsal dayatmalar, daha fazla emek gerektirmesi, uzaktan eğitime hızlı geçiş ve uygulamalı derslerde bir takım zorluklar yaşadıklarını bildirmişlerdir. Üniversite öğretim elemanları kullandıkları ölçme tekniklerini değiştirmeyi, kısa süre içerisinde geleneksel eğitime ve ölçme tekniklerine dönmeyi tercih ettiklerini, çevrim içi öğretim süreçlerinde öğrenci katılımını artırmayı ve bu süreçlere BİT araçlarını entegre etmek istediklerini belirtmişlerdir. Bu çalışmanın sonuçları acil uzaktan eğitimde sürdürülen çevrim içi ölçme ile ilgili öğretim üyelerinin görüşlerinin ortaya çıkarılmasına yardım ederek benzer şekilde çevrim içi öğrenmede ölçme yapacak uygulayıcılara yaşanabilecek olası problemler, çözüm önerileri ve kullanılabilecek teknikler konusunda fikir vermesi beklenmektedir.

Anahtar Sözcükler: e-ölçme, çevrim-içi eğitim, öğretim elemanları, COVID19.

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Introduction

The COVID-19 pandemic have changed the lives of people in many ways. As a result of the global outbreak, face-to-face education was suspended for a while, and education at all levels has been continued through online learning (Bozkurt & Sharma, 2020). Doğan et al. (2020) argued that online teaching and learning activities are mandatory and their use has been accelerated with the advent of educational innovations. Although online education has a long history, the rapid and obligatory transition to online education had brought some uncertainties, and a new term, "emergency remote education," was coined to define the educational activities during this period.

Emergency remote education, which is a sub-branch of distance education, refers to educational activities conducted online during the pandemic (Bozkurt & Sharma, 2020). It was stated that this type of education was conducted within the conditions of a pandemic and undertaken by educational professionals involuntarily and without having enough experience in the field of online education (Jandric´ et al., 2020). The majority of the educational community was not informed about remote teaching and learning until the pandemic. Research has argued that the practice conducted during the pandemic would "rightly or wrongly influence perceptions of teaching and learning online for generations" (Stewart, 2021, p. 98). In order to influence positive, appropriate use of online education, it is essential even in a time of crisis. Moreover, online education by the obligatory transition with the COVID-19 pandemic seems to be taking place in the teaching and learning processes even after the pandemic.

All educational activities, including assessment, have been changed to an online format. The literature suggests two terms to refer to assessment in online education: "e-assessment" (Jordan, 2013; Kocdar et al., 2018; Okada et al., 2019; Stödberg, 2012) and "remote assessment" (Guangul et al., 2020; Şenel & Şenel, 2021a). Yukselturk and Curaoglu (2010) claimed that although online education has been enhanced, e-assessment activities had some problems in the past. It was realized that some problems stemmed from online education and some problems originated from the nature of the assessment. Lack of preparation time and effort of participants and institutions due to the rapid transition to online education (Guangul et al., 2020) and, as a result, lack of experience in online education (Bao, 2020) as well as online assessment (Cutri et al., 2020), low digital literacy skills of participants (Şenel & Şenel, 2021a), and the digital divide (Bozkur & Sharma, 2020; Battal & Kayaduman, 2021) were problems related to remote education. Not all the participants in remote education have been lucky enough to access the relevant technology physically or to possess the required skills. This unequal access to information and communication technologies (ICT) in terms of Van Dijk's (2005) ICT access framework was seemingly more evident in remote education due to the heavy use of technology (Bozkurt et al., 2020). While the digital divide has been generally recognized as limited access to technology physically, van Dijk (2005) added three other dimensions: motivation, skill, and usage access to ICT. He explained that these access levels are especially important nowadays even in developed countries because participants require the skill, motivation, and reasons to use ICT. Research showed that the digital divide had a negative impact on the quality of remote education (Adedoyin & Soykan, 2020) as well as remote assessment (Şenel & Şenel, 2021a).

On the other hand, some problems stemmed from the nature of the assessment, and these were exacerbated in online education due to its lack of control. Adapting current assessment practices (Yukselturk & Curaoglu, 2010), or developing alternative approaches (Reeves, 2000) was a challenge. Yukselturk and Curaoglu, (2010) argued that online education had different methods for assessment than the methods applied in face-to-face education. They emphasized that alternative assessment types could be used in online education, including virtual discussions, constructing concept maps, e-portfolio, group/individual projects, open-ended and close-ended questions. However, Timmis et al. (2016) stated that assessment methods in online education were generally dominated by automated scored tests including multiple choice questions. Similar to this, in his review of 76 e-assessment studies, Stödberg (2012) found that the most frequently applied methods were tests including close-ended questions. In their qualitative study, Yukselturk and Curaoglu (2010) examined the assessment methods of 11 online higher education programs in Turkey and found that the common method of assessment was traditional proctored test online or even face–to–face if possible. They also argued that university instructors rarely selected individual/group projects. Another classification of e-assessment methods by Doğan et al.

(2020) was to use methods such as essays, articles, project reports, presentations, methods scored automatically (i.e., multiple choice, matching), online discussion tasks, and authoring on the web (i.e., blog, web page, e-portfolio).

Another problem in online assessment was related to validity and reliability issues. The most common problem ahead of online assessment was security, cheating, and plagiarism (Guerrero-Roldán et al., 2020; Hussein et al., 2020; Kundu & Bej, 2021). Cheating and academic dishonesty were the major challenges of instructors in online assessment (Guangul et al., 2020). Although they occurred in traditional education to some extent, online education made cheating, plagiarism, and other dishonest behaviors easier. Thus, instructors need to fight much more against those challenges in online education. Some technical precautions such as biological or video-based identity control, using proctoring tools were taken to those problems (Hussein et al., 2020). Besides, using traditional precautions such as conducting face-to-face exams and using human proctoring were preferred by the educators if possible (Yukselturk & Curaoglu, 2010).

Despite the problems mentioned above, online assessment has many advantages. The advantages could be listed as providing quick feedback and additional informative data on demand, ease of editing and submitting, supporting different methods of assessment, increasing students' participation and motivation, re-usability, and providing individual assessment tools for learners (Doğan et al., 2020; Şenel & Şenel, 2021a). Instructors and stakeholders should take the advantages and challenges of online assessment into consideration. In this way, "e-assessment will be increasingly used in higher education, both on campus and entirely online" (Stödberg, 2012, p. 602). Recent events showed that online education and e-assessment would be a part of our lives and, therefore, instructors should be informed about the advantages and disadvantages of e-assessment rather than avoiding it (Doğan et al., 2020). At this point, the results of this study would reveal the opinions of instructors about assessment in online education.

The purpose of this study is to explore university instructors' opinions about assessment methods in online education during the COVID-19 pandemic. The following research questions were addressed.

RQ1: What were the assessment methods used by the instructors in online education during the COVID-19 pandemic?

RQ2: What problems did instructors encounter related to assessment in online education during the beginning of the COVID-19 pandemic?

RQ3: What were the instructors' preferences toward the assessment methods in the following periods of online education during the COVID-19 pandemic?

Methodology

This study aims to explore the opinions of instructors related to online assessment during the COVID-19 pandemic. For this purpose, a qualitative research design was chosen. Qualitative studies enable researchers to examine the topic in an in-depth manner (Creswell, 2012) and are defined by Merriam (1998) as an "umbrella concept covering several forms of inquiry that help us understand and explain the meaning of social phenomena with as little disruption of the natural setting as possible" (p. 5). Among different qualitative research designs, the case study was adopted in the current study. The case study enables researchers to study the research topic in its real and natural context and provide detailed information about the topic (Yin, 2003; Merriam, 1998). In the present study, the researchers aim to explore the opinions of instructors about assessment in online education during the COVID-19 pandemic in their natural context without any manipulation.

Permission of Scientific Ethics Committee

The Scientific Ethics Committee of a university in Turkey examined the documents and sanctioned the study with the document number "119562" on 19.08.2021.

Sampling and Participants

The case was bounded by instructors working at Turkish universities. The convenience sampling method was employed while defining the participants of this study. An online survey was sent to instructors via e-mail and they voluntarily completed the survey.

The instructors work in 15 universities located in different parts of Turkey. Of these 15 universities, there were 11 state and 4 foundation universities. A total of 199 university instructors (106 female and 93 male) completed the survey. Most of the participants (n = 158) worked in state universities while the other participants (n = 41) worked in foundation universities. Table 1 shows the demographic characteristics of participants.

Table 1.
Demographic Characteristics of Participants

Demographic Characteristics	Group	*n*	%
Gender	Female	106	53.3
	Male	93	46.7
University type	State	158	79.4
	Foundation	41	20.6
Age	21-30	63	31.7
	31-40	77	38.7
	41-50	40	20.1
	51-60	16	8
	> 61	3	1.5
Title	Prof. Dr.	8	4
	Associate Prof.	10	5
	Assistant Prof.	61	30.7
	Dr. Research Assistant	9	4.5
	Research Assistant	54	27.1
	Lecturer	57	28.6
Total		199	100

Note. n=number of instructors.

Data Collection Methods and Procedure

Data were collected from the participants via a survey developed by the researchers based on the aim of the study. The survey consisted of two parts. The first part included questions about the participants' demographic information such as gender, age, title, and university type. The second part included one checkbox question and two open-ended questions asking for instructors to reveal their opinions about online assessment during the COVID-19 pandemic. In the checkbox question, instructors selected the method of assessment they used during the COVID-19 pandemic. In the following two open-ended questions, instructors articulated the problems they encountered related to remote assessment and their preferences about assessment in the following terms of the COVID-19 outbreak.

The survey was administrated via a Google Form. An e-mail containing the link and a detailed explanation of the current study was sent to instructors working at Turkish universities. Instructors voluntarily completed the survey at their convenience. At the beginning of the spring semester of 2020, Turkish universities were suspended by the Higher Education Council with the global COVID-19 crisis for a short period (Bozkurt et al., 2020) and students were allowed to continue their education via online education. The following terms were entirely by online education. Although Higher Education Council permitted university administrations to conduct their courses in face-to-face education with safety measures in the fall semester of the 2021-2022 academic year, universities were encouraged to continue up to 40% of total courses online (YOK, 2021). The data were collected in the fall semester of 2021.

Data Analysis

Content analysis was applied for the data analysis. Yıldırım & Şimşek (2013) argued that content analysis procedures in qualitative studies include general processes. Creswell (2007) explained these processes as (1) preparing and organizing the data, (2) reducing the data into themes and sub-themes, and (3) presenting the emerged themes in figures or tables. In the current study those procedures were followed, the researchers first imported the open-ended questions' responses to NVivo 8, and then the data were read several times to reveal the mutual points into themes and sub-themes. After the data were coded into themes and sub-themes, the researchers tabulated the findings into tables.

Trustworthiness

In qualitative studies, different terms have been used for referring to validity issues. Lincoln and Guba's (1985) view of trustworthiness was used in this study. Appropriate strategies need to be employed to assess the accuracy of findings (Yıldırım & Şimşek, 2013), which would help persuade the academic community. First, in this study, prolonged engagement was achieved because all researchers in this study were also instructors at different universities during the period of study; hence, they were familiar with the processes being conducted during the outbreak. Second, multiple universities and their instructors in Turkey were selected in order to observe the general situation throughout the universities. Third, instructors voluntarily participated in this study without any incentive or enforcement. Moreover, a thick description procedure was employed by describing the details of participants allocating quotes from the participants, and the data analysis procedures as much as possible for the transferability of findings to other studies. Lastly, an inter-coder agreement was employed to check the reliability of the study. An expert in the field of Instructional Technology analyzed some sections of the data to detect the appropriateness and consistency of findings. The inter-coder agreement value was calculated by using the inter-rater agreement formula (Miles & Huberman, 1994) and found to be 85%, which was above the minimum acceptable value of 80%.

Results

The purpose of this study was to reveal the university instructors' opinions about assessment in online education during the COVID-19 pandemic. The results were categorized depending on the research questions under three titles as addressed in the following sections.

Applied Assessment Methods

Assessment is one of the most important aspects of educational activities, whereby students' learning is measured. Different methods of assessment are conducted by university instructors in face-to-face and online education. Assessment methods applied in online education were responded by checkbox. Descriptive analysis of these quantitative data showed that homework (n = 176), multiple-choice tests (n = 86), presentation (n = 82), open-ended tests (n = 75), and projects (n = 63) were the most frequently applied assessment methods. Table 2 shows applied assessment methods and their applied frequency during the pandemic.

Qualitative findings showed critical points in favor of homework. Some instructors articulated that homework was more helpful because it allowed students to synthesize their knowledge, whereas online tests were not reliable in online education.

Encountered Problems in Assessment during the Pandemic

Encountered problems in the assessment were investigated in line with the second research question. Qualitative analysis of the data revealed 10 main themes as described in the following sections. Table 3 shows the emerged themes and sub-themes.

Qualitative findings showed that the problem most frequently mentioned by the instructors about online assessment during the COVID-19 pandemic was students' access to ICT. Findings indicated that students had problems in four dimensions of ICT access at different ratios. According to the instructors' opinions, students had problems with physical access to ICT mostly. Among the technologies, having a computer (f = 12) and a robust internet connection (f = 14) were the two problems of students articulated by the instructors. Although it was possible to follow the courses with a

smartphone or another mobile device in online education, it was harder for students to complete the homework or join the online exams without a self-owned PC. Students needed a robust internet connection and at least a computer during exam times as well. One instructor, for example, pointed out that "especially some students had no computer." Internet-related problems were the other most mentioned issue. Due to inadequate internet quotes, connection problems, and slow/no connection, instructors needed to find alternative solutions for assessment. Those solutions were to assign homework, presentations, or projects. Group homework was the other solution mentioned by one instructor.

Table 2.
Instructors' Applied Assessment Methods in Online Education

Type of Assessment	f
Homework	176
Multiple-choice test	86
Presentation	82
Open-ended question	75
Project	63

Note. f =frequency of assessment methods.

Some instructors (f = 10) mentioned problems related to motivational access to ICT. Students were reluctant to attend online courses as well as the assessment methods. One instructor argued that "I would like students to do a presentation but the participation rate was low." Another identified problem was related to students' usage access to ICT (f = 6). Instructors expected students to join the lessons, answer the questions, and sustain two-way communication. One instructor argued: "Communication was not in two ways, students did not answer mostly. I had problems getting feedback from my students." Skill access to ICT (f = 2) was the last problem mentioned in this theme. One instructor addressed this problem as "students' inadequate skill to use ICT was the most struggling point for me." Different from the other themes, this theme emerged for the instructors as well: instructors (f = 2) also had issues with ICT skill access. One instructor reported a lack of skill to design instructional material for online education while another instructor mentioned that it was hard for them to prepare for online exams.

Findings showed that instructors (f = 38) mostly encountered problems related to reliability issues in assessment. The nature of assessment requires control over the examinees. However, it was hard to handle proctoring in online education. As a result, instructors mostly complained about reliability issues. One instructor explained this as "I observed that it was not possible to conduct assessment and evaluation fairly in online education." Similar to this instructor's opinion, another instructor complained that honest assessment was not possible. Reliability problems occurred in different methods. One said this as "I had mostly encountered] reliability problems in assessment. How different methods we applied in this process, students could reach the information on the Internet, and makes use of them instead of just using their own knowledge*"*.

While sharing questions and answers via synchronous communication tools was the most encountered problem in assessment methods in which the answer was chosen; getting help from others, copying homework or similarities within the homework, and plagiarism were the problems encountered in assessment methods in which the answer was constructed. The extent of plagiarism was raised in some cases. One instructor stated, "I asked for my students to conduct an interview with their family members about a topic, then transcribe the interview and prepare a report. One of my students had sent a friend's report without even changing the person's name on the report." These problems forced instructors to consider some strategies to minimize reliability problems. Increasing the number and diversity of question types and minimizing the exam duration were the most applied strategies. Observing the students during the exam with cameras, if possible, and taking software precautions such as using a safe exam browser were the other recommendation of instructors. One instructor argued that getting help from others was easy unless the exams were conducted face-to-face; the respondent recommended using open video during the exams. Oral examination, preparing specific questions for

each student, open-ended questions, and handwritten homework were the other recommendations. One instructor applied quizzes or homework each week, which required extra time for the instructor.

Another issue encountered as a problem was the infrastructural inadequacy of institutions. Some instructors (f = 17) encountered problems related to the technological infrastructure of universities. At the start of the pandemic, universities' distance education centers were not in good condition to offer online education for all their students; moreover, some universities did not have such centers until the pandemic. The learning management system used by the universities could have some problems such as out-of-service and connection problems. One instructor articulated such a problem as "We had serious problems in the distance education system. Since the system was slow, it was not possible to conduct online quizzes*"*.

Besides, the internet connection of the universities could be insufficient at times due to a lack of bandwidth and other infrastructural inadequacies. Some instructors had some recommendations about this issue. Another problem articulated by some instructors (f = 10) was related to conducting assessments in applied courses. One instructor stated that the test method was not suitable for applied courses. One more problem in applied courses was that students could not participate in practice in the laboratory or internship. Another instructor mentioned that it was difficult for him to offer correction in online education due to technical limitations. He suggested using special software for the applied courses.

Requiring more effort (f = 7) for the instructor was another theme. In online education, some instructors preferred to conduct assessments via open-ended questions and homework. These methods require extra effort and the amount of effort increases when the number of students is high. Some instructors addressed this as time-consuming, increasing workload density, and even including severe problems. One instructor articulated:

> It is hard to assess when the answer to open-ended questions is long and the number of questions is high. In order to evaluate fairly, you need to be very careful, however, it is possible to be distracted. You need to struggle with homework containing too many pages. I think that assessment tools which have clear answers are more appropriate.

Some instructors mentioned problems regarding the rapid transition to online education (f = 5). One instructor addressed that issue by saying, "At the beginning of the pandemic, our university and we were both not able to manage the educational activities well." Due to the rapid transition, some problems in the planning and maintaining phase of online education occurred. However, those problems were mostly solved; one instructor articulated:

> During the first term of the pandemic, all instructors were in a panic. However, we could manage the process in the second term and continue the education as if in the face-to-face period. I would like to integrate the experiences in this time of distance education into face-to-face education when the outbreak ends.

The last problem (f = 5) was institutional enforcement. It was understood that some institutions decided the methods of assessment that would be applied. Thus, instructors are required to comply with those decisions. One instructor articulated, "University administration sets the issues related to assessment and evaluation, and we were not allowed to decide on the methods."

Table 3.
Encountered Problems in Assessment During the Pandemic

Emerged Themes and Sub-themes		**f**
ICT access problems of students	Physical	26
	Motivational	10
	Usage	6
	Skill	2
Reliability issues in measurement and evaluation		38
Infrastructural inadequacy of institutions		17

Table 3 continues

Problems in applied courses	10
Requiring more effort for instructor	7
Problems regarding the rapid transition to online education	5
Institutional enforcement	5
ICT skill access problems of instructors	2

Note. f=frequency of data excerpts.

Preferences of instructors toward Assessment during the Pandemic

Instructors' preferences toward assessment in the following phases of online education during the pandemic were investigated in the scope of the third research question. The findings are illustrated in Table 4.

Instructors would like to change their applied online assessment methods. The first emerged theme was related to instructors' plans to change assessment methods in the following terms of online education. Most instructors (f = 19) would like to conduct safe online exams. The rationale behind this preference was related to reliability issues and difficulty in the honesty of other methods. One instructor mentioned her preference to conduct safe online exams to be fair during the assessment as there would be such problems in open-ended tests. Another reason for this preference was that other methods require extra effort from the instructor. One instructor explained this as "I would like to conduct safe online exams if possible. Otherwise, it takes too much time and effort to conduct other methods*"*.

Some instructors plan to choose homework (f = 6) as an assessment method. One instructor argued that she would use some tools to detect plagiarism in students' homework to address reliability issues. Another one would like to increase the amount of homework. Some instructors planned to assign open-ended tests (f = 6) in order for students to synthesize the course topics in terms of reliability issues. Lastly, some instructors would like to conduct quizzes (f = 5) at certain intervals. One instructor reported this as "I would like to conduct educational assessment activities at the end of each week after the lesson rather than just applying midterm and final exams. In this way, the assessment was distributed to the process*"*.

Some instructors (f = 5) preferred to conduct assessments face-to-face due to low reliability in online formats. Another emerged theme regarding preference was to integrate ICT (f = 3). Moreover, some instructors (f = 5) planned to increase students' engagement in the lessons. One instructor articulated that he considered providing additional points to students engaging in the course as he found the engagement level of students in online education was too low. Similar to this instructor, another one mentioned:

> I planned to provide additional scores for the students to increase active participation since we could not realize whether students listened to the lesson in online education. It would be more appropriate to grade students' participation, even if the grades are low, to encourage them to engage in the learning process.

Table 4.
Preferences Toward Assessment in Online Education

Emerged Themes and Sub-themes	**f**
Plans for changing assessment methods	
safe online exam	19
homework	6
open-ended questions	6
quiz	5
Preference of doing traditional assessment methods	5
Plans for increasing engagement	5
Plans for integrating ICT	3

Note. f=frequency of data excerpts.

Discussion and Conclusion

The aim of this study was to examine university instructors' opinions about the assessment methods in online education during the COVID-19 pandemic. Descriptive analysis of quantitative findings showed that applied assessment methods by the instructors were homework, online tests with multiple-choice questions, online presentations, online tests including open-ended questions, and projects. Instructors' choice of assessment method was also similar to those they have applied in face-to-face education. Particularly, the use of presentation (f = 82) confirms this argumentation. In the presentation method, students were required to prepare a presentation on a given topic and present it if the conditions were suitable. However, the conditions were generally not suitable for all the participants of online education, and some students' ICT access in physical, skill, motivation, and usage dimensions might be insufficient. Online education requires different methods of assessment than face-to-face education (Yukselturk & Curaoglu, 2010). Therefore, instructors should adapt their assessment methods or apply appropriate methods to online education as assessment and evaluation have a critical role in higher education in terms of equipping graduates with the necessary skills for today's conditions (Şenel & Şenel, 2021b).

Although results showed that university instructors applied a range of assessment methods, the most used method was homework in the current study. Homework was the easiest and standard method that encompasses the other methods, including open-ended questions and preparation of a presentation. That is why this method was reported as frequently conducted by the instructors. In the current study, instructors' assessment choices were similar to argumentation that inclines the use of closed questions such as multiple-choice, matching or true/false (Stödberg, 2012), and open-ended questions (Şenel & Şenel, 2021b) generally used in online education. Although the study of Yukselturk and Curaoglu (2010) found that projects were rarely used, instructors' self-report showed that projects (f = 63) were used frequently as an assessment method in this study. This may be due to the fact that projects were primarily used in applied courses. There was not enough evidence to say that the instructors' choice was related to their study background.

The findings have shown that assessment methods, widely used in the traditional teaching process, are also frequently preferred in the COVID-19 outbreak. This may indicate how unprepared we are for the following "emergency remote education" process. Therefore, the present study suggests that assessment methods should be reviewed to establish an effective online learning tradition after the pandemic.

Problems encoured related to assessment in online education were investigated. Qualitative findings showed that instructors are generally concerned about the students' insufficient access to ICT in different dimensions and their lack of ICT skills. Remote education requires heavy use of appropriate technology (Bozkurt et al., 2020) because it is delivered via technology (Kayaduman & Battal, 2021). Therefore, both students and instructors need relevant technology for effective remote instruction (Kayaduman & Battal, 2021) as well as online assessment (Şenel & Şenel, 2021a). Unfortunately, the literature shows that participants' access to ICT was low (Adedoyin & Soykan, 2020). As a barrier to effective remote education, "digital divide" has been reported in many countries, even in developed ones (Soomro et al., 2018). According to the framework of van Dijk (2005), physical access to relevant technology is not sufficient by itself; people should have motivational access to adopt ICT, sufficient capability to use those technologies, and afford time and effort to utilize ICT. The instructors reported in the current study that students mostly had problems with the assessment during online education in the order of physical, motivational, usage, and skill dimensions. The most encountered problem was physical access such as not having the necessary technologies including a broadband internet connection or a computer. The finding in this dimension could be more apparent due to the fact that at least a computer was compulsory in remote assessment while preparing homework or attending other assessment methods. It seems that this problem in this dimension forced instructors to find alternative assessment solutions or apply specific methods. Another problem mentioned in motivational and usage access was related to students' readiness to use ICT. This confirms that not only having the necessary devices or technology is a prerequisite for effective remote education and assessment, but also it is essential for learners to have enough motivation as well as to allocate enough time and effort to utilize ICT efficiently. The last problem, a lack of ICT skills, was shared by both students and instructors alike.

Education professionals need at least basic ICT skills to engage with the delivery of online education. Finally, the digital divide is a major problem ahead of online education, and it seems that although its widening has stopped with cheap and easily accessible digital devices and technology, it continues to deepen in other dimensions such as usage and skills (van Dijk, 2005). Therefore, stakeholders must address those dimensions as well as physical access to ICT.

The primary problem reported by instructors was the lack of reliability in online assessments. Ensuring security is essential in assessment, especially in high-stakes exams (Doğan et al., 2020). It is the most controversial topic in online education due to the lack of control and anonymity (Şenel & Şenel, 2021). The literature review revealed similar findings related to this theme. For example, cheating, plagiarism, and academic dishonesty were the major challenges of instructors in online assessment (Guangul et al., 2020; Guerrero-Roldán et al., 2020; Hussein et al., 2020; Kocdar et al., 2018; Kundu & Bej, 2021). Instructors should find appropriate solutions to the dishonest behaviors of students and some solutions addressed by the instructors in the current study were in line with the literature such as increasing the number and diversity of question types and minimizing the exam duration (Peterson, 2019). The literature also argued that a detailed plan in e-assessment avoids security problems (Doğan et al., 2020). Using appropriate assessment methods, such as take-home exams or authentic tasks, was also recommended to prevent dishonest behaviors (Şenel & Şenel, 2021b). There were also various technical solutions to ensure reliability in assessments, such as using online proctoring tools (Hussein et al., 2020), authentication tools for checking the identity of learners (Okada et al., 2019), and authorship tools for verifying the originality of the documents (Guerrero-Roldán et al., 2020). Continuous assessment in which students are assessed via small quizzes for overall times could be a good solution for security (Doğan et al., 2020). Online education demands greater effort from the instructors than face-to-face education (Kayaduman & Battal, 2021). Instructors made the extra effort in phases of such assessment methods as the development of authentic tasks, evaluation of assignments and homework, or conducting continuous assessments.

Institutions, instructors, and students were not ready for online education due to the quick shift to emergency remote education. This quick and obligatory shift was met with problems for the stakeholders of education, even those experienced in distance education (Erdem-Aydin, 2021). Stewart (2021) reported that institutions, instructors, and students experienced a new method of online education for the first time with an involuntarily sudden change. Durak et al. (2020) confirmed this issue by arguing that most universities in Turkey were found unprepared, reporting that instructors were "not ready for offering a course" in an online format (p. 789). The responsibility of institutions was not only to provide the necessary technical infrastructure and maintain a learning management system (Doğan et al., 2020) but also to provide usable online systems for the students and instructors (Battal & Çağıltay, 2015).

Instructors' preferences about the assessment were to change the assessment methods and revert to traditional assessment methods as in face-to-face education. Instructors mostly planned to conduct safe online exams, homework, open-ended tests, quizzes, and face-to-face assessment methods. Such preferences are mostly related to ensuring reliability and security. Instructors preferred safe online exams to reduce errors and evaluator bias, and to conduct a fair assessment. Different assessment methods have strengths and limitations, and there were various precautions taken in order to eliminate the limitations. Şenel and Şenel (2021b) listed those issues in the scope of various assessment methods. They argued that instructors should be informed about those issues and choose the appropriate method because assessment in higher education is important in terms of checking the qualification of students as professionals of the future.

Some instructors would like to conduct face-to-face assessments. Although it was not possible during the pandemic conditions, their willingness may be considered when the situation improves or the pandemic ends. The literature illustrated similar results to this preference because instructors considered emergency remote education a temporary activity that will end soon (Erdem-Aydin, 2021). Due to its high security, face-to-face exams were preferred in the educational programs conducted in distance education before the pandemic (Yukselturk & Curaoglu, 2010). Another preference of instructors was to increase engagement and integrate ICT. Due to the low engagement of learners in emergency remote education and assessment, instructors should consider additional incentives such as activity logs, the

number of posted messages or attendance rates to increase student's engagement in the lessons (Şenel & Şenel, 2021b).

Educational activities have been conducted as an emergency remote education format that came into our lives with the COVID-19 pandemic. It seems that it would continue throughout the pandemic and remain a part of people's lives to some extent. Therefore, we need to build or adapt appropriate assessment methods in online education. This study helped reveal the assessment methods, problems in assessment, and the preferences of instructors in online education. It contributes to the body of knowledge in emergency remote assessment. Practitioners would benefit from the current study and it would help them adapt quickly to remote assessment. Although it was considered normal to have problems with the assessment in emergency remote education because it is a new branch of distance education, the literature has argued that it had problems with assessment even in distance education (Yukselturk & Curaoglu, 2010). The brand new experience in emergency remote education and ancient experience in face-to-face and distance education would bring about new assessment methods such as the blended assessment, a combination of face-to-face and e-assessment (Kocdar et al., 2018).

Limitations and Future Research

Online assessment brings some difficulties as well as advantages (Doğan et al., 2020). In this study, some of the problems, assessment methods, and preferences of instructors about online assessment were revealed. On the other hand, the current study had some limitations upon which future research should focus. First, data were collected from instructors working in 15 universities in Turkey via an anonymous online survey. Findings should be interpreted within the boundaries of this case study and the participants and their institutions' facilities. The institutional environment, facilities, and practices during emergency remote education may have varied among the universities in Turkey. Some institutions regulated the assessment methods to be used as well as instructors' and students' ICT access, which affected the assessment practices. Second, the findings of the study were revealed from the perspectives of instructors. Future research should also engage the perspective of other stakeholders, particularly students. Third, data were collected with instructors via open-ended questions due to pandemic conditions. Thus, it was not easy to obtain insights from instructors deeply. The findings of this study are based on the experiences of these instructors/participants during the data collection period; the processes for emergency remote education have been changing and enhanced throughout the pandemic. Similar studies using various data collection forms could be conducted within the other phases of the pandemic with other stakeholders of higher education. Fourth, it would be hard to determine which assessment is appropriate for instructors in online education (Timmis et al., 2016); hence, different assessment methods could be investigated in future studies. Finally, the role of the instructors was changed from just teaching and the responsibility of the learners was increased in online education. Hence, those variables should be taken into consideration and investigated in future research.

Etik Beyannamesi

Bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında belirtilen kurallara uyulduğunu ve "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbirini gerçekleştirmediğimizi beyan ederiz. Aynı zamanda yazarlar arasında çıkar çatışmasının olmadığını, tüm yazarların çalışmaya katkı sağladığını ve her türlü etik ihlalinde sorumluluğun makale yazarlarına ait olduğunu bildiririz.

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References

Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive Learning Environments*. doi:10.1080/10494820.2020.1813180

Battal, A., & Çağıltay, K. (2015). Investigation of Usage Frequency and Department on Usability Issues with the Online Examination System (OSSI). *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 11(3), 752–763. doi: 10.17860/efd.19683

Battal, A. & Kayaduman, H. (2021). Akademisyenlerin bilgi ve iletişim teknolojilerine erişimi ölçeğinin türkçe'ye uyarlanması: geçerlik ve güvenirlik çalışması [The adaptation of academicians' information and comunication technology access scale into Turkish: the study of validity and reliability]. *Trakya Eğitim Dergisi*, 11 (3) , 1401-141 . doi:10.24315/tred.852047

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, 113–115. doi:10.1002/hbe2.191

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., Olcott, J. D., Rodes, V., Aranciaga, I., Bali, M., Alvarez, A. J., Roberts, J., Pazurek, A., Raffaghelli, J. E., Panagiotou, N., de Coëtlogon, P., … Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, *5*(1), 1–126.

Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education*, *15*(1), i–vi.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Sage Publications.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. (4th ed., Vol. 4). Pearson.

Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: transitioning to online teaching during the COVID-19 pandemic. *European Journal of Teacher Education*, *43*(4), 523–541. doi:10.1080/02619768.2020.1815702

Doğan, N., Kibrislioğlu Uysal, N., Kelecioğlu, H., & Hambleton, R. K. (2020). An overview of e-assessment. *Hacettepe Egitim Dergisi*, *35*(Special Issue), 1–5. doi:10.16986/HUJE.2020063669

Durak, G., Çankaya, S., & İzmirli, S. (2020). COVID-19 Pandemi Döneminde Türkiye'deki Üniversitelerin Uzaktan Eğitim Sistemlerinin İncelenmesi [Examining the Turkish Universities' Distance Education Systems During the COVID-19 Pandemic]. *Necatibey Eğitim Fakültesi Elektronik Fen ve Matematik Eğitimi Dergisi*, *14*(1), 787–810. doi:10.17522/balikesirnef.743080

Erdem-Aydin, İ. (2021). Investigation of higher education instructors' perspectives towards emergency remote teaching. *Educational Media International*. doi:10.1080/09523987.2021.1908501

Guangul, F. M., Suhail, A. H., Khalit, M. I., & Khidhir, B. A. (2020). Challenges of remote assessment in higher education in the context of COVID-19: a case study of Middle East College. *Educational Assessment, Evaluation and Accountability*, *32*(4), 519–535. doi:10.1007/s11092-020-09340-w

Guerrero-Roldán, A. E., Rodríguez-González, M. E., Karadeniz, A., Kocdar, S., Aleksieva, L., & Peytcheva-Forsyth, R. (2020). Students' experiences on using an authentication and authorship checking system in e-assessment. *Hacettepe Egitim Dergisi*, *35*(Special Issue), 6–24. doi:10.16986/HUJE.2020063670

Hussein, M. J., Yusuf, J., Deb, A. S., Fong, L., & Naidu, S. (2020). An Evaluation of Online Proctoring Tools. *Open Praxis*, *12*(4), 509. doi:10.5944/openpraxis.12.4.1113

Jandric´, P., Hayes, D., Truelove, I., Levinson, P., Mayo, P., Ryberg, T., ... & Jackson, L. (2020). Teaching in the age of COVID-19. *Postdigital Science and Education*, 2, 1069–1230. doi:10.1007/s42438-020-00169-6

Jordan, S. (2013). E-assessment: Past, present and future. *New Directions*, *9*(1), 87–106. doi:10.11120/ndir.2013.00009

Kayaduman, H., & Battal, A. (2021). The University Instructors' Opinions About Emergency Remote Education in Turkey. In A. Bozkurt (Ed.), *Handbook of Research on Emerging Pedagogies for the Future of Education: Trauma-Informed, Care, and Pandemic Pedagogy* (pp. 66–81). IGI Global. doi:10.4018/978-1-7998-7275-7.ch004

Kocdar, S., Karadeniz, A., Peytcheva-Forsyth, R., & Stoeva, V. (2018). Cheating and Plagiarism in E-Assessment: Students' Perspectives. *Open Praxis*, *10*(3), 221. doi:10.5944/openpraxis.10.3.873

Kundu, A., & Bej, T. (2021). Experiencing e-assessment during COVID-19: an analysis of Indian students' perception. *Higher Education Evaluation and Development*, *ahead-of-p*(ahead-of-print). doi:10.1108/HEED-03-2021-0032

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA, CA: Sage Publications.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Jossey-Bass Publishers.

Okada, A., Noguera, I., Alexieva, L., Rozeva, A., Kocdar, S., Brouns, F., Ladonlahti, T., Whitelock, D., & Guerrero-Roldán, A. E. (2019). Pedagogical approaches for e-assessment with authentication and authorship verification in Higher Education. *British Journal of Educational Technology*, *50*(6), 3264–3282. doi:10.1111/bjet.12733

Peterson, J. (2019). An analysis of academic dishonesty in online classes. *Mid-Western Educational Researcher*, 31(1), 24-36.

Reeves, T. C. (2000). Alternative assessment approaches for online learning environments in higher education. *Journal of Educational Computing Research*, *23*(1), 101–111. doi:10.2190/GYMQ-78FA-WMTX-J06C

Şenel, S., & Şenel, H. C. (2021a). Remote assessment in higher education during covıd-19 pandemic. *International Journal of Assessment Tools in Education*, *8*(2), 181–199. doi:10.21449/ijate.820140

Şenel, S., & Şenel, H. C. (2021b). Use of take-home exams for remote assessment: A case study. *Journal of Educational Technology and Online Learning*, *4*(2). doi:10.31681/jetol.912965

Soomro, K. A., Kale, U., Curtis, R., Akcaoglu, M., & Bernstein, M. (2018). Development of an instrument to measure Faculty's information and communication technology access (FICTA). *Education and Information Technologies*, *23*(1), 253–269. doi:10.1007/s10639-017-9599-9

Stewart, W. H. (2021). A global crash-course in teaching and learning online: A thematic review of empirical Emergency Remote Teaching (ERT) studies in higher education during Year 1 of COVID-19. *Open Praxis*, *13*(1), 89. doi:10.5944/openpraxis.13.1.1177

Stödberg, U. (2012). A research review of e-assessment. *Assessment and Evaluation in Higher Education*, *37*(5), 591–604. doi:10.1080/02602938.2011.557496

Timmis, S., Broadfoot, P., Sutherland, R., & Oldfield, A. (2016). Rethinking assessment in a digital age: opportunities, challenges and risks. *British Educational Research Journal*, *42*(3), 454–476. doi:10.1002/berj.3215

van Dijk, J. A. G. . (2005). *The Deeping Divide:Inequality in the Information Society* (Vol. 66). Sage Publications.

Yin, R. K. (2003). *Case study research: Design and methods* (Fourth Ed.). SAGE Publications.

Yıldırım, A., & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in the social sciences]* (9th ed.). Seçkin Yayıncılık.

Yukselturk, E., & Curaoglu, O. (2010). Blended assessment methods in online educational programs in Turkey: Issues and strategies. *Cases on Transnational Learning and Technologically Enabled Environments, January 2010*, 327–343. doi:10.4018/978-1-61520-749-7.ch018

YOK, 2021. YÖK Başkanı Erol Özvar, üniversitelerde yüz yüze eğitimin detaylarını açıkladı [President of Council of Higher Education, Erol Özvar explained the details of face to face education] Retrieved December 1, 2021, from https://www.yok.gov.tr/Sayfalar/Haberler/2021/yok-baskani-ozvar-dan-yuz-yuze-egitime-iliskin-aciklamalar.aspx