University Students' Attitudes Towards Online Exam During the Pandemic: The Case of a State University in Türkiye

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ABSTRACT

This study aims to investigate students' attitudes changes in line with midterm and final exams and to determine their attitudes towards online exams by gender, age, department, and their hometown, and to analyze their opinions about this type of exam mode. The research was conducted at a state university in Türkiye during the 2021 fall semester. The sample consisted of 101 university students taking Information Technology course from Art Teaching, Social Studies Teaching, and Pre-School Teaching Departments. The research has been designed a mixed-method study including both quantitative (students' attitudes after midterm and final exams) and qualitative data (students' opinions about online exams). The quantitative results showed there was no statistically significant difference in students' attitudes after midterm and final exams. There was also no significant difference in the attitude scores by gender, age, and region. However, statistically significant differences were found by major department for some of the sub-factors of the questionnaire. The qualitative results showed that most students found online assessment advantageous, comfortable, and practical. On the other hand, the majority of the students pointed out time management and potential technical problems that may occur during the implementation of the exam.

Keywords: *Teacher candidates; COVID-19; online exam; attitude*

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INTRODUCTION

The Covid-19 was declared a global pandemic by the World Health Organization (WHO, 2020a) on March 11, 2020, and since then, it has led to drastic global changes in the economy, social life, and education, especially in health. Although specific preventive measures such as daily cleaning, reducing the number of students, and keeping social distance in the classroom were taken for the education system, it was not taken under controlled conditions, and thus, the schools were closed entirely. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2020a), schools were closed in 188 countries on April 23, 2020, and approximately 92% of the students worldwide (1,576,021,818 students) were indirectly affected by this closure.

Due to the closure of schools, distance education has entered the mainstream, from pre-school to higher education, both in Türkiye (Turkey) and in the rest of the world. Although the integration of technology into education has been swift and pervasive, the pandemic has brought a new dimension due to the urgent and widespread need in education (Bozkurt, 2020). The Covid-19 pandemic has influenced several aspects of distance/online education, such as educational technologies (Weller, 2020), course design in distance

education (Ali, 2020), ethical concerns in digital data protection (Kerres, 2020), and digital competencies and skills (Ali, 2020; Bozkurt, 2020). However, the effects of the pandemic on the given fields have been limited compared to measurement and evaluation methods in distance education, considering the distance and flipped education practices that were carried out in parallel with face-to-face education in many educational institutions (Bozkurt et al., 2020).

Since performance assessment and competency recognition are inherent characteristics of the measurement and evaluation process, it has taken time to find alternatives in distance education, and many countries have had to postpone the exams. Although the Higher Education Institutions were unprepared, they had to apply online assessment and evaluation methods due to the prolonged pandemic (Bozkurt et al., 2020). The commonly used online assessment methods in the literature include projects, portfolios, self-assessment reports, peer assessments, timed tests and quizzes, and asynchronous discussions (Brouwer & McDonnell, 2009). However, during the pandemic, online assignments, quizzes, and exams have been the most preferred online assessment methods in higher education due to many students' inability to access the necessary materials and documents easily (Raje & Stitzel, 2020).

There are different findings in the literature on the effects of test mode (face-to-face or online) on students' performance and attitudes (Nikou & Economides, 2017; Yao, 2020), but in these studies, exams were redesigned to be online and most of them were administered in controllable spaces such as classrooms or laboratories within the university boundaries. During the pandemic, exams that were not previously designed online were administered without validity and reliability studies (d'Orville, 2020). This situation, together with our lack of experience in online exams, has turned into a very important problem, especially in terms of design and implementation (Clark at al., 2020). Although the use of online tests, which is inevitable with the development of technology, in education and training is not new, it has been observed that the way they are used in the Covid-19 process is incorrect (Bozkurt, 2020). The advantages of online exams such as immediate scoring and feedback, interaction, rich interfaces, scrolling, different question types, multimedia, and graphics (Marriott & Teoh, 2019; Khairil & Mokshein, 2018) have been ignored, and the paper-and-pencil exams have been converted into online exams without making any change or revision, which negatively affected the attitudes of both students and faculty members towards online exams (Bozkurt, 2020). Other problems noted during Pandemic were students' lack of experience in using online systems and lecturers' challenges in ensuring exam security and predicting students' technological competence (Clark et al., 2020).

Accordingly, online exams are the most preferred summative assessment method in higher education before and after the pandemic (Çakan, 2017; Raje & Stitzel, 2020). Therefore, this study aimed to determine state university students' attitudes towards online exams during the pandemic in Türkiye and to observe the changes in their attitudes after midterm and final exams. The students' attitudes towards online exams were examined in a 3-dimensional structure suggested by Dermo (2009) and revised by Yılmaz (2016): (1) practicality-suitability, (2) affective factors, and (3) reliability. The practicality-suitability factor focuses on how students evaluate this system in terms of effectiveness and suitability. The affective factor focuses on how students feel during an online exam, and reliability refers to how much students rely on online exams.

Literature Review

E-Assessment

Online exams are included in the computer-assisted assessment (CAA) methods. Bull and McKenna (2004) defined CAA as "the use of computers for assessing student learning." CAA generally refers to computer software that mainly assists and guides users by monitoring and recording students' performances. Computer-based assessment (CBA) involves evaluating paper exams using specific software and hardware (Conole & Warburton, 2016). CBA is categorized into three groups: independent applications using only one computer, applications running on private or local networks, and online applications that can be accessed by everybody, such as the web or the ones accessed by a user name and password. Figure 1 shows the different CAA formats and interrelations, as categorized by Bennett (2002).

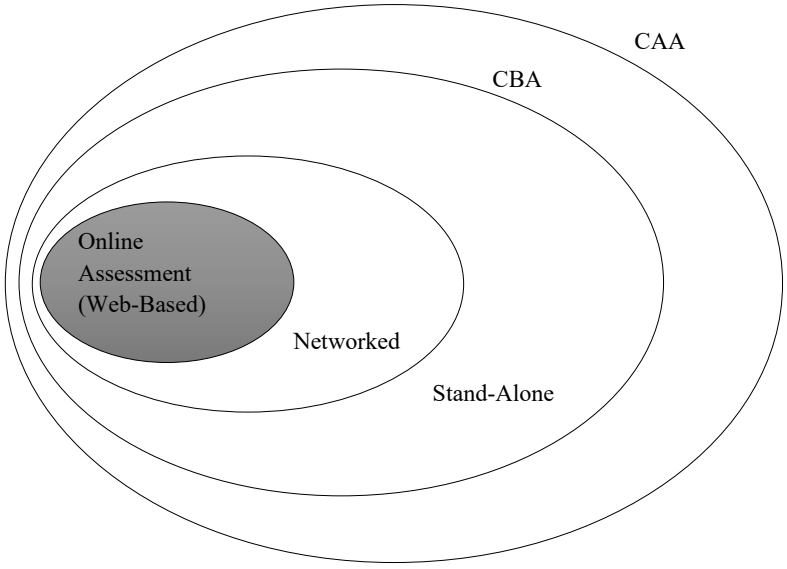

Figure 1. *Different Computer-Assisted Assessment Formats*

The Web-based, an online form of CAA, was used in this study. Online assessment involves the design, implementation, and storage of different assessment methods (e.g., assignments, group work, minute paper, portfolios, quizzes, tests, and exams) by using information and communication technologies (e.g., computer, tablet, smartphone, camera, voice recorder) (Ripley, 2009). It simply refers to an exam and assessment made on the computer.

As mentioned above, different methods can be applied for online assessment. However, multiple-choice, fill-in-the-blank or summative tests with short answers are the most frequently preferred assessment methods both in traditional and online assessment due to particular classroom limitations (e.g., large classroom size, students' lack of computer literacy, and lack of hardware and software resources) (Güner et al., 2014; Brouwer & McDonnell, 2009; Çakan, 2017; Raje & Stitzel 2020).

Online exams can be text-based and offer various interactive components, including graphics and multimedia (Thelwall, 2000; Retnawati, 2015). The primary advantage of online exams for instructor is the saving of time, space, and cost. Jordan (2013) stated that e-exam systems have also great potential to improve students' learning experiences. Accordingly, online exams provide the opportunities to monitor the learning process and support it with immediate feedback, to correct incorrect learning, to improve time management skills of late and dull learners, and to provide access to exams at any time (Başol & Balgalmis, 2017; Retnawati, 2015; Björnsson, 2008). According to Ras et al. (2015), the online assessment contributes to learning, and there are several topics to explore to increase this contribution. Although there are many studies on online assessment, the studies on university students' attitudes towards online exams are very few. Therefore, it is crucial to determine students' opinions and attitudes to make online exams effective and efficient tools for learning.

Students' attitudes towards online exams

Ajzen and Fishbein (1980) defined attitudes as individuals' positive or negative responses to objects. Attitude has been researched extensively in the education system, and several theories and approaches have been proposed (Ajzen & Fishbein, 1980). The attitudes that affect students' academic success (Gül et al., 2015) also influence the thoughts and actions of decision-makers who would ensure the widespread use of online exams (Bahar & Asil, 2020). The findings in the literature regarding online assessment in the last two decades suggest that online assessment methods still have to be improved but that the students generally have positive attitudes towards online assessment systems.

In a dissertation by Şanlı (2003), for example, university students' attitudes towards online exams were examined through scales and interviews. The results showed that students found online exams effective and

practical in providing immediate feedback, random item order item analysis, and automatic and immediate scoring. Pino-Silva (2008) administered a survey to university students on the advantages and disadvantages of taking a computer-based exam. The results suggested that the students generally had positive attitudes towards the computer-based exams and that the most important advantages of online exams were the immediate and automatic scoring and the chance to see the answers right after the exams. Sorensen (2013) examined chemical engineering students' attitudes towards online exams using an online survey and found that the students were optimistic and wanted to experience online assessment in other departments. It was also seen that successful students were more supportive of e-exam than less successful students. In more recent studies, James (2016) investigated university students' online exam experiences and learned their opinions after midterm and final exams using a questionnaire and a pre-and post-test method. In the light of the findings, online exams were low-cost and less worrisome, which were the attractive aspects of the online exams, but the technology and internet connection problems led to anxiety in most students. Ranganath, Rajalaksmi, and Simon (2017) administered a questionnaire to 280 medical school students from different grade levels to determine their attitudes towards online assessment methods. The results showed that students found online exams practical and comfortable. They thought that multiple-choice tests were the most effective method to assess knowledge, but they felt concerned about technical problems and security risks. In an experimental study on the academic success and attitudes of 163 vocational high school students who received online education, Ilgaz and Adanır (2019) found that students displayed supportive attitudes towards online exams and found them efficient, functional, and reliable. Finally, Böhmer et al. (2020) designed a part-time, blended learning program for engineering students and analyzed the students' opinions after the online exams. The study results revealed that most students had positive attitudes towards e-exams and preferred e-exams to paper exams due to their ease of use and fast and automatic scoring. The studies mentioned above are limited in terms of research focus, methods, and samples. Therefore, a comprehensive investigation of university students' attitudes towards online exams on different groups and variables would contribute to the literature. In addition, one of the important part of this study is its in-depth focus on students' perceptions of online exams in different majors and course types during the pandemic.

This study aims to investigate students' attitudes changes in line with midterm and final exams and to determine their attitudes towards online exams by gender, age, department, and their hometown, and to analyze their opinions about this type of exam mode. To achieve these goals, The study data were analyzed based on the following research questions:

- Is there a significant difference in students' attitudes towards online exams by gender, age, department, and hometown region?
- Is there a significant difference in students' attitudes towards online exams between the pre-test applied at the end of the midterm exams and the post-test applied at the final exams?
- What do students think about their online exam experience?
- What are students' preferences for online exams in face-to-face education?

METHOD

Research Method

This study aimed to determine teacher candidates' attitudes towards the online exams through different variables and to describe their online exam experiences. Depending on the purpose, the study was designed as a mixed method design, since it requires the collection of both quantitative and qualitative data in a single study and their sequential analysis (Creswell, 2008). Creswell (2008) suggested mixed-method designs as they provided the researcher with many advantages in addressing a phenomenon in a holistic approach and from different aspects.

Participants

The study sample consisted of first-year university students enrolled in Art Teaching, Preschool teaching, and Social Studies Teaching Programs. Most of the participants were from Izmir, and others were

from different cities and five regions of Türkiye. Therefore, the (hometown) region variable was created considering the cities where the students were living. There are seven geographic regions in Türkiye. According to the Ministry of Development, those regions can be ranked as follows in terms of socioeconomic status: Marmara, Aegean, Mediterranean, Eastern Anatolia, and Southeastern Anatolia Regions. There were 201 students enrolled in the courses, but 174 students completed the online survey, created via Google Forms, after the online midterm exams, and five students did not want to participate in the study. After the final exams, 142 students completed the survey, but it was observed that some students did not participate in the pre-test, some answered the form incompletely, and some answered each item as "Totally agree" or "Strongly disagree." Therefore, the sample included 101 students who participated in both midterm and final exams. The demographic characteristics of the participants are shown in Table 1 below.

Table 1. *Demographic Characteristics of the Participants*

Variables	Sub-Group	n	%
Gender	Female	71	70.3
	Male	30	29.7
Age	18	25	24.8
	19	34	33.7
	20	16	15.8
	21+	26	25.7
Department	Pre-school Teaching	31	30.7
	Social Studies Teaching	43	42.6
	Art Teaching	27	26.7
Region	Aegean	50	49.5
	Mediterranean	11	10.9
	Marmara	12	11.9
	Southeastern Anatolia	15	14.9
	Eastern Anatolia	13	12.9

Research Context

The study was conducted at a public university in Türkiye in the fall semester of the 2021 academic year. Data were collected from midterm exams in December 2021 and final exams in February 2022. The participants of this study were university students from the departments of Art and Art Education, Social Studies Education and Pre-School Education who took the "Information Technology" common course conducted by the researcher. Students used a learning management system (LMS) developed on the Sakai platform used and supported by the university. This system allows students to follow a weekly schedule, take lecture notes, watch and rewatch the lecture videos, and following assessment methods such as homework and online exams synchronously or asynchronously. Both midterm and final exam with 20 questions were created with the help of this system, including multiple-choice, true-false, short answer, and open-ended. Students were informed (via LMS, e-mail, and telephone) about the date and time of the exam to prevent technical problems. They were also informed about using the university's laboratory if they needed it. On the exam day, students used their username and password to log in and completed their exams in the given time (25 minutes) anywhere they chose (e.g., home, school, internet cafe) and utilizing any tool they preferred (e.g., computer, smartphone, tablet). When all students completed their exams, the system administrator informed the students that the grades would be announced after the evaluation of the open-ended and short-answer questions, and the grades were announced within two hours. After the announcement of the grades, the students were able to see all the questions, their own answers, the correct answer and the feedback on the wrong answer, if any, through the LMS. After both midterm and final exams, students were asked to participate in the study on a voluntary basis and to answer the questions in the questionnaire sincerely. They were asked to write in detail about the open-ended question and its importance for research was emphasized.

Data collection tools

Before the data collection process, necessary ethical permissions were received from Dokuz Eylul University Institute of Educational Sciences (Approval No: 2247). The students were informed about voluntary participation, personal data confidentiality and privacy issues, and their right to withdraw from the research at any time without giving a reason. Students' attitudes towards online exams were determined using the e-Assessment Scale with the demographic information, and the data regarding online exam experiences were collected using open-ended questions that students answered at the end of the survey. In addition to the scale, the participants were asked to fill a demographic information form. The details of the scale and form are given below.

E-Assessment Scale: The scale was developed by Dermo (2009) to determine university students' attitudes towards online exams and adapted to Turkish by Yılmaz (2016). It was a 5-point Likert-type scale including 17 items and three factors: "practicality-suitability," "affective factors," and "reliability." The answers ranged from "Strongly agree" to "Strongly disagree". Table 2 shows the Cronbach's alpha coefficients of the original scale (Yılmaz (2019) and the values obtained from this study.

Table 2. *The Scale Reliability Values*

Scale and Factors	Item Number	Cronbach's Alpha values (original scale)	Cronbach's Alpha values (current study)
Scale	17	0.87	0.69
Practicality - Suitability	8	0.89	0.91
Affective Factors	6	0.82	0.83
Reliability	3	0.82	0.77

Open-ended question: The teacher candidates' experiences regarding online exams were collected using an open-ended question at the end of the survey, which comprised the study's qualitative data. A total of 202 answers were received to the question, which was asked after the midterm and final exams. The question was as follows;

- How was your online exam experience?
  - Please answer the question in detail, considering the following topics.
    - Have you ever taken an online exam? If so, how was it?
    - How did you feel before, during, and after the exam?
    - What were the positive or negative aspects of online exams for you?
    - Have your computer skills improved thanks to online exams?
    - Do you think whether future exams should be online or not?

Data Analysis

SPSS 22.00 program was used to analyze the quantitative data of the study. In the quantitative data analysis, the assumptions required were tested before the interpretative analysis, and no critical violations were found in the assumptions. Next, one-way ANOVA, Independent sample t-test and paired sample t-test were used to determine the mean differences for the scale and factors. The significance level was set at 0.05. Qualitative data were analyzed using the content analysis method and open coding technique atlas.Ti 7.5 program, as suggested by Strauss and Corbin (1990). The data were analyzed in four stages: coding the data, creating the themes, updating the codes and themes, findings and comments. In addition to the researchers, two coders independently coded the data of 63 students to ensure reliability. The consistency of the coded data was confirmed by using the Cohen's Kappa test, which measured the reliability of the agreement between two observers. It was found 0.68, which suggested a good fit according to Landis and Koch (1997).

RESULTS

Paired sample t-test was performed to describe the differences in students' attitudes towards online midterm and final exams, and statistically, no significant difference was found in the scale and subfactor

scores. The mean scale scores revealed that students' attitudes were below the midpoint of the scale in the pre-test (x=2.96) and post-test (x=2.83). It showed that the participants generally displayed negative attitudes. Accordingly, more than 50% of the students marked the item in the questionnaire as neither agree nor disagree, disagree or strongly disagree.

It was also found that the students' attitudes scores after exams were below the midpoint of the scale in all subfactors except the reliability. However, attitude scores in the reliability factor were above the mid-point of the scale for both midterm and final exams. Accordingly, it can be inferred that the students found online exams reliable (x= 3.34), but they did not see them as practical and usable (x = 2.65) and they were not emotionally prepared for them (2.82), so they had negative attitudes (x=2.82). Analysis results in detail are shown in Table 3 below.

Table 3. *Paired sample t-test results*

Scale and factors	n	x	s	df	t	p
Scale Average						
Post-midterm (pre-test)	101	2.96	.44	100	.46	.64
Post-final (post-test)	101	2.83	.41			
practicality-suitability						
Post-midterm (pre-test)	101	2.76	.88	100	.06	.94
Post-final (post-test)	101	2.65	.90			
affective factors						
Post-midterm (pre-test)	101	2.98	.95	100	.55	.58
Post-final (post-test)	101	2.82	.97			
Reliability						
Post-midterm (pre-test)	101	3.45	.87	100	.06	.94
Post-final (post-test)	101	3.34	.84			

T-test and ANOVA were performed to determine the differences in participants' attitudes by certain demographic variables. The analysis results revealed no significant difference in the attitude scores by gender, age, and hometown region. However, significant differences were found in the sub-factors by the department. The analysis results are presented in Tables 4, 5, 6, and 7. The tables only included the mean scale scores for the variables that did not play a significant role.

Table 4. *T-test Results by Gender*

Gender	n	x	sd	df	t	p
Female	71	2.93	.40	99	-1.93	.28
Male	30	3.03	.52			

Table 5. *ANOVA Results by Age*

Source (Age)	Sum of Squares	df	Mean Square	F	p
Between Groups	.63	3	.20		
Within Groups	19.14	99	.19	1.06	.36
Total	19.76	100			

Table 6. *ANOVA Results by Hometown Regions*

Source (Region)	Sum of Squares	df	Mean Square	F	p
Between Groups	1.03	4	.25		
Within Groups	18.73	96	.19	1.32	.26
Total	19.76	100			

Table 7. *ANOVA and Post Hoc test results by department*

Source (Department)	Sum of Squares	df	Mean Square	F	p	Post-hoc
Scale mean						
Between Groups	.16	2	.08	.40	.66	
Within Groups	19.60	98	.20			
Total	19.76	100				
practicality-suitability						
Between Groups	6.26	2	3.13	4.28	.01*	Art>Preschool
Within Groups	71.75	98	.73			
Total	78.02	100				
affective factors						
Between Groups	9.89	2	4.94	5.95	.00*	Art>Preschool
Within Groups	81.32	98	.83			
Total	91.21	100				
reliability						
Between Groups	3.05	2	1.52	2.03	.136	
Within Groups	73.31	98	.74			
Total	76.35	100				

** p<0.05*

After the midterm and final exams, students were also asked whether they would prefer the online exams in face-to-face education in the future. The responses were summarized in Figure 2 below. After the midterm exam, 44 of 101 students stated that they would prefer the online exams in the future. This number rose to 48 after the final exam. However, the majority still expressed that they would not prefer online exams in face-to-face education.

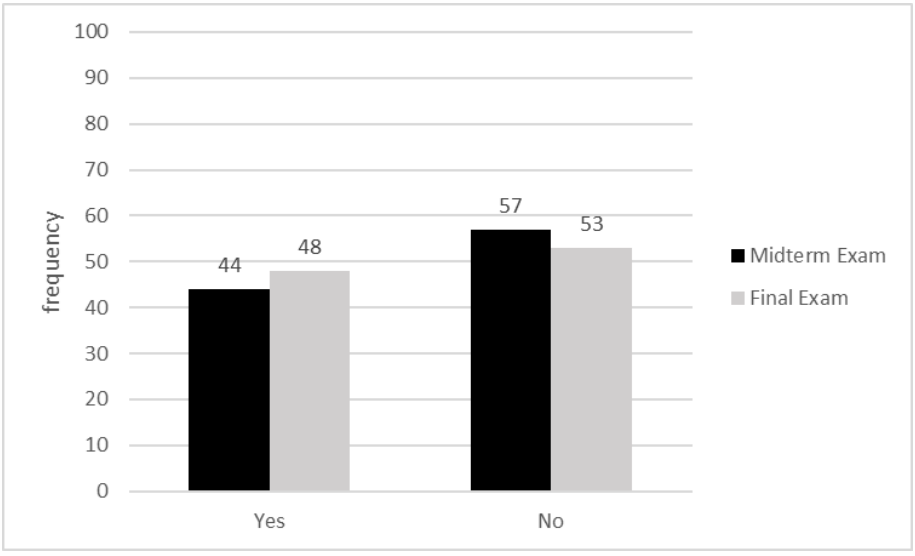

Figure 2. *The Changes in Online Exams Preferences After Midterm and Final Exams*

The content analysis results regarding students' answers to the open-ended questions revealed six themes as follows: *emotions, practicality, concerns about technical problems, advantages, time management,* and *hesitations*. Table 9 shows the themes, codes and the frequency of their mention in the interviews.

Table 9. *Qualitative Analysis Results*

Themes	Codes (n)
Emotions	Anxiety (25), excitement (3), happiness (4), comfortable and stress-free (22)
Practicality	comfortable and practical (25), physical comfort (17), easy use (15), design (18)
Concerns about technical problems	Power cut (5), internet connection problems (37), failing to complete the exam (6), computer shut-down (5), technical problems with the computer (8)
Advantages	Immediate Feedback (10), easy adaptation (6), fast and automatic scoring (4), different question types (8), not a waste of paper (8)
Time management	time limit (30), question types (3), individual skills and differences (17), the difficulty of questions (8)
Hesitations	Negative impact on learning (9), cheating (3), course characteristics (9), inequality of opportunity (5), negative experiences (15)

As seen in the table above, it can be said that the emotion factor is the primary factor based on the frequency numbers in the codes. For many students who are experiencing online exams for the first time, online exams have come to the fore as a worrying situation. Nevertheless, although some students experienced it for the first time, they found it exciting, fun, and more comfortable, and less stressful than face-to-face exams. Some students' statements are as follows:

"It was my first experience, I was anxious at the beginning of the exam, but it turned out to be more comfortable and wholesome than the exams held in the classroom." P-4

"At first, I was anxious and excited because it was my first experience, but it was not like what I had expected. I could easily pass the exam." P-9

Although most students saw online exams as a *temporary* solution during the pandemic, they found it easier to use and more convenient and practical than face-to-face exams. They also emphasized the practicality of online exams as they could easily take exams at home and without getting dressed appropriately. They also stated that certain design elements such as the clock's position and exam on the screen or the option to turn off the clock were also important to them. Some statements regarding student experiences are as follows:

"The questions were very clear and understandable, and we could see the time on the screen, which helped us manage time better." P-41

"I have difficulty in reading because of my bad eyesight. I prefer online exams as we have the chance to enlarge the fonts and change the colors in online exams." P-44

Whether the students were experienced or not, they especially underlined their concerns about the possibility of technical problems during an online exam. Although, except for the slow connection problem that one or two students had experienced, no students mentioned any problems. In this sense, it can be inferred that electricity or internet outages, computer shut-down for no reason, or the operating system crashing caused anxiety in students before and during the online exams. Two students expressed their opinions as follows.

"If we talk about the disadvantages of online exams, I think the biggest disadvantage is the possibility of internet disconnection." P-17

"In addition to other problems, there may be internet interruptions, and all the answers may be lost." P-26

Students stated that they gained many benefits from online exams. In particular, immediate and automatic scoring, the chance to check every question and answer, see different types of questions, and

prevent paper waste are the primary benefits emphasized by the students. Some students' comments on the benefits of online exams are as follows:

> *"…the opportunity to see all our true and false answers, and to take feedback on the false answers made me very, very pleased. Moreover, there is no waste of paper, what else do you expect! [the student puts a smiley sign]." P-3*

> *"However, online exams had a nice feature that the paper-and-pencil tests did not have, which was the automatic and immediate scoring." P-23*

The most common problem faced by students was time management. Students often stated that the exam duration was not enough to complete. Although the exact duration was given for both face-to-face exams and online exams with a similar number of questions, the students stressed the lack of time in online exams. When the system data was examined, it was seen that the students answered the multiple-choice questions quickly but spent much time on open-ended questions. It might be related to students' expressions that different question types, such as open-ended or fill-in-the-blank questions, took much time in online exams. Besides, students stated that digital literacy played an important role in taking online exams. Some students mentioned their concerns about the online exam as they did not feel competent in typing and computer skills. It explains why the students were slow in answering open-ended questions. Some students' opinions are as follows.

> *"I think the only disadvantage was the time limit. It was a little less than I expected, considering the difficulty of the questions, but I was still delighted." P-6.*

> *"...the most challenging thing for me was the exam duration. I was nervous because I could not keep up the time…. online exams are challenging in terms of time, but practical in terms of comfort…" P-63*

The students also expressed that the online exams negatively affected education and training during the pandemic addition; they thought that although there was a time limit and were various security measures in the online exams, there were many ways of cheating in the exams, which created negative motivation for learning. They also stated that online exams were suitable for theoretical courses but could not be used for applied courses.

> *"Although online exams are more useful in terms of ease of transportation and convenience, students may not spend necessary effort on learning due to the convenience of accessing several information sources during the exam." P-11*

DISCUSSION AND CONCLUSION

Online assessment has been used more widely in parallel with the increasing number of students in online programs and formal education. Besides, online exams are the most preferred online assessment method during the pandemic (Raje and Stitzel 2020). Therefore, this study aimed to describe the opinions of students who received distance education during the pandemic about online assessment and to examine their attitudes towards online assessment methods by certain variables. Therefore, students' experiences during the online exams and their attitudes towards the online exam were analyzed using an online survey after the midterm and final exam. It was found that students did not have a positive attitude towards online exams after midterm and final exams, and even their attitude scores were lower after the final exam. The literature does not overlap with the current findings. In many studies (Pimo-Silvo, 2008; Sorenson, 2013; James, 2016; Ilgaz & Adanır, 2019; Böhme et al., 2020), it was found that students had positive attitudes toward the online exams. It can be said that the most crucial reason for the discrepancy between findings this study and literature was that students who had to sit in front of the computer during the Covid-19 pandemic considered online exams as a compulsory part of remote distance learning. The findings obtained as a result of the analysis of qualitative data support this situation. Accordingly, it has been observed that students often compare online exams with face-to-face education and that students who are constantly in

front of the screen may have negative attitudes towards online exams.

The results also revealed no significant difference in the attitudes of the students according to their gender, age and department. Studies in the existing literature in the context of gender reveal different results. Accordingly, while the findings obtained in some studies (Dermo, 2009; Da'asin, 2016; Ilgaz & Adanır 2019) showed parallelism with this study, there were studies showing that the gender factor was a significant determinant in terms of attitude (Jamil, 2012; Akhter & Fatima, 2017; Spring & Asil, 2018). When the studies, including this one, are analyzed from a broader perspective, although the differences are not statistically significant by gender, it has been observed that men have more positive attitudes than women in almost all of them. This is generally due to the fact that in previous studies, men's acceptance, perception and attitudes towards computer and communication technologies are more positive than women (Collins et al., 2000). However, the widespread use of these technologies (Leach & Turner 2015), regardless of gender, can be explained by the gradual closure of this gap.

In the study, the data were also evaluated in terms of age and the region where the students live. The finding obtained in this study was similar to the results of other studies (Demo 2009; Başaran et al. 2017; Ilgaz and Adanır 2019) and revealed that the age factor did not make a difference in terms of attitude. On the other hand, as stated in this study and other studies listed in the literature, it was revealed that attitude scores increased with increasing age, but the differences were not statistically significant. Similar to the age variable, students' hometown did not make a difference in their attitudes. In analyzing the qualitative data, it was expected that students living in the eastern and southeastern provinces would have more negative attitudes due to frequent complaints about internet interruptions, technical inadequacies and facilities. However, no systematic difference was found in the survey scores by hometown regions. However, the studies cited above did not report any findings regarding the relationship between the region and online exam attitudes, which may have a potential to bring a new dimension to the subject.

The study also investigated whether students' major department were a determinant in their attitudes towards online exams and, unlike the studies conducted on this variable in the literature (Bahar & Asil 2018; Ilgaz & Adanır 2019), significant differences were found in certain factors on the department variable. Accordingly, it was found that the students at Art teaching and Pre-school teaching departments significantly differed positively in favor of Art teaching in the practicality-suitability factor and in favor of Pre-school teaching in the affective factor. This situation may be related to the department of art teacher candidates. Because the pre-service art teachers stated that there were mostly applied courses in their education programs and that they used the paper-and-pencil exam very limited. Accordingly, it is thought that online exam is more practical and useful for them compared to other departments. For a similar reason, since these students have limited computer experience in departmental applications, they may not have approached this exam model affective positively enough.

Considering the students' opinions regarding online exams, two topics came up more often: time management and potential technical problems. In a quantitative study by Ilgaz & Adanır (2020), online and paper-and-pencil tests were compared in terms of academic success and attitude, and a significant difference was found in academic success. It was also revealed that students needed more time for online exams. Although the students did not have any problems during online exams, even the possibility of technical problems caused them severe anxiety. Ras et al. (2015) examined university students' acceptance and preferences for online exams using a qualitative method and found that students could easily use such systems, but they needed more time than face-to-face exams. These findings are similar to the results of this study. On the other hand, Karay et al. (2015) showed that students completed online tests in a shorter time than paper-and-pencil tests. In this sense, the different types of questions and the details related to the course may help to explain these different findings. This study similarly observed that students answered the multiple-choice questions quickly but spent more time on open-ended and fill-in-the-blank questions.

It was also concluded that during the Covid-19 pandemic, students acknowledged online exams as a critical chance to continue their education. Nevertheless, they believed that online exams were vulnerable to cheating due to the lack of security measures, resulting in students' studying and being motivated less for learning. It was observed that although students could check all the questions and answers and get feedback

on wrong answers right after midterm and final exams, only a few students (n=13) used this option. According to Ras et al. (2015), the online assessment makes an outstanding contribution to learning, and Jordan (2013) stated that if online assessment systems are used effectively, they offer much potential to improve students' learning experiences. However, during the Covid-19 pandemic, students did not take such advantages of online exams, and they had a misperception of online systems: just an alternative to face-to-face education. Similarly, Bozkurt (2020) stressed an urgent and widespread need for education during the pandemic, which might explain students' adaptation problems.

Additionally, as stated by students, there were various reasons for students' negative attitudes towards online systems during the pandemic, such as always sitting in front of a screen, previous negative experiences about online exams, inequality of opportunity due to regional differences, technical problems and incorrect application of online exams. In brief, despite online exams' increasing popularity and many advantages such as automatic and correct scoring, immediate feedback, being practical and ecologically friendly, the Covid-19 pandemic has been a challenge that pushes the limits of students. Entirely online courses and assessment methods are considered too much, even for the children born in the digital age, which is proven by the study findings.

Assessment and measurement are essential steps in education. A well-organized and systematic exam including the benefits frequently mentioned in the literature can increase students' performance and positively affect students' attitudes towards online systems. However, this study is limited to a learning management system and the university students from three departments who take the same course. Future studies can be carried out on online exams, including different question types and different student groups. In this sense, students' opinions can be discussed from a broader perspective. Besides, it would be helpful to learn faculty members' perspectives on online assessment methods. Although online exams offer various advantages to students, as long as lecturers and instructors are not involved in such systems, they do not make sense. Therefore, future studies can be carried out with faculty members.

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