Examination of Primary School Teacher Candidates' Views on Distance Education: A Mixed-Method Study

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ARTICLE INFO	ABSTRACT
	This study aimed to gather prospective primary school teachers' opinions on distance education and ascertain whether these opinions varied based on different variables. A mixed-methods approach was employed to obtain more reliable results, with the sequential explanatory design being utilized in the study. The research sample comprised 233 teacher candidates from Erciyes University's Ziya Eren Faculty of Education during the 2020-2021 academic year who participated in distance education amidst the COVID-19 pandemic. The Distance Education Students' Views of Distance Education Scale, developed by Yıldırım, Yıldırım, Çelik, and Karaman (2014), served as a quantitative data collection instrument. Qualitative data were gathered online via a structured interview form. Descriptive statistics such as percentages, frequencies, and arithmetic means were used to analyze the quantitative data. Since the data exhibited a normal distribution, t-tests and ANOVAs were conducted. The Qualitative data analysis involved using the descriptive analysis method for the semi-structured interview responses. The findings of the study revealed that the opinions of primary school teacher candidates regarding distance education did not significantly differ based on gender or home internet access. However, significant differences were identified in relation to class level and duration of internet usage. Based on these results, recommendations were provided, such as enhancing distance education infrastructure within universities.

1. Introduction

Today, changes and developments in the field of science and technology have brought about many innovations in education. The inclusion of technological tools in all areas of life, as well as their indispensable role in daily routines, has led to the adoption of new approaches in education (Daniel & Kamioka, 2017). Due to the influence of technology, new concepts such as computer-assisted teaching, e-learning, mobile learning, and distance education have begun to be discussed and utilized more frequently in education. In particular, the increased use of computers in education, along with the presentation of educational materials in both print and electronic media, has contributed to the development of distance education (Moore, Dickson Deane, & Galyen, 2010).According to Moore and Karsley (2011), distance education; is a planned learning activity that communicates with the traditional understanding of education as well as technological devices and allows teaching to take place in different places. In the most general sense, distance education is a teaching activity in which the learner and the teacher are in different places (Schlosser & Anderson, 1994). According to Keegan (1986), distance education is an education that is based on mutual communication and interaction between the student and the teacher, in which media tools are used in the realization of educational activities. Distance

education takes place independently of time and place and allows students and teachers to communicate in different time zones has made distance education more important (Kaban, 2003).

When the studies on distance education are examined, it is seen that distance education has some advantages. Distance education allows students to access information at any time and place they want, so time and space losses are minimized (Doğan, Koç, & Saraç, 2022; Traxler, 2018; Yavuzalp, Demirel, & Canbolat, 2016). With this aspect, distance education provides learners equal opportunities to access educational resources (Bunker, 2003). Distance education process; It has a more flexible structure compared to the traditional understanding of education. This flexible structure allows individuals to choose various distance education environments, websites that support learning, and mobile applications suitable for their learning styles (Akdemir & Koszalka, 2008; Güler, Demirtaş & Edi, 2022). In addition, distance education; is beneficial for students to learn at their own pace, to monitor their success and development, enable them to learn throughout their lives, eliminate obstacles such as time, distance and socioeconomic inequality, and reach more audiences by spending less time (Arat and Minister, 2014; De Bryun, 2004; Drago, Peltier and Sorensen, 2002). Students who do not have the opportunity to continue their education in educational institutions through distance education also have equal opportunities, and individuals who need special education are included in education (Odabaş, 2003). In addition, it provides various advantages to students with rich course materials and ample time opportunities for students (Kırık, 2016). Therefore, distance education is an alternative education technology that can complement traditional education (Uşun, 2006).

In addition to the many advantages of distance education, some disadvantages come with it. One of the most important problems experienced in distance education is the weak interaction between students and teachers (Akyürek, 2020; Duran, 2020; Ustati & Hassan, 2013). In the distance education process, the interaction between teacher and student is not as efficient as face-to-face education, so students experience problems such as a lack of attention and loss of motivation (Elcil & Şahiner, 2014). Distance education requires an information technology infrastructure; therefore, there are always technical problems and individuals who will use the distance education system do not have the necessary technical and financial equipment to bring along various problems (Altıparmak, Kurt, & Kapıdere, 2011).

The Covid-19 epidemic, which affected the world at the beginning of 2020, caused the temporary suspension or postponement of all activities globally (World Health Organization [WHO], 2020). Various measures have been taken to minimize the effects of the Covid-19 epidemic on education. Distance education has been started at all levels in our country, as in almost the world. Along with the distance education process, many problems have occurred, especially in technical, psychological and social terms. When studies on distance education are examined, studies examining student views on distance education (Duban, 2022; Güven & Uçar, 2021; Yurdakal & Kırmızı, 2021), studies examining variables such as perception and attitude towards distance education (Arslan, 2021; Göldağ, 2021; Gunduzalp, 2021). Since it is thought that the attitudes and perceptions of students towards distance education affect this process, it is very important to reveal students' thoughts about distance education. It is thought that the study will contribute to the literature by revealing what primary school teachers who will raise future generations think about this process, what problems they have experienced and what solution proposals they have developed for similar problems that may be experienced again in the future. This study aimed to get prospective primary school's opinions about distance education and determine whether these opinions differ according to different variables. Answers to the following sub-problems were sought within the framework of this general purpose.

- Do the perspectives of primary school teacher candidates on distance education vary based on gender?
- Are the views of prospective primary school teachers on distance education influenced by their grade level?
- Do the opinions of primary school teacher candidates on distance education differ depending on the availability of home internet access?
- Are the views of primary school teacher candidates on distance education affected by the duration of daily technological device usage?

2. Method

2.1.Research Model

This study used a mixed-method research approach to obtain more reliable results. Mixed method; It is a research method that has emerged as an alternative to qualitative and quantitative research methods, includes different philosophical approaches and theoretical frameworks, and is based on the collection, analysis and interpretation of qualitative and quantitative data (Teddlie & Tashakkori, 2009). Mixed-method; It minimizes the limitations inherent in quantitative and qualitative research methods. The mixed method uses post-positivist and structuralist paradigms (Gliner, Morgan, & Leech, 2015). The purpose of the mixed method; is to create a detailed understanding of the researched subject (Creswell, 2017).

The sequential explanatory design was used in the study carried out with mixed-method. Because; Creswell (2006) states that the basic premise of the mixed approach is "to use quantitative and qualitative approaches together; it gives us a better understanding of research problems than using either approach alone." The sequential explanatory design is quantitative data-weighted and supported by qualitative data (Creswell, Clark, Gutmann, & Hanson, 2003). In other words, the qualitative data obtained from the research is used to support the quantitative data. In this context, a quantitative data collection tool was applied to all of the participants and a structured interview form was applied to some of the participants and their opinions were taken.

2.2. Study Group

The research study group, which aims to determine the views of primary school teacher candidates on distance education, consists of 233 teacher candidates who studied at Erciyes University Ziya Eren Faculty of Education in the 2020-2021 academic year and received distance education during the Covid-19 epidemic. After collecting quantitative data from the entire study group, qualitative data were collected from 12 prospective primary school teacher candidates through a structured interview form. Easily accessible case sampling, one of the purposive sampling methods, was used to determine the teachers in the study group. In easily accessible case sampling, the researcher chooses a situation that is close and easy to access, thus bringing speed and practicality to the research (Yıldırım & Şimşek, 2013).

Table 1. *Demographic Characteristics of the Participants*

		f	%
Gender	Female	188	80,0
	Male	47	20,0
	Total	235	100
Grade level	1st grade	70	29,8
	2nd grade	54	23,0
	3rd grade	56	23,8
	4th grade	55	23,4
	Total	235	100
Availability of internet at home	Yes	212	90,2
	No	23	9,8
	Total	235	100
Technological devices usage time	Less than 1 Hour	13	5,5
	1-3 Hours	71	30,2
	3-5 Hours	86	36,6
	More than 5 Hours	65	27,7
	Total	235	100

When Table 1 is examined, 80% of the primary school teacher candidates participating in the research are female, 20% are male, 29.8% are 1st grade, 23% are 2nd grade, 23.8% are 3rd grade, and It is seen that 23.4 of them are in the 4th grade. While 90.2% of the participants have the internet at home, 9.8% do not have the internet at home. 5.5% of the participants use a technological device for less than 1 hour a day, 30.2% for 1-3 hours, 36.6% for 3-5 hours and 27.7% for more than 5 hours a day. The study group where the qualitative data was collected 50%were female and 50% male. In addition, equal teacher uncles were selected at each grade

level. In other words, 25% of the study group is 1st grade, 25% is 2nd grade, 25% is 3rd grade, and 25% is 4th grade.

2.3. Data Collection Tools and Procedure

Scale; It consists of four sub-dimensions: personal suitability, effectiveness, instructiveness and disposition. In this study, the Distance Education Students' Views of Distance Education Scale developed by Yıldırım, Yıldırım, Çelik, and Karaman (2014) was used as a quantitative data collection tool. The scale is a five-point Likert-type rating scale consisting of 18 items. The Cronbach's alpha value, which is the internal consistency coefficient of the scale, was calculated as 0.864.

Personal Information Form, when preparing the personal information form for the study, Views of Distance Education and personal information forms in literature were examined, and a pool for the characteristics of the students to be examined was created. Then, with the help of statistics specialists, a socio-demographic information form was prepared. The form prepared by the researcher contains questions aimed at obtaining information about the gender, grade level internet connection status and period of use internet as well as the demographic characteristics of the individuals. The research collected qualitative data online through a structured interview form. During the research process, the collected data were analyzed by two researchers who subsequently identified sub-themes.Miles and Huberman's (1994) reliability formula (Reliability = Consensus/ (Agreement + Disagreement)) was used to determine consistency between sub-themes. It was determined that there was a consistency of .86 between sub-themes. Themes with a consistency rate of .70 and above were considered reliable. It was concluded that the sub-themes were reliable because the sub-themes were determined. The study was conducted online with 12 prospective primary school teachers who agreed to be interviewed on a voluntary basis. It was important to conduct the interviews in an environment where the participants could feel comfortable and safe. All participants were asked the same questions in sequence, and interviewees were permitted to respond as expansively as they desired. Throughout the interviews, care was taken not to guide the participants, and any intervention that might prompt them to alter their views was avoided.2.4. Data Analysis

Kolmogrov smirnov and skewness kurtosis analysis results are given in Table 2 for the normality distribution of the scores of the students on the Views of Distance Education Scale.

Table 2. *The results of the skewness-kurtosis and the Kolmogorov-Smirnov test significance level of the student's Views of Distance Education Scale*

Scale Sub-Dimension	n	Skewness	Kurtosis	p
Personal Compliance	235	,527	-,615	,000
Effectiveness	235	1,157	,522	,000
Predisposition	235	-1,005	,626	,000
Teaching	235	,938	,354	,000
Total	235	,758	,483	,000

Table 2 shows that the Kolmogorov-Smirnov Test results showed that the deviations in the total and sub-dimension scores of the students' views on distance education were at significant levels. However, when the curves of these distributions were examined, it was observed that there were no extreme deviations from normality. George and Mallery (2016) interpreted that the values in the range of ±1 are not excessive deviations from normality. In line with this information, parametric statistical analysis tests were used. While analyzing the quantitative data, descriptive statistics such as percentage, frequency, and arithmetic mean were used. While independent t-test was used to compare two groups, one-way analysis of variance was used to compare three or more groups. In addition, to reveal the source of the significant difference in one-way analysis of variance, LSD analysis was used because the number of variables within the groups was not equal.

While analyzing the quantitative data, descriptive statistics such as percentage, frequency, and arithmetic mean were used. Kolmogorov Smirnov test was applied to determine whether the data showed normal distribution. As a result of this test, it was determined that our data showed normal distribution. Since the data showed normal distribution, a t-test was used for pairwise comparisons and an ANOVA test was applied for comparisons of three or more groups.

In the analysis of qualitative data, the data obtained from the structured interview form were analyzed thematic content *"Opinions on Distance Education ", "Advantages and Disadvantages of Distance Education"* and *Recommendations Regarding Distance Education"* by descriptive analysis method. In addition, the views of the students are given in the study with direct quotations. While giving the opinions of the students, they were coded as S1, S2, S3, S4, S5, S6, S7, S8, S9, S10,S11 and S12 in accordance with ethical rules.

2.5. Ethical

This study, which was conducted to determine the opinions of prospective primary school teacher candidates on distance education, was received from Erciyes University Social and Human Sciences Ethics Committee on 30.03.2021 with the application number "130".

3. Findings

3.1. Quantitative Findings

An Independent t-test was used to make comparisons according to the gender of the students, and the results are presented in Table 3.

Table 3. *Comparison of Students' Scores from the Scale and its Sub-Dimensions by Gender*

Scale Sub-Dimension	Gender	N	X	Sd	t	p
Personal Compliance	Female	188	15,49	6,83	-,358	,721
	Male	47	15,89	6,86		
Effectiveness	Female	188	10,12	5,34	-1,154	,250
	Male	47	11,17	6,53		
Predisposition	Female	188	5,89	2,65	,331	,741
	Male	47	5,74	2,70		
Teaching	Female	188	15,93	3,90	1,207	,229
	Male	47	15,13	4,75		
Total	Female	188	47,43	9,07	-,337	,737
	Male	47	47,94	9,71		

*p<0.05

Table 3 shows that the views of prospective classroom teacherTable 3 show that prospective classroom teachers' views towards distance education do not differ significantly according to the gender variable (t=-.337, p>0.05).

One-way analysis of variance was used to make comparisons according to the grade level of the students, and LSD analysis was applied to reveal the significant difference, and the results are presented in Table 4.

Upon examining Table 4, it is evident that the opinions of primary school teacher candidates regarding distance education exhibit significant differences in the sub-dimensions of personal suitability, effectiveness, instruction, and total score (p < 0.05). However, no significant difference is observed in the predisposition sub-dimension (p > 0.05). In the personal fitness sub-dimension, 1.-2. and 1.-3. among grades in favor of 1st grades and 2nd-4th, 1st-4th grades. and 3.-4. There is a significant difference between grades in favor of 4th graders. In the effectiveness sub-dimension, between the 1st and 3rd grades, in favor of the 1st grades, 2nd-4th graders. among grades, in favor of 4th graders, 3rd-4th graders. There is a significant difference between grades in favor of 4th graders. 4.-2 in the teaching sub-dimension. and 4.-3. There is a significant difference between grades in favor of 4th graders. According to the total score obtained by the primary school teacher candidates from the scale, 2.-1. and 3.-1. in favor of the 1st grades among the 3rd-4th grades. and 2.-4. among grades, in favor of 4th graders, 3rd-2nd graders. There is a significant difference between grades in favor of 2nd graders.

Table 4. *Comparison of Students' Scores from the Scale and its Sub-Dimensions by Grade Level*

Scale Sub-Dimension	Grade Level	N	X	Sd	F	p	Lsd
Personal Compliance	1	70	16,79	6,22			
	2	54	13,15	6,88			2<1,2<4
	3	56	13,07	4,77	11,380	,000*	3<1,1<4
	4	55	18,96	7,54			3<4
	Total	235	15,57	6,82			
Effectiveness	1	70	11,40	5,84			
	2	54	8,83	4,98			3<1
	3	56	8,41	3,14	7,340	,000*	2<4
	4	55	12,38	6,79			3<4
	Total	235	10,33	5,60			
Predisposition	1	70	15,54	3,76			
	2	54	16,65	4,05			4<2
	3	56	16,64	2,95	4,277	,006*	4<3
	4	55	14,31	5,04			
	Total	235	15,77	4,08			
Teaching	1	70	5,93	2,69			
	2	54	5,81	2,82			
	3	56	5,80	2,69	,029	,993	-
	4	55	5,87	2,45			
	Total	235	5,86	2,65			
Total	1	70	49,66	9,41			
	2	54	44,44	8,09			2<1,3<1
	3	56	43,93	6,41	10,838	,000*	3<2,3<4
	4	55	51,53	10,06			2<4
	Total	235	47,53	9,19			

*p<0.05

Independent t test was used to make comparisons according to the ınternet connetction status of the students; the results are presented in Table 5.

Table 5. *Comparison of Students' Scores from the Scale and its Sub-Dimensions by Internet Connection Status*

Scale Sub-Dimension	Internet Connection Status	N	X	Sd	t	p
Personal Compliance	Yes	212	15,96	6,70	2,679	,008*
	No	23	12,00	7,04		
Effectiveness	Yes	212	10,50	5,55	1,475	,142
	No	23	8,70	5,97		
Predisposition	Yes	212	5,69	2,50	-3,051	,003*
	No	23	7,43	3,49		
Teaching	Yes	212	15,65	4,00	-1,362	,175
	No	23	16,87	4,70		
Total	Yes	212	47,81	9,24	1,395	,164
	No	23	45,00	8,47		

*p<0.05

When Table 5 is examined, There is a significant difference in the sub-dimensions of personal suitability (t= 1.475, p<0.05) and susceptibility (t=-3.051, p<0.05) according to whether there is an internet connection in the place where the primary school teacher candidates' views on distance education exist and effectiveness (It is seen that there is no significant difference in the sub-dimensions of t=1.475, p>0.05), instructional (t=-1.362, p>0.05), and the total score (t=1.395, p>0.05).

One-way analysis of variance was used to make comparisons according to the period of use of the students, and LSD analysis was applied to reveal the significant difference, and the results are presented in Table 6.

Table 6. *Comparison of Students' Scores from the Scale and its Sub-Dimensions by the Period of Use*

Scale Sub-Dimension	The period of use	N	X±Ss	Sd	F	p	Lsd
Personal Compliance	Less than 1 Hour[a]	13	12,31	5,28			
	1-3 Hour[b]	71	15,52	7,06			
	3-5 Hour[c]	86	15,48	6,36	1,335	,264	-
	More than 5 Hours [d]	65	16,42	7,35			
	Total	235	15,57	6,82			
Effectiveness	Less than 1 Hour[a]	13	8,46	5,52			
	1-3 Hour[b]	71	10,85	5,90			
	3-5 Hour[c]	86	10,38	5,12	,732	,534	-
	More than 5 Hours [d]	65	10,06	5,91			
	Total	235	10,33	5,60			
Predisposition	Less than 1 Hour[a]	13	17,77	2,17			
	1-3 Hour[b]	71	15,97	4,32			
	3-5 Hour[c]	86	15,43	3,81	1,338	,263	-
	More than 5 Hours [d]	65	15,60	4,40			
	Total	235	15,77	4,08			
Teaching	Less than 1 Hour[a]	13	8,00	3,74			
	1-3 Hour[b]	71	5,58	2,36			a>b
	3-5 Hour[c]	86	5,56	2,48	3,834	,010*	a>c
	More than 5 Hours [d]	65	6,14	2,76			
	Total	235	5,86	2,65			
Total	Less than 1 Hour[a]	13	46,54	11,05			
	1-3 Hour[b]	71	47,92	10,37			
	3-5 Hour[c]	86	46,85	8,09	,367	,777	-
	More than 5 Hours [d]	65	48,22	8,92			
	Total	235	47,53	9,19			

*p<0.05

When Table 6 is examined; It is seen that the opinions of the primary school teacher candidates about distance education do not differ significantly in the sub-dimensions of personal suitability, effectiveness, teaching and total score according to the variable of internet usage time. In the predisposition sub-dimension of the scale, it is seen that there is a significant difference between those who use the Internet for less than 1 hour and those who use the Internet for 1-3 hours and 3-5 hours in favor of the primary school teachers who use the Internet for less than 1 hour.

3.2. Qualitative Findings

In the context of the research, participants were asked, "What are your views on distance education?" The findings related to primary school teacher candidates' perspectives on distance education are displayed in Table 7.

Table 7. *Opinions on Distance Education*

Opinions	f
Distance education is useless.	8
It is an alternative solution during the pandemic period.	4
It is expensive because it requires technological equipment.	3
An effective assessment and evaluation process is not possible.	2
It restricts communication and interaction.	1

When Table 7 is examined, it is seen that primary school teacher candidates mostly think that distance education is useless (f=8) and that it is an alternative solution that can be used during the pandemic period (f=4). The answers of some students about distance education are given below.

> S1: *"As a senior, I think that I did not receive any useful education. I never felt academically supported for teaching."*

S5: "This system is obligatory during this pandemic period we are going through. The system is logical, but there may be problems because the necessary infrastructure system has not been established or developed. This can put the student or teacher in a difficult situation."

S12: "I do not think that distance education is beneficial. I think the information learned is not permanent, and it is possible to get efficiency in face-to-face education."

Within the scope of the research, the "What are the advantages and disadvantages of distance education?" question was posed. The findings of the primary school teacher candidates' views on distance education are presented in Table 8.

Table 8. *Advantages and Disadvantages of Distance Education*

Advantages	f	Disadvantages	f
Realization independent of space	7	Limited communication and interaction	6
Providing the opportunity to watch the lectures again	3	Requires technological equipment	5
Allowing you to spend more time on yourself	1	Decreased efficiency is applied to courses	4
		Violation of personal data security	2
		Eye disorders, back pain etc., cause health problems	1

When Table 8 is examined, it is advantageous in that the teaching process in distance education is independent of the place (f=7), and it offers the opportunity to watch the lessons again (f=3); It is seen that they have the opinion that it is disadvantageous in terms of limiting effective communication and interaction (f=6) and requiring technological equipment (f=5). Some students' answers about the advantages and disadvantages of distance education are given below.

S1: "The biggest disadvantage is not being able to go to the internship and not being able to meet the students face to face. This is a huge disadvantage. Being a teacher without internship means zero experience and observation."

S8: "As we study from home in distance education, we spend more time for ourselves without getting tired. We had the opportunity to do more of the things we wanted to do during the day."

S11: "On the positive side, I had the chance to spend more time with my family, eliminate travel expenses, and enjoy some rest. However, there were some drawbacks as well. Prolonged computer usage led to health issues, including an increase in my eye prescription from 0.75 to 1.50, as well as neck and lower back pain. While the theoretical lessons were effective, our applied courses suffered, resulting in inadequate comprehension. Additionally, socialization was negatively impacted due to the continuous restrictions and quarantine measures, which adversely affected our friendships and social interactions.

Within the scope of the research, the "What are your suggestions to make distance education more efficient?" question was posed. The findings of the primary school teacher candidates' views on distance education are presented in Table 9.

Table 9. *Recommendations Regarding Distance Education*

Opinions	f
Lessons should be conducted interactively to ensure the active participation of the student.	5
Process evaluation should be done.	3
More material should be used.	3
Attendance must be mandatory; camera microphone must be mandatory.	2
Technological infrastructure should be developed.	2

Upon examining Table 9, several recommendations were found to make the distance education process more efficient for primary school teacher candidates. These include conducting lessons more interactively (f=5), using a greater variety of materials in lessons (f=3), and ensuring active student participation by basing measurement and evaluation on the process (f=3). Some students also provided their opinions on the advantages and disadvantages of distance education, which are presented below..

S3: "Opening a camera and interacting more should be essential. Exams should be homework rather than tests. Although it does not save the situation, it will help us understand the lessons somewhat."

S4: "There should be an obligation to continue. It should be mandatory for students to turn on the camera or microphone when the teacher asks questions during the lesson. Students should be given process-evaluated exams."

S9: "Of course, it will never replace face-to-face education. It may be to improve the infrastructure of the system, to make the exam system more controlled and to complete the material deficiencies."

4. Conclusion Discussion and Recommendations

The study aimed to determine the views of primary school teacher candidates on distance education and found that their perspectives did not significantly differ based on gender. This finding is consistent with the results of Kırali and Alcı (2016), who also concluded that students' views on distance education did not vary significantly by gender. Similarly, Tekin, Tekin, and Çicekdağ (2013) found no significant difference in opinions on distance education based on gender, further supporting the research outcome. However, Başar, Arslan, Günsel, and Akpınar (2019) found in their study with primary school teachers that men's perceptions of distance education were higher than women's.In the grade level variable of the views of the primary school teacher candidates towards distance education, 2.-1. and 3.-1. in favor of the 1st grades among the 3rd-4th grades. and 2.-4. among grades, in favor of 4th graders, 3rd-2nd graders. It is seen that there is a significant difference between grades in favor of 2nd graders. In their studies with university students, Bayram, Peker, Aka and Vural (2019) concluded that students' attitudes towards distance education do not differ according to grade level. Similarly, Ateş and Altun (2008) concluded that teacher candidates' attitudes towards distance education do not differ according to grade level.

It is seen that there is a significant difference in the sub-dimensions of personal suitability and aptitude according to the opinions of the primary school teacher candidates about distance education, whether there is an internet connection in their place, and there is no significant difference in the sub-dimensions of effectiveness, teaching and total score. In their study, Yakar and Yıldırım Yakar (2021) concluded that teacher candidates' attitudes towards distance education differ significantly depending on whether they have a personal computer or not. Kırali and Alcı (2016), on the other hand, concluded in their study that whether there is an internet connection at home or not does not affect students' perceptions of distance education.

While there is no significant difference in the sub-dimensions of personal suitability, effectiveness, teaching and total score according to the variable of the duration of internet use, it is seen that there is a significant difference in the predisposition sub-dimension. Yenilmez, Balbağ, and Turgut (2017) also concluded in their studies that teacher candidates' attitudes towards distance education do not change according to the duration of internet use. This result they reached is similar to the results of the study.

It has been concluded that the classroom teacher candidates are advantageous because the teaching process in distance education is independent of the place and offers the opportunity to watch the lessons again. Genç, Engin, and Yardim (2020) also concluded that accessing course records and course materials when needed is among the advantages of distance education. Similarly, Duman (2020)'s conclusion that distance education has advantages such as being independent of location and allowing students to access course materials again supports the study. It has been concluded that primary school teacher candidates mostly think that distance education is useless and that it is an alternative solution that can be used during the pandemic period.

It is seen that they have the view that distance education is disadvantageous in terms of limiting communication and interaction and requiring technological equipment. Similarly, in the study conducted by Erfidan (2019) with lecturers and students, the fact that students expressed their opinions that there are disadvantages to conducting courses through distance education supports the study. Clark (2020)'s statement that distance education limits communication and interaction between people is similar to the view that students' communication and interaction are limited in distance education. Metin (2020) with lecturers, according to the teachers, the distance education application did not positively affect the communication between the student and the teacher. This situation may be caused by the fact that the communication between the teacher and the student is provided through a technological tool. Considering that eye contact and body

language are very effective in communication between teacher and student, it is clear that only verbal communication will not provide effective communication. In addition, he stated that the distance education application did not contribute to increasing the students' willingness to participate in the course.

To make the distance education process more efficient, the primary school teacher candidates suggested that the courses should be conducted more interactively, more materials should be used in the courses, the technological infrastructure should be improved, and measurement and evaluation should be based on the process to ensure the active participation of the students. The healthy progress of the distance education process also depends on the sufficient technological infrastructure. Connectivity is one of the high-frequency sub-themes that make up the physical infrastructure theme. The teacher stated that both they and the students had significant problems with internet connection. (Bakioğlu & Çevik, 2020; Bayburtlu, 2020; Genç, 2020; Uyar, 2020). The opinions about the measurement and evaluation of Kurtuncu and Kurt (2020) through process evaluation and the improvement of the technological infrastructure coincide with the results obtained in this study.

Based on the above discussion, this paragraph offers a set of suggestions to enhance distance education infrastructure at universities. To begin with, applied courses should not be conducted entirely through distance education; instead, they could be implemented as an alternative approach. Focusing the assessment and evaluation process on process evaluation rather than product evaluation may prove beneficial. By incorporating courses such as distance education and computer-assisted instruction into the undergraduate curriculum, students can develop better competencies in these areas. Furthermore, students can gain experience by taking certain theoretical courses via distance education during their undergraduate studies. Although this study centered on primary school teacher candidates, future research could involve prospective teachers or educators from other disciplines. Lastly, while this study aimed to determine the opinions of primary school teacher candidates on distance education, future research could explore topics such as perception and attitude towards distance education.

5. Declaration of Conflicting Interest

The authors declared no potential conflicts of interest with respect to the research authorship, and/or publication of this article.

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