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The Determination of History Teacher Candidates' Distance Education Self-Efficacy Belief Levels According to Different Variables

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Distance education is a type in which individuals can realize their learning activities in line with their current technological possibilities, independent of time and space concepts, sharing information and documents with technological tools and applications, and establishing communication and interaction. Self-efficacy is knowing and believing in one's abilities to do a job. Self-efficacy belief levels towards online learning environments are important factors affecting the educational process. For this reason, determining students' self-efficacy levels in distance education processes is accepted as an essential factor in increasing the quality of educational activities. This study aimed to determine the distance education self-efficacy belief levels of prospective history teachers and the distance education self-efficacy belief levels according to variables such as readiness, gender, grade, and disadvantage. Within the scope of the research, two different scales were used with 109 history teacher candidates from different grade levels of 4 different state universities with the appropriate or convenient sampling method. As a result of the research, no significant difference was found in readiness, gender, and grade variables. Another finding of the study was that disadvantages such as mobile data and internet problems had a negative effect on self-efficacy belief levels. In addition to these, it was investigated whether pre-service teachers' online readiness level was related to self-efficacy belief level and a positive relationship was found between readiness level and self-efficacy belief level.

Introduction

Distance education is a type of education in which individuals can realize their learning activities by utilizing existing technological opportunities periodically at any time and place they wish, without being dependent on the phenomenon of time and space. There are different views and opinions on the definition and historical development of distance

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education in the literature. In Charles Wedemeyer's definition of distance education in 1981, he stated that it is learning activities in which the learner and the instructor are physically distant from each other. According to Moore and Keasley, distance education is a planned type of learning and teaching in which the instructor and the learner are located in different places, communication is provided by written or electronic means, and special arrangements are made to enable teaching to take place in other places (Bağrıaçık Yılmaz & Karataş, 2020). According to Aydemir (2018), distance education is an education and training system in which interaction and information sharing are provided between individuals through technological opportunities and various applications in a flexible time and space environment.

The first known example of open and distance education in the historical adventure of distance education dates back to an advertisement by Calep Philips to the Boston Gazette in 1728. At the university level, for the first time in 1833, correspondence at the University of Sweden implemented a distance education program called "Composition Lessons" (Holmberg, 1995). In Türkiye, distance education by correspondence, initiated by Ankara University in 1956 in the field of law, maybe a first. Afterward, the Center for Distance Education by Correspondence was established within the Ministry of National Education in 1958 (Becerikli, 2021; Korucuk, 2023). Although it is evident that there are different views on the starting point of distance education, it is seen that its historical development consists of several phases. Distance education, which has developed in this way in its historical process, today allows the interaction between the teacher and the learner who are far away from each other, and this interaction can be realized quite easily within the framework of today's technological possibilities.

There are better approaches to say that distance education is an alternative to face-to-face education or an equivalent of face-to-face education. An educational activity carried out through distance education can also be used face-to-face and in combination with other educational methods and techniques Schlosser and Simonson (2002). Distance education can also be an opportunity to prevent problems in face-to-face education processes or be a supportive activity for face-to-face education. The distance education system can bring solutions to some of the shortcomings of the current traditional education system. For example, İşman (2022) groups the current problems of the Turkish education system under 13 headings: physical structure, equipment, teacher quality, education quality, standardization of education, number of students, school attendance, population growth, the interest of families in education, interests and abilities of individuals, learning level of individuals, modernity of teaching methods, permanence of learning. In a significant part, he states that distance education systematically contributes to solving problems. Although distance education causes some limitations in terms of creating programs, determining learning methods and using time, it offers advantages in terms of providing uninterrupted and sustainable education, reducing costs in the field of education and realizing the principle of lifelong learning (Aygin & Gül, 2023).

Since 2019, global facts have shown that distance education can become a primary and almost non-alternative for continuing education and training activities under certain conditions that prevent the continuation of physical education. For example, with the COVID-19 pandemic, distance education has become the primary method of education almost all over the world. Following the mandatory suspension of face-to-face education in educational institutions, in the case of Türkiye, The Education Information Network (EBA) system, which serves within the Ministry of National Education, has been actively used in primary and secondary education, and open distance courses for all levels of education have started to be broadcast

through channels established and organized within the Turkish Radio-Television Corporation (TRT), in addition to these, courses and educational processes continued to be carried out through various learning management systems and online applications that provide distance communication. In this way, in formal education, students had the chance to participate in courses that they did not have the opportunity to be physically present through distance education. In terms of sustainability and accessibility of education, distance education has provided an essential advantage in this process.

The fact that distance education has become the primary education-teaching environment in the global pandemic has led to an increase in research in this field and the interest of researchers on the subject has reached its peak. As a result of the research, the knowledge, skills, equipment and past experiences of teachers and students regarding distance education are essential in the distance education process.

For example, a study revealed that teachers and distance education students need support for the process (Tarlakazan & Tarlakazan, 2021). According to another study, it was observed that a large number of academics who undertook the task of instructors at the university level and did not have any systematic distance education experience in the pre-pandemic period remained at a low level in terms of technological literacy and their level of readiness was not sufficient (Çardak & Güler, 2022). According to the results of Akıncı and Pişkin Tunç's (2021) study, it was revealed that in order to make distance education processes more efficient, there is a need for support in the areas of course teaching, evaluation processes, technical infrastructure and the use of materials. Bektaş and Kablan (2023) draw attention to the fact that, in addition to technical setbacks, interaction in the distance education process remains limited, instant question-answer cannot be made, and applied activities cannot be realized.

As can be understood from the literature results above, students encounter some problems while receiving distance education. The inability to eliminate these problems or to reduce their impact on the education process prevents students from benefiting from education at an adequate level or negatively affects their perceptions of distance education. However, learners' self-efficacy levels play an essential role in distance education, as in every field of education.

The concept of self-efficacy is based on social learning theory. Introduced in 1977 by Albert Bandura, this concept is based on the individual's self-awareness, awareness of his/her skills, and his/her belief in what he/she can achieve with these skills (Kaçar & Beycioğlu, 2017). In other words, self-efficacy is a person's awareness of his/her abilities and skills in order to do any task and his/her belief that he/she can succeed (Chaplain, 2000; Downey, 2006; Santiago & Einerson, 1998; Schriver & Czerniak, 1999; Zusho & Pintrich, 2003). Self-efficacy is very important for success in education and people's commitment to life, coping with problems in daily life, and making sense of their lives (Kansu & Hızlı Sayar, 2018). It has been observed that individuals with low self-efficacy perception have high levels of hopelessness, future anxiety, and academic success problems (Tayfun et al., 2022). Yaman, Koray, and Altunçekiç (2004) revealed in their study that people with low self-efficacy have difficulty performing tasks that they define as difficult, exhibit timid attitudes, and tend to give up quickly. On the other hand, Aşkar and Umay (2001) emphasized that individuals with high self-efficacy beliefs make more effort to accomplish any task and are more combative and patient. Aktamış et al. (2016) similarly emphasized that individuals with high self-efficacy belief levels make more effort to overcome difficulties instead of running away from them. In other words, it is

seen in many studies that individuals with a high level of self-efficacy belief have a positive effect on fighting stress, making effort, motivation, acting patiently and decisively, and increasing their performance to achieve their goals.

In terms of education, it is known that many factors such as interest, motivation, attitude, problem-solving, and self-efficacy play a vital role in the realization of effective and permanent learning and that there is a positive relationship between the concepts of success, self-confidence, and motivation (Randel et al., 2000; Jacobsen et al., 2002). For a high level of learning to occur, students need to have self-confidence and feel good about themselves (Ornstein & Lasley, 2000).

In distance education and learning processes, it is seen that teacher and student self-efficacy affects success. A technology study revealed that an individual's attitudes and beliefs are one of the biggest obstacles to using technology (Ertmer et al., 2012). Another study reveals that individuals' self-efficacy perception towards the distance education process is one of the main factors affecting the educational process (Woodcock et al., 2015). The instructor's attitude toward distance education is essential to the effectiveness and efficiency of education (Mollaoğlu & Keser, 2022). The instructor's perception of distance education, expectations and competencies in the technology field will affect the success of distance education (Can, 2020). Because any technical problems experienced in the distance education process cause stress for teachers and students who are part of the process, the anxiety experienced negatively impacts the education process (Naylor & Nyanjom, 2020). As a result of a study conducted by Zengin and Duran (2023), it was concluded that there is a positive and moderate relationship between distance education and self-efficacy. As can be understood from all these research results, students' and teachers' having high self-efficacy beliefs in the educational process will contribute to an increase in their academic achievement. Because students' desire, motivation and determination to learn are directly related to their self-efficacy, from this point of view, it becomes clear how vital the self-efficacy levels of individuals who assume a role as learners in the educational wheel are in the process of an educational activity carried out through distance education.

Another concept that should be emphasized in this direction is readiness. Readiness can be defined as having the physiological and psychological competencies necessary for learning (Topses, 2003). Readiness is the beginning of an active learning and teaching activity (Meisels, 1998). In this direction, individuals' computer self-efficacy, internet self-efficacy, self-learning skills and learning abilities in online environments in distance education environments are accepted as prerequisites of the readiness necessary for learning through distance education and gaining the desired skills (Ilgaz & Gülbahar, 2015; Han, 2021). Warner et al. (1998) emphasize that factors such as students' readiness for distance education, competence to use the internet and computers for learning, and ability to participate in independent learning influence learning. Rohayani et al. (2015) stated that learners should be mentally and physically ready for the success of distance education.

Research Questions

In this study, answers to the following questions were sought to determine prospective history teachers' distance education self-efficacy belief levels.

History teacher candidates;

- What is the distance education self-efficacy belief level of history teacher candidates?
- Do prospective history teachers' distance education self-efficacy belief levels differ according to gender?
- Does the level of distance education self-efficacy beliefs of prospective history teachers differ according to their grade level?
- Does the level of distance education self-efficacy beliefs of pre-service history teachers differ according to the type of device used?
- Does the level of distance education self-efficacy beliefs of pre-service history teachers differ according to their disadvantaged status?
- Is there a relationship between prospective history teachers' distance education self-efficacy belief level and readiness for online learning?

Method

Research Design

An appropriate or convenient sampling method was preferred in the research. In this method, the researcher relies on items that are easy to access, close, fast, and fully available (Kılıç, 2023; Baltacı, 2018). The study is a scale study. The study was carried out with the relational screening model as descriptive research. Survey models are based on revealing an existing situation as it is (Karasar, 1999). In the descriptive-relational survey model, the relationship, effect and degree of the existing situation and the variables that cause the situation are tried to be determined (Totok & Uçar, 2018).

Sample

This study was conducted with 109 pre-service teachers from different grade levels studying in the Department of History Teaching at the Faculty of Education of 4 different state universities in the Spring semester of the 2021-2022 academic year.

Table 1. Descriptive statistics for the sample

	Group	f	%
Gender	Male	45	41.3
	Female	64	58.7
Grade Level	1st Grade	25	22.9
	2nd Grade	40	36.7
	3rd Grade	26	23.9
	4th Grade	18	16.5
Device	Cell Phone	39	35.8
	Laptop Computer	58	53.2
	Desktop Computer	12	11.0
Disadvantage	Running out of mobile data	18	16.5
	Lack of quiet workspace	29	26.6
	Limited lesson time	28	25.7
	Inadequate device	18	16.5
	Internet connection problem	16	14.7
Total		109	100

Of the 109 pre-service teachers participating in the study, 64 (58.7%) were female and 45 (41.3%) were male. Considering the grade levels, 25 (22.9%) in the 1st grade, 40 (36.7%) in the 2nd grade, 26 (23.9%) in the 3rd grade and 18 (16.5%) in the 4th grade. When the device on which the participants participated in distance education activities is examined, the intensive use of laptop computers (53.2%) and cell phones (35.8%) stands out.

Data Collection Tool

Two separate scales were used as data collection tools in the study.

Distance Education Self-Efficacy Belief Scale

Firstly, the 21-item "Distance Education Self-Efficacy Belief Scale" developed by Altunçekiç (2022) was used. Kaiser-Mayer-Olkin (KMO) and Barlett's Test of Sphericity (BTS) were performed by the researcher. The KMO value was found to be 0.92. When this value is greater than 0.50, it is interpreted that the scale can measure the feature it wants to measure, that is, the validity level is high. According to the results of the factor analysis of the reliability level of the scale, Cronbach's alpha coefficient of the scale was calculated as 0.923. When the reliability coefficient is above 0,90, it can be interpreted that the scale can give reliable results, that is, the reliability level is high.

Readiness Scale for Online Learning

Another scale used in the study was the 18-item "Readiness Scale for Online Learning" adapted into Turkish by İlhan and Çetin (2013). The researcher analyzed the internal consistency, test split, test-retest and composite reliability methods of the scale consisting of 18 items and stated that the results obtained from these analyses were above 0.70 and that this value was at an acceptable level in terms of reliability. To determine the

validity level of the scale, fit [n=56, r=.63, p<.001]. and predictive validity were analysed and the results indicated that the scale was valid.

Data Analysis

SPSS (Statistical Package for Social Sciences) 22.0 program was used to analyze the data obtained within the scope of the study. One-way ANOVA was used to determine whether there was a significant difference between students' self-efficacy belief levels according to grade level and disadvantage variables and t-test analysis was used to determine whether there was a difference according to gender variable. Correlation analysis was used to determine whether a relationship exists between students' self-efficacy for online learning and readiness levels for online learning. The results are given in the findings section. In the descriptive statistics of the self-efficacy belief level and online learning readiness levels of the groups, normality analysis with Skewness-Kurtosis (Skewness - Kurtosis) values and normality analysis with Shapiro Wilk and Kolmogorov Smirnov tests were applied.

Table 2. Skewness - Kurtosis (skewness - kurtosis) values and normality analysis results

		Self-Efficacy Belief	**Readiness for Online Learning**
N	Valid	109	109
	Missing	0	0
Mean		66,09	57,82
Std. Deviation		14,47	10,74
Skewness		,02	0,58
Std. Error of Skewness		,23	,23
Kurtosis		-,90	,98
Std. Error of Kurtosis		,46	,46

Skewness values are obtained by dividing the Skewness value by the standard error and calculated as 0,09 for the self-efficacy belief scale and 2,51 for the readiness scale. Kurtosis values are obtained by dividing kurtosis value by standard error. After this calculation, kurtosis was calculated as -1,95 for the self-efficacy belief scale and 2,14 for the readiness scale. The Skewness-Kurtosis value is expected to be between -2 and +2. Mayers (2013) stated that the threshold value should be between -1,96 and +1,96 for samples smaller than 50; -2,58 and +2,58 for samples larger than 51; and -3,29 and +3,29 for samples larger than 100. The fact that the results are between the threshold values for 109 samples shows that they comply with the normality assumption.

Findings

In this part of the study, the data obtained from the scale applied to determine the distance education self-efficacy belief levels of pre-service history teachers were analyzed statistically using different variables. According to the gender variable, t-test for independent groups, a one-way analysis of variance was applied to the variables of grade levels, technology use and anxiety towards distance education.

Table 3. t-Test results of history teacher candidates' distance education self-efficacy belief levels according to gender variable

Factor	Gender	f	$\bar{X}$	S	df	t	p
Skill	Male	45	32,40	5,80	107	1,17	,112
	Female	64	30,62	7,35			
Content Knowledge	Male	45	23,06	5,55	107	1,31	,014
	Female	64	21,81	4,40			
Interaction	Male	45	12,20	4,64	107	-0,14	,729
	Female	64	12,32	4,29			
Total	Male	45	67,66	14,68	107	0,95	,757
	Female	64	64,98	14,32			

When Table 3 was examined, it was determined that there was no significant difference between the skill scores of the students according to their gender (p > ,05). Although the scores of males on the skill factor were partially higher, it was determined that this difference was insignificant. In addition, standard deviation values show that women's skill scores are more heterogeneous. Again, according to Table 2, it was determined that students' scores related to the dimension of content knowledge differed significantly according to their gender ($t(107)=1,31$; $p < ,05$). When the scores were examined, it was determined that the difference favoured males. In addition, it is seen that women have a more homogeneous structure in the content knowledge dimension. When the results related to the interaction sub-dimension are examined (p>,05), there is no significant difference in the interaction sub-dimension according to the gender variable of pre-service history teachers. No significant difference exists in total distance education self-efficacy belief scale scores (p>,05) according to gender variable.

Table 4. One-way analysis of variance (ANOVA) results on distance education self-efficacy belief levels of pre-service history teachers according to their grade levels

Factor	Grade	f	$\bar{X}$	S	df	F	p	Difference
Skill	1st Grade	25	34,24	5,66	3-105	2,27	,084	
	2nd Grade	40	30,89	7,01				
	3rd Grade	26	28,00	9,53				
	4th Grade	18	31,11	5,72				
	Total	109	31,48	6,85				
Content Knowledge	1st Grade	25	24,32	4,25	3-105	2,30	,082	
	2nd Grade	40	21,34	4,77				
	3rd Grade	26	22,00	6,54				
	4th Grade	18	22,00	5,02				
	Total	109	22,33	4,92				
Interaction	1st Grade	25	14,52	3,94	3-105	2,96	,036	1-2
	2nd Grade	40	11,53	4,36				
	3rd Grade	26	12,00	5,29				
	4th Grade	18	11,66	4,17				
	Total	109	12,27	4,42				

Total	1st Grade	25	73,08	12,30	3-105	2,79	,044	1-2
	2nd Grade	40	63,77	14,17				
	3rd Grade	26	62,00	20,18				
	4th Grade	18	65,66	13,28				
	Total	109	66,09	14,46				

When Table 4 was analyzed, a significant difference was found between all scale scores (t(3-105)=2,79; p < ,05) and interaction sub-dimension scores (t(3-105)=2,96; p < ,05) in terms of distance education self-efficacy belief levels according to students' grade levels. When the skills sub-dimension was analyzed, it was seen that first graders had the highest scores and third graders had the lowest scores. At the same time, the most homogeneous group was first grade, and the most heterogeneous group was third grade. When the scores were analyzed according to the content knowledge dimension, it was seen that the second grade had the lowest score, and the first grade had the highest score. In addition, it was determined that the distribution of third-grade scores was heterogeneous, while first-grade scores were more homogeneous. In the interaction dimension, the most heterogeneous group was the third grade and the most homogeneous group was the first. It is understood from Table 3 that first graders have the highest mean and second graders have the lowest mean in this sub-dimension. It is seen that there is a difference between the first and second grades in the interaction sub-dimension and the difference is in favour of the first grades. The same situation is also valid for the total scale. It is seen that there is a difference between the first and second grades in total scores and the difference is in favour of the first grades.

Table 5. One-way analysis of variance (ANOVA) results related to the distance education self-efficacy beliefs of pre-service history teachers in terms of the using device variable

Factor	**Device**	**f**	**$\bar{X}$**	**S**	**df**	**F**	**p**
Skill	Cell Phone	39	30,10	5,69	2-106	1,37	,258
	Laptop Computer	58	32,06	7,30			
	Desktop Computer	12	33,16	7,84			
	Total	109	31,48	6,85			
Content Knowledge	Cell Phone	39	22,41	3,60	2-106	,10	,909
	Laptop Computer	58	22,17	5,48			
	Desktop Computer	12	22,83	6,13			
	Total	109	22,33	4,92			
Interaction	Cell Phone	39	11,74	3,73	2-106	,88	,418
	Laptop Computer	58	12,34	5,04			
	Desktop Computer	12	13,66	2,99			
	Total	109	12,27	4,42			
Total	Cell Phone	39	64,25	10,65	2-106	,71	,494
	Laptop Computer	58	66,58	16,22			
	Desktop Computer	12	69,66	16,45			
	Total	109	66,09	14,46			

According to Table 5, as a result of the analysis of the students' responses to the whole scale and sub-factors, no significant difference was found in the total scale and sub-dimensions according to the device variable they use (p > .05). It is seen that the highest average in the whole scale is a desktop computer, and the lowest average is the mobile phone. Similarly, it is seen in Table 4 that the scores of the desktop computer are the most heterogeneous and the scores of the mobile phone are the most homogeneous.

Table 6. One-way analysis of variance (ANOVA) results on history teacher candidates' distance education self-efficacy beliefs for negativity variable

Factor	Variable	f	$\bar{X}$	S	df	F	p	Difference
Skill	1. Running out of mobile data	18	33,55	3,50	4-104	2,02	,096	
	2. Lack of quiet workspace	29	30,96	7,01				
	3. Limited lesson time	28	32,71	7,05				
	4. Inadequate device	18	31,77	6,69				
	5. Internet connection problem	16	27,62	8,22				
	Total	109	31,48	6,85				
Content Knowledge	1. Running out of mobile data	18	24,83	3,11	4-104	4,01	,005	1-2
	2. Lack of quiet workspace	29	20,10	5,35				
	3. Limited lesson time	28	23,36	4,44				
	4. Inadequate device	18	23,33	5,20				
	5. Internet connection problem	16	20,62	4,55				
	Total	109	22,33	4,92				
Interaction	1. Running out of mobile data	18	14,55	2,33	4-104	5,15	,001	1-2
	2. Lack of quiet workspace	29	10,82	4,26				1-5
	3. Limited lesson time	28	12,28	5,11				4-2
	4. Inadequate device	18	14,55	3,97				4-5
	5. Internet connection problem	16	9,75	3,56				
	Total	109	12,27	4,42				
Total	1. Running out of mobile data	18	72,94	6,88	4-104	3,64	,008	1-5
	2. Lack of quiet workspace	29	61,89	15,01				
	3. Limited lesson time	28	68,35	15,14				
	4. Inadequate device	18	69,66	14,49				
	5. Internet connection problem	16	58,00	14,01				
	Total	109	66,09	14,46				

According to Table 6, as a result of the analysis of the student's responses to the whole scale and sub-factors, it was determined that there was no significant difference in the skill sub-dimension ($p > ,05$). At the same time, there was a significant difference according to content knowledge, interaction, and the total score ($p < ,05$). According to the Bonferroni result of the post hoc tests conducted to determine the direction of the difference, the difference in the content knowledge factor occurred between the running out of mobile data and the lack of quiet workspace and in favor of the presence of mobile data. It is understood from the table above that the differentiation between running out of mobile data and not having a quiet environment in the content knowledge sub-dimension is in favor of running out of mobile data ($t(4\text{-}104)=4,01$; $p < ,05$). It is understood that the difference in the interaction sub-dimension differs more between the variables ($t(4\text{-}104)=5,15$; $p < ,05$). It is understood from the table that there is a difference between the end of mobile data and the lack of a quiet environment and the short duration of the lesson, and the difference is in the direction of the end of mobile data. Between the end of mobile data and the internet connection problem is in the direction of mobile data. Another situation in which there is a difference is between the inadequate device, the lack of quiet workspace, and the internet connection problems. These

differences were found to be in favor of inadequate devices. According to the total score, a difference was found between mobile data and internet connection problems in favor of running out of mobile data. This situation can be interpreted as that pre-service teachers experience negativities related to internet usage in distance education processes.

Table 7. The relationship between self-efficacy beliefs and readiness levels of history teacher candidates

	Factors	**Readiness**	
Self-Efficacy Belief Level	Skill	Pearson r	,678(**)
	Content Knowledge	Pearson r	,527(**)
	Interaction	Pearson r	,570(**)

(**) p < 0,01 N=109

When Table 7 is analyzed, it is seen that there is a significant and positive relationship between the readiness level of pre-service history teachers for online learning environments, self-efficacy belief level and scale sdub-dimensions. From this point of view, it can be said that pre-service history teachers with high readiness levels also have high levels of skill (r=,678), content knowledge (r=,527), interaction (r=,570), which are the sub-dimensions of self-efficacy.

Conclusion and Discussion

In this study, which was conducted to determine the distance education self-efficacy belief levels of pre-service history teachers, it was investigated whether there was a difference according to the gender, grade, device, disadvantage, and readiness variables of the participants. According to the results of the analyses, no significant difference was found in terms of gender and device types, but it was determined that there were significant differences between the groups according to grade and disadvantage variables. The difference in grade level was found to have a significant difference according to the scale total score and interaction sub-dimension score and was in favor of the first graders. There is no difference between the situations that can be considered as disadvantages regarding the skill sub-dimension among the factors of pre-service history teachers. This situation can be explained by the fact that the participants' technology use skills are unaffected by disadvantages such as mobile data insufficiency, lack of a quiet environment, course time limitation, device insufficiency, and internet connection type. As a result of a study conducted by Ergüven and Pamuk (2022), it was concluded that history teachers consider themselves sufficient in educational technology. Yıldız and Seferoğlu (2020) also concluded that students' self-efficacy perceptions towards online technologies were high. These studies support the findings of the research. This situation can also be associated with the increase in individuals' skills and awareness about the use of technology today (Özdoğan & Berkant, 2020).

In the "content knowledge" sub-dimension of the scale, it was concluded that while there was a difference between mobile data insufficiency and silent environment deprivation, there was no difference in disadvantages such as course duration, device, and internet connection type. This result can be explained by the fact that pre-service history teachers think disruption in mobile data and quiet environment variables in the distance education process will negatively affect their learning. Erzen and Ceylan (2020) reveal that students have opinions that there may be negativities in the distance education process due to various internet connection problems such as weakness, speed, and connection disconnection. Likewise, in different

studies conducted among university students, it is seen that students characterize the situation of "low or limited internet quota" as a disadvantage regarding distance education (Kırtak Ad, 2020; Ünal et al., 2021).

As a result of the study, differences were found between the variables of mobile data, quiet environment, device and internet problems on the interaction sub-dimension. This situation reveals that pre-service history teachers see it as a disadvantage to communicate effectively with teachers and classmates in distance education environments. In this regard, especially running out of mobile data and inadequacy of the device are more prominent for pre-service history teachers than other possible disadvantages. The study conducted by Kaynar et al. (2020) concluded that students with sufficient equipment were more positive towards distance education. Another study by Yolcu (2020) stated that 52% of the students had device problems, and 61% had internet problems for distance education. Özdoğan and Berkant (2020) also examined stakeholder views on distance education and found that lack of internet and hardware negatively affected student-teacher interaction. These studies support the results obtained in this study.

According to the total scores obtained from the scale used in the study, a significant difference emerged between mobile data and internet connection problems in the direction of mobile data exhaustion. From this point of view, it shows that the exhaustion of mobile data has a more significant effect on the self-efficacy belief levels of history teacher candidate participants than internet connection problems. A document analysis study conducted by Ülger (2020) concluded that internet access is the most critical problem encountered in distance education. Bakırcı et al. (2021) concluded that internet access problems are a significant problem in distance education. Wang et al. (2020) emphasized that internet access limitation has an essential place among the problems experienced in distance education during the pandemic.

Studies show that individuals with high self-efficacy belief levels can be successful even when they are exposed to different conditions (Freidmen, 2003; Aktamış et al., 2016). From this point of view, individuals' self-efficacy levels towards distance education processes are essential in providing more efficient results of distance education activities. Karadağ, Savaş, and Kalkan (2022) state that social interaction does not take place effectively in distance education due to interaction, technical problems, and environment and that distance education is insufficient in communication. As a result of our research, it is also revealed that disadvantages such as mobile data, internet problems, and inability to provide a quiet environment are factors in the self-efficacy belief levels of pre-service teachers. This study is limited to pre-service history teachers. However, in order to carry out distance education activities effectively and efficiently, it is recommended for researchers to conduct similar studies at all levels of education and to reveal other factors affecting students' self-efficacy belief levels based on the results to be obtained.

As a result of examining the relationship between distance education self-efficacy belief levels and readiness levels, another study result was that as the readiness levels of pre-service teachers increased, skills, content knowledge and interaction self-efficacy dimensions also increased. Aksoy et al. (2022) found a positive and significant relationship between the self-efficacy belief levels of pre-service teachers and their readiness in a study conducted with pre-school teacher candidates. The study conducted by Yakar and Yıldırım Yakar (2021) concluded a high-level relationship between students' internet self-efficacy and readiness and a medium-level relationship between online communication self-efficacy and readiness. In

their study, Mehmetlioğlu and Haser (2013) also stated that Ashton and Webb found a relationship between teachers' readiness and self-efficacy beliefs. These studies support the results obtained as a result of the research. The effect of self-efficacy belief level on student achievement has been proven in many studies. However, there is not much research on measuring this situation in distance education processes in the literature. For this reason, we recommend that researchers predict the relationship between distance education students' self-efficacy belief level and academic achievement in different branches and disciplines in different studies.

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