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A Scale Development Study to Determine University Students' Perceptions towards Distance Education

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Abstract

Purpose: The main purpose of this study is to develop a valid and reliable Likert-type measurement tool to determine how university students perceive distance education, which they experienced during the pandemic (COVID 19) period and is becoming more widespread day by day. In addition, in line with the main purpose answers were sought to the questions how university students perceive distance education and what the variables are that affect these perceptions. This research, which was conducted to determine how university students perceive the distance education they experienced during the epidemic process and the variables affecting this perception, is in a comparative type of relational screening model.

Methodology: The scanning model is used to detect a situation, individual or object that occurred in the past or is still ongoing, in its own conditions and as it exists. In determining the sample size, the number corresponding to 95% confidence level and 5% acceptable margin of error according to the number constituting the research population and the number corresponding to 5 times the number of items in the scale were taken as the basis. According to these criteria, the sample must be at least 350. The participants of this research are 406 students studying in Anadolu University, Faculty of Health Sciences, and Social Work Undergraduate Programs Turkey in the spring semester of the 2021-2022 academic year. The data was collected with the "Distance Education Perception Scale" (DEPS) developed by the researcher and consists of two sections. The first part of DEPS includes 15 open and close-ended questions related to the demographic and personal information of students and their attitudes towards distance education. The second section of DEPS includes 71 statements related to perceptions towards the distance education of students on a 5-point Likert-type scale consisting of 5 choices, from 1=Strongly Disagree to 5=Strongly Agree. In the analysis of the data, the statistical package SPSS 21.00 was used. Exploratory Factor Analysis method and Varimax Rotation technique were used to understand whether the DEPS consists of measuring the same quality. The reliability coefficient α formula, and the relationship between the response given to each item in the scale and the total score obtained from the scale was calculated using the Item-Total Correlation technique. Students' perceptions of distance education were evaluated using the median, mode and arithmetic mean on the basis of all scales and subscales.

Findings: The results revealed that the scale used in the collection of data in the research is valid and reliable, students are generally hesitant about distance education and these hesitations increase in terms of practice courses and internship practices, and their perception levels about the benefit and importance of distance education are lower than other dimensions of distance education such as learning and communication, technology and measurement-evaluation. Again, the results of the research show that classroom and opinions and attitudes about distance education are important variables that affect the perceptions of students towards distance education.

Unique contributor to theory, policy and practice: It is expected that the research results will be guiding in terms of developing distance education policies and studies on improving the quality of education in universities, and will make a significant contribution to the national and international literature and researchers working in the field of distance education.

Keywords: *Distance Education, Scale, Scale Development, Distance Education Perception Scale*

Introduction

Increasing death rates and an increase in the number of cases during the epidemic (Covid-19 virus), which has affected human health and life to a degree never seen in the past, has made it necessary to implement the practice of "social isolation" in order to prevent the spread of the virus and reduce the effects of the epidemic. The measures taken within the scope of this practice have undoubtedly deeply affected the field of education, as well as all areas of life. As a matter of fact, in our country, as a precaution, due to COVID 19 turning into an epidemic on March 16, 2020, education was initially suspended in all educational institutions for 3 weeks, and then, due to the increasing and spreading effects of the epidemic, it was decided to carry out education processes through distance education for a long time. In the context of these developments, education in universities in Turkey, as well as all over the world, has begun to be carried out through distance education by using many technological environments such as Zoom, Microsoft Teams, Perculus, Adobe Connect, BigBlueButton, Google Meet, Blackboard Collaborate, Microsoft Skype, Canvas, etc. (Yavuz et al., 2020).

Distance education is not an education model that emerged during the epidemic period. Distance education is an education model that was widely used even in the 1800s to improve the quality of education with technological developments. As a matter of fact, when the historical development is examined, it is seen that distance education first started with correspondence teaching in 1840, continued with educational radio training for schools carried out by BBS (British Broadcasting Corporation) since 1920, and television training was added to radio training since 1960 (Moore & Kearsley, 2005; Bates, 1995). Distance education, which plays an important role as an education model in meeting the needs of the 21st century, has been implemented effectively and widely all over the world, especially in the last twenty years, thanks to developing information technologies, for the following purposes (Taşkıran, 2021):

- Creating new educational opportunities,
- Integrating work and education,
- Ensuring equal opportunity in education,
- Supporting lifelong learning,
- Integrating technology into the education process,
- Providing individual and mass education opportunities,
- making education effective and efficient,
- Reducing training costs etc.

Although the history of distance education dates back two centuries, its history in Turkey is quite recent (Yenal, 2009). It was in the 1980s and 1990s that distance education became a system that matured at the primary, secondary and higher education levels and accommodated large student masses (Bozkurt, 2017).

While the distance education method is used to increase the quality of education with technological developments, it is also used to ensure the sustainability of education in case of negative situations that eliminate the continuity of traditional education activities. As a matter of fact, under epidemic conditions, distance education has been used for the sustainability of education and training activities, and although formal education has been started, the mixed or hybrid education model, in which formal education and distance education are applied together, has become permanent due to the effects of the epidemic.

When the literature is examined, it is seen that distance education is defined in many different ways. As a matter of fact, while Schlosser & Simonson (2010) define distance education as "education in which face-to-face and other education methods and techniques can be used together and where the instructor and the student are physically located in separate places", İşman (2011) defines distance education as "in general terms, methods of interacting with technological opportunities between teachers and students in different places". Aydemir (2018) defines distance education as "an education-training system in which individuals who are distant from each other are presented with information through technological tools and applications, flexibility in time and space is provided, and communication and interaction are established" (Gökbulut, 2021). The common feature of these definitions is that they see distance education as a contemporary education model that brings together all components of education with communication technologies, despite their spatial distance (Anadolu University Open Education Faculty, 2022).

Like all teaching methods, distance education has many benefits and challenges. The benefits of distance education compared to traditional education can be listed as follows:

- Bringing enrichment to educational processes,
- Providing access to information to large audiences without time and place limitations with its flexibility,
- Ensuring instant and easier access to information through information and communication technologies,
- Being effective in increasing and increasing knowledge,
- Ensuring that learners learn continuously and independently at their own learning pace,
- Reducing education costs,
- Offering flexible and objective measurement and evaluation.

Compared to traditional education, in addition to the mentioned benefits of distance education; It is also possible to mention some difficulties such as causing loss of motivation, making it difficult to receive feedback, increasing the social isolation of the learner, creating technology addiction, increasing failure rates in courses, and difficulties in conducting practice courses.

In order to eliminate the difficulties of distance education, it is important to apply the principles of learner-centered approach in the design of learning environments in distance education. These

principles are (Alley & Jansak, 2001; Egerton, 2007):

- Structuring of knowledge by learners,
- Organizing learning activities according to the learners,
- Learners take responsibility for learning,
- Increasing learning motivation,
- Providing them with opportunities to apply what they have learned,
- Mixing individual and joint activities,
- Identifying past learning experiences and correcting errors
- Involvement of educators in the learning process as guides and intermediaries, etc.

In accordance with the learner-centered approach principles in question, in order for distance education activities to be efficient, the perceptions of the target audience appear as an important element that must be taken into account in the creation of distance education programs. In this regard, when developing courses to be offered through distance learning environments, it is important to consult students' opinions on course contents, characteristics of course materials, presentation environments and production methods, teaching strategies, student-instructor and student-student interaction, and measurement and evaluation (Moore & Kearsley, 2005; Başar). et al., 2019). Therefore, it is necessary to develop the distance education process in universities, to make the necessary arrangements and interventions, and to determine the perceptions of the students, who are the subject of the process as the primary target audience, towards distance education and the reasons affecting these perceptions in terms of an effective distance university education. (Boz Yüksekdağ & Karaca, 2017).

When the literature is examined, it can be seen that the perceptions and attitudes of faculty members, teachers and students towards distance education are examined by Ak et al. (2021), Başar et al. (2019), Durdu & Albayrak (2020), Gök & Kılıç Çakmak (2020), Gökbulut (2021), Kocayığit & Uşun (2020), Kurnaz & Serçemeli (2020), Moçoşoğlu & Kaya (2020), Özdoğan & Berkant (2020), Er Türküresin (2020) ve Paydar & Doğan (2019). On the other hand, it seems that scale studies aimed at determining the perceptions of undergraduate university students towards distance education are very limited. The main purpose of this study, which was conducted considering this limitation, is to develop a valid and reliable Likert-type measurement tool to determine how university students perceive distance education in all its dimensions. In line with this main purpose, the research sought answers to the following questions:

- Is the scale developed to determine how university students perceive distance education in all its dimensions valid and reliable?
- What are the personal characteristics of university students?
- What are the opinions and attitudes of university students regarding distance education?

- What are the perception levels of university students towards distance education?
- Do university students' perception levels towards distance education differ in terms of gender, class, working situation and opinion and attitude variables towards distance education (The type of device through which internet connection is mainly used to access courses, Having trouble accessing courses, Preferring that education should always be continued remotely, Finding distance education suitable for the program being studied, Believing that practices specific to the program being studied can be carried out through distance education, Finding distance education suitable for personality, Finding distance education effective, Finding distance education instructive, Being prone to distance education)?

Methodology

This research, which was conducted to determine how university students perceive the distance education they experienced during the epidemic process and the variables affecting this perception, is in a comparative type of relational screening model. The scanning model is used to detect a situation, individual or object that occurred in the past or is still ongoing, in its own conditions and as it exists (Karasar, 2000). With survey research, data is collected in order to determine the intended characteristics of the study group (Büyüköztürk et al., 2008; Karaca et al., 2021).

The population of the research consists of 15,000 students studying in social work undergraduate programs in Turkey in the 2021-2022 academic year (Council of Higher Education, 2022). In determining the sample size, the number corresponding to a 95% confidence level and a 5% acceptable margin of error was taken as the basis according to the number constituting the research population (Rea and Parker, 2014). According to this criterion, the research sample must be at least 375. Accordingly, the research was conducted on 406 students studying at Anadolu University, Faculty of Health Sciences, Department of Social Work, in the spring semester of the 2021-2022 academic year.

In this study, the "Distance Education Perception Scale" (DEPS), developed by the researcher as a quantitative data collection method and tool (Balaban Tuesday, 2018: 136) used in this study. The development of this scale was largely based on the "Perception Scale on Distance Nursing Education" developed by Boz-Yüksekdağ and Karaca (2017). DEPS consists of two parts. The first section contains 15 question sentences regarding the personal information of the participants and their opinions and attitudes towards distance education. The second part includes the 70-item DEPS to determine the participants' perceptions about distance education. In the research, a 5-point rating scale was preferred in which the most positive category was "strongly agree" and the most negative category was "strongly disagree" in the reactions to perception expressions. The data collection tool was prepared online, taking into account the negativities caused by the epidemic process in terms of face-to-face interaction, and was published on the google drive internet [web](https://docs.google.com/forms/d/1nDUDWIBnIZ13DihOv742tffpWhDmYI73p3eQSCuJ-) page

W4/edit) at 21.02. .Published between 2022-28.05.2022. The research data was collected within 2 months and 13 days when the data collection tool was published on the Google drive internet web page.

In this study, the SPSS 21.00 statistical package program was used to analyze the data. In accordance with the purpose of the research, factor analysis was performed to understand whether DEPS consisted of items measuring the same quality, and varimax, one of the rotation techniques, was applied. The reliability coefficient of DEPS was calculated with the Cronbach α formula. In order to examine the power of the perception expressions in the scale to distinguish those who have a positive perception from those who do not, and the reliability in this context, the relationship between the response to each item in the scale and the total score received from the scale was calculated with the Item-Total Correlation technique. Students' perceptions of distance education were evaluated using median, mode and arithmetic mean on the basis of the whole scale. The Independent-Samples T Test was used to test whether university students' perceptions towards distance education differ in terms of gender, working situation, some variables about opinion and attitude towards distance education or not. Again, one-dimensional analysis of variance was used to test whether students' perceptions of distance education changed according to the variables of the means of accessing classes and courses, mainly internet connection. Scheffe Post-Hoc Multiple Comparison Test was used to test which groups differ in students' perceptions of distance education according to the specified variables. In all analyzes conducted in the study, the significance level was accepted as .05, and those with higher significance are stated in the relevant tables.

Results

In this section, in line with the purpose of the research, the findings regarding DEPS' studies on validity and reliability, students' personal characteristics, students' opinions and attitudes towards distance education, and students' perceptions towards distance education and whether these perceptions change in terms of various variables are included.

DEPS' Studies on Validity and Reliability

In order to increase the efficiency of distance education, it is important to determine the perceptions of students receiving this education towards distance education and the reasons affecting these perceptions. However, it is noteworthy that the studies conducted through scales to determine how university students studying in formal programs in Turkey perceive distance education are limited. In order to overcome this limitation, within the scope of this study, in order to determine the perceptions of university students towards distance education and the variables affecting these perceptions, Boz-Yüksekdağ and Karaca (2017)'s "Perception Scale on Distance Nursing Education" was used as a quantitative data collection method and tool (Balaban Tuesday, 2018: 136) "Distance Education Perception Scale" (DEPS) was developed.

The survey form used to collect data in this study consists of two parts. The first section includes 15 question statements regarding the personal information of the participants and their opinions

and attitudes towards distance education. In the second part, there is a 70-item DEPS to determine the participants' perceptions of distance education. In the research, a 5-point rating scale was preferred for the reactions to perception expressions, with the most positive category being "strongly agree" and the most negative category being "strongly disagree".

The prepared data collection tool was applied to 27 participants studying at Anadolu University, Faculty of Health Sciences, Department of Social Work, as a preliminary test group for validity and reliability studies. The data obtained from the participants were subjected to item analysis in order to determine the items that constitute the scale by evaluating the distinctiveness of the items in the scale. For this purpose, the item-total correlation of each item in the scale and the reliability coefficient of the whole scale were calculated. As a result of the analysis, it was determined that the item-total correlation of all items in the scale was above .20 and the reliability coefficient of the whole scale was Cronbach's $\alpha = .89$. These results show that all 70 items in the scale have distinctive features and the whole scale is reliable (Karaca, 2020: 95 and Seer, 2015: 60).

The DEPS, which was applied to the preliminary trial group and was finalized after concluding that it was well understood, was applied to 406 students included in the study . After the application, the validity and reliability studies carried out on the data obtained from the pre-test group were repeated on the data obtained from the students included in the study . As a result of the item analysis based on the same criteria, items 5., 6., 8., 9., 13., 14., 17., 18., 19., 32., 33, 34., 37., 44., 52., 53., 54., 58., 59., 60., 62., and 65. were found to have item-total correlations below .20 were removed from the scale. It was determined that the item-total correlation of the remaining 48 items in the scale had values varying between .21-.60 and the reliability coefficient of the whole scale was Cronbach's $\alpha=.92$. These values show that the scale is valid and reliable.

Within the scope of validity and reliability studies, it was examined whether the data obtained from 406 participants showed a normal or near-normal distribution. Since the group size was 406, the Kolmogorov-Smirnov test (KS) was used to determine whether the scores conformed to normality. According to the KS results, since the p value was less than .05, DEPS [D (406) = .064; $p= .000<.05$] does not provide normal distribution (Büyüköztürk, 2011: 42). In this case, in order to use normality statistics, Skewness and Kurtosis values and arithmetic mean and median values must be examined (Karaca, 2020: 112). Descriptive statistics regarding the data obtained from 406 students included in the analysis reveals that Skewness and Kurtosis values (-.779 and 2.732) range between -3.00 and +3.00 (Mayers, 2013), and the arithmetic mean and median value close to each other (159.63 and 160.00). According to this result, it can be said that the research data is close to normal distribution.

After it was determined that the data showed a normal distribution, factor analysis was applied to the data obtained from 406 participants in order to determine the structure of the scale, to find clues about the construct validity of the scale. In other words, factor analysis was applied to determine the sub-dimensions of the perception towards distance education, which is the subject of the research, and to obtain information about their numbers (Baykul, 2000: 389). Before applying factor analysis, the suitability of the data and variables for factor analysis was tested. For

this purpose, Kaiser-Meyer-Olkin (KMO) and Bartlett test were used (Akbulut, 2010). The KMO value was found to be .900, and the Bartlett test result was 7607.076 ($p < .05$). These values revealed that the sample size was “sufficient” and the data was “perfect” for factor analysis (Field, 2009: 647; Karaca, 2020: 75).

After it was determined that the data set was suitable for factor analysis, principal component analysis (PCA) was applied as the most frequently used factor determination method in order to best reflect the relationship between variables with the minimum number of factors. In PCA, to eliminate items that do not measure the same structure; based on the criterion that the factor loading of the items was at least .30 according to the sample size, care was taken to ensure that the items had a high loading value on a single factor and a low loading value on other factors (Hair et al . , 2005; Büyüköztürk, 2002: 118-119). According to these criteria, the 2nd, 4th, 15th and 24th items, whose factor loadings were below .30, were removed from the scale and the factor loadings of the remaining 44 items were found to be between .30-.69.

According to the PCA results, 44 items in the scale are grouped under ten factors with eigenvalues greater than 1.00. The total variance explained by the ten factors is 57.82%. In addition, the common variances of the ten factors defined regarding the items vary between .45 and .77. These results reveal that the ten factors determined by PCA together explain a significant part of the total variance in the items and the variance related to the scale, and that the factor structure of the scale is strong (Gorsuch, 1974; Lee & Comrey, 1979. Cited in Tavşancıl & Keser, 2002: 87). Because in social sciences, variance rates ranging between 40% and 60% are considered sufficient (Scherer & Wiebe Luther & Adams, 1988. Cited in Tavşancıl & Keser, 2002: 87). Although DEPS has ten factors, it was accepted as having four factors because it was developed by taking into consideration the benefit, learning and communication, technology and measurement-evaluation dimensions of distance education.

In order to find the items that have a high relationship with the four factors and to make them easier to interpret, the rotation process was performed by applying the varimax technique, the most commonly used orthogonal rotation method developed by Kaiser (1958) (Karaca, 2020: 78). In the rotation process, the criteria based on PCA were taken into account. According to these criteria, the 12th, 23rd, 27th, 29th, 30th, 43rd, 45th, 61st, 66th and 70th items have a common variance below .30 and have high factor loading values under four separate factors that were removed from the scale. The remaining 34 items were gathered under four factors. The item analysis and factor analysis results of the 34 items in the DEPS, which were found to have four factors, are given in Table 1.

Tablo 1. *DEPS's Item Analysis and Factor Analysis Results*

Item No	Item-Total Correlation	Factor Community Variance	Factor-1 Load Value	1. Factor	2. Factor	3. Factor	4. Factor
1	.43	.56	.41	.21	.71	-.08	.00
3	.45	.52	.44	.22	.67	-.08	.14
7	.33	.43	.31	.07	.64	-.10	.09
10	.34	.34	.34	.12	.57	.02	-.01
11	.51	.38	.53	.30	.49	.22	.02
16	.38	.35	.37	.13	.57	-.01	.13
20	.42	.47	.45	.52	.33	-.21	.21
21	.52	.56	.57	.68	.28	.09	-.11
22	.58	.61	.65	.75	.11	.15	.12
25	.55	.55	.64	.64	.01	.35	.11
26	.57	.43	.63	.53	.21	.22	.24
28	.55	.47	.61	.62	.17	.18	.12
31	.40	.45	.40	-.05	.61	.26	.09
35	.40	.43	.39	.09	.64	.02	.10
36	.50	.40	.58	.34	.11	.50	.15
38	.57	.47	.63	.61	.15	.25	.13
39	.45	.35	.49	.46	.34	.13	-.07
40	.42	.34	.44	.27	.51	.01	.09
41	.56	.40	.61	.51	.28	.20	.15
42	.55	.46	.63	.51	.06	.37	.26
46	.34	.43	.41	.05	.11	.64	.00
47	.47	.54	.56	.17	.04	.67	.25
48	.56	.55	.64	.36	.07	.62	.19
49	.57	.51	.65	.41	.08	.50	.30
50	.56	.46	.63	.28	.20	.51	.29
51	.28	.42	.36	.16	-.18	.59	.10
55	.43	.45	.50	.18	.03	.62	.15
56	.30	.45	.37	.02	-.01	.67	.04
57	.36	.34	.37	.16	.51	.26	-.07
63	.34	.51	.38	.02	.12	.13	.69
64	.35	.49	.39	.02	.22	.07	.66
67	.43	.36	.49	.30	.08	.17	.49
68	.44	.54	.52	.30	-.08	.27	.61
69	.36	.49	.42	.11	.02	.19	.66

Açıklanan Varyans

1. Faktör = %13.20

2. Faktör = %12.40

3. Faktör = %11.97

4. Faktör = %7.78

Toplam = % 45.55

Cronbach α = .91

The internal consistency coefficient of the whole scale was found to be Cronbach's $\alpha=.91$. These findings show that the scale consists of items that are highly related to each other, that it measures the structure defined as students' perception of distance education, and that the scale is reliable.

Factors were tried to be named by taking into account the meanings of the items. The first factor has 10 items and this factor is called "Learning and Communication in Distance Education ". The second factor, consisting of 10 items, is called "The Benefit and Importance of Distance Education ", while the third factor, consisting of 9 items , is named "The Place of Technology in Distance Education ". Finally, the fourth factor, consisting of 5 items, is called "Measurement and Evaluation in Distance Education ".

Students' Personal Characteristics

The majority of the 406 students participating in the research, aged between 18-26, 82.30% (334) are women. Only 17.70% (72) of the participants are male. Of the students participating in the research, 187 (46.10%) are in the 1st grade, 73 (18.00%) are in the 2nd grade, 64 (15.80%) are in the 3rd grade and 82 (20.20%) are in the 4th grade. While 5.90% (24) of the participants continue their education by working, the remaining 382 students (94.10%) continue their education without working. When we look at the way students follow the courses, it is seen that 50.70% (206) access the courses from computers, 45% (183) access the courses from their mobile phones, and the remaining 4.20% (17) of students access the courses from tablets. Again, 28.60% (116) of the students within the scope of the study have difficulties in accessing courses. These students have difficulties in accessing classes because they are poor and have to work, they do not have sufficient internet access, they do not have enough wi-fi, their phone charges do not last long, they do not have devices that provide internet access such as computers and phones, technical problems, there is no internet connection in state dormitories and wi-fi, lack of internet connection, internet infrastructure problems in settlements, poor network connection and power outages are the reasons.

Students' Opinions and Attitudes towards Distance Education

The participants according to their opinions and attitudes about conducting education remotely in the program they study in is shown in Table 3:

Table 3. Distribution of Students According to Their Opinions and Attitudes on Distance Education in the Program They Study in

Opinions and Attitudes on Distance Education	Yes		No	
	N	%	N	%
Preferring that education be continued remotely	48	11.8	358	88.2
Finding distance education suitable for the program they are studying in	59	14.5	347	85.5
Believing that practices specific to the program they are studying can be carried out with distance education	34	8.4	372	91.6
Finding distance education suitable for your personality	97	23.9	309	76.1
Finding distance education effective	75	18.5	331	81.5
Finding distance education instructive	86	21.2	320	78.8
Being prone to distance education	110	27.1	296	72.9

As can be seen in Table 3, the majority of the participants do not prefer to continue their education completely remotely (88.20%), do not find distance education suitable for the program they are studying in (85.50%), and do not believe that practices specific to the program they are studying can be carried out with distance education (91.60%). Again, the majority of the participants do not find distance education suitable for their personalities (76.10%), effective (81.50%) and instructive (78.80%). Similarly, the majority of participants think that they are not prone to distance education (72.90%). All these findings reveal that students have negative attitudes about conducting education remotely, especially the implementation of practices specific to the program they are studying in, through distance education.

Students' Perceptions Towards Distance Education

Descriptive statistics of the participants' level of agreement with the perception statements regarding distance education based on the items in the UEAS are given in Table 2.

Table 2. *Students' Perception Levels towards Distance Education*

Perception Expressions Regarding Distance Education	General		
	Median.	Mode	\bar{X}
1: Systematic developments specific to the program studied through distance education can be more easily followed.	2.00	2.00	2.41
3: Professional development can be continued at any time through distance education.	2.00	2.00	2.49
7: People to be consulted in distance education can be easily reached.	2.00	2.00	2.62
10: In distance education, exams conducted with computer technologies (Online) instead of face-to-face exams are more financially suitable for students.	3.00	4.00	3.23
11: Distance education provides flexibility in terms of place and time for working students.	4.00	4.00	3.73
16: Distance education is supportive before clinical applications.	2.00	2.00	2.52
20: In distance education, methods and techniques specific to the program can be learned through animation or similar applications.	3.00	4.00	3.13
21: In distance education, theoretical information is short and understandable, making learning easier.	4.00	4.00	3.49
22: In distance education Watching images of applications specific to the program being studied makes learning easier.	4.00	4.00	3.50
25: Supporting lessons with visual materials in distance education makes learning easier.	4.00	4.00	3.91
26: In distance education, asynchronous discussion environments where students write their thoughts without time limits increase the desire to participate in classes.	4.00	4.00	3.50
28: In distance education, instructors advising students face-to-face and remotely makes learning difficult.	4.00	4.00	3.43
31: In distance education, all resources related to the field are easily accessible.	3.00	4.00	3.14
35: It is easier to share information among students in distance education.	2.00	2.00	2.62
36: In distance education, it is important to meet with instructors and other students in virtual chat environments.	4.00	4.00	3.83
38: In distance education, instructors advising students face-to-face and remotely reinforces learning.	4.00	4.00	3.53
39: In distance education, students can express themselves more easily by writing during classes and in discussion environments.	3.00	4.00	3.14
40: In distance education, it is easy to reach instructors via computer, internet and telephone.	3.00	4.00	3.15
41: In distance education, students' ability to ask questions at any time increases communication with other students and instructors.	4.00	4.00	3.43
42: Acquiring communication skills in distance education is important for professional competence.	4.00	4.00	3.81
46: Students who have the ability to use computer technology in distance education are more successful.	3.00	4.00	3.28
47: In distance education, it is necessary to provide students with basic computer technology skills before moving on to field education.	4.00	4.00	3.78
48: In distance education receiving technical support from students when they have problems with computer technology increases their educational satisfaction.	4.00	4.00	3.88
49: Technology in distance education is necessary to closely monitor developments in the field	4.00	4.00	3.77
50: The use of technology in distance education adds diversity to teaching/learning methods.	4.00	4.00	3.72
51: Technical problems that students may experience in distance education increase reluctance to use technology.	4.00	4.00	3.76
55: It is important to determine the level of technology use of students in terms of the effectiveness of education in distance education.	4.00	4.00	3.59
56: In distance education, students' negative attitudes towards technology negatively affect their use of technology.	4.00	4.00	3.60
57: In distance education, it is easier to communicate with instructors via email.	4.00	4.00	2.91
63: In distance education, oral exams where cases are discussed are effective in student success.	4.00	4.00	3.48
64: In distance education, observing students' participation in classes is effective in evaluation.	4.00	4.00	3.33
67: In distance education, exams that can be answered in a short time are useful to encourage students to read and research.	4.00	4.00	3.52
68: In distance education, it is beneficial for instructors to give feedback to students about their success at the end of each lesson in terms of the effectiveness of education.	4.00	4.00	3.80
69: Students should be given individual assignments to encourage them to read and research in distance education.	4.00	4.00	3.64

When the participants' level of agreement with the perception statements in the DEPS is examined on an item-by-item basis, as can be seen in Table 2, among the perception statements regarding distance education, the three statements they agree with the most relatively are, respectively, "Distance education Receiving technical support from students when they have problems with computer technology increases their educational satisfaction.", "In distance education, meeting with instructors and other students in virtual chat environments is important." and "Acquiring communication skills in distance education is important for professional competence." These findings show that technology and communication, which are among the most important dimensions of distance education, are the most important elements. Among the perception statements regarding distance education in DEPS, the three statements that the participants agreed with the least were, respectively, "Systematic developments specific to the program studied through distance education can be more easily followed.", "Professional development can be maintained at any time through distance education." and "People to be consulted in distance education can be easily reached." These findings reveal that distance education is perceived as an educational model that is not suitable for professional development and establishing an effective student-client relationship by following systemic developments specific to the program being studied.

Participants' level of agreement with the perception statements regarding distance education on the basis of the whole scale can be determined based on the lowest score, highest score and width expected from the scale. Since there are 34 items in total in the final version of the DEPS, the lowest expected score is 34.00 and the highest score is 170.00. The width is 136.00. Accordingly, the levels of agreement with the perception statements regarding distance education according to the score ranges that can be obtained from the scale are shown in Table 3:

Table 3. *Levels of Agreement with Perception Statements on Distance Education, According to Score Ranges That Can Be Obtained from the Whole Scale*

Score Ranges That Can Be Obtained from the Levels of Agreement with Perception Whole Scale	Statements
34-61.20	Low
61.21-88.39	Very low
88.40-115.59	Middle
115.60-142.79	High
142.80 and above	very high

The lowest score the participants received from the whole scale was 34.00 and the highest score was 166.00. The width was found to be 132.00. It appears that the scale covers a significant part

of the expected width. The scale mean was calculated as 114.64 and the standard deviation was 17.14. These findings show that the participants' level of agreement with whole scale statements is medium level, but close to the high level limit.

The participants' level of agreement with the perception statements in the DEPS regarding learning and communication in distance education, the benefit and importance of distance education, the place of technology in distance education, measurement and evaluation in distance education, respectively, on the basis of sub-dimensions, are summarized in Table 4:

Table 4. *Levels of Agreement with Perception Statements on Distance Education According to the Score Ranges That Can Be Obtained from the Sub-Dimensions of DEPS*

Learning and Communication in Distance Education	Benefits and Importance of Distance Education	The Place of Technology in Distance Education	Measurement and Evaluation in Distance Education	Levels of Agreement with Perception Statements
10.00-17.00	10.00-17.00	9.00-16.20	5.00-8.00	Low
18.00-25.00	18.00-25.00	16.21-23.20	9.00-12.00	Very low
26.00-33.00	26.00-33.00	23.21-30.20	13.00-16.00	Middle
34.00-41.00	34.00-41.00	30.21-37.20	17.00-20.00	High
42.00 and above	42.00 and above	37.21 and above	21.00 and above	very high

Since there are 10 items in total in the final version of the first sub-dimension of DEPS called "Learning and Communication in Distance Education", the expected minimum score is 10.00, the highest score is 50.00, and the width is 40.00. The lowest score the participants received from the first subscale was 10.00 and the highest score was 50.00. The width is calculated as 40.00. The scale mean was 34.84 and the standard deviation was 6.90. These findings show that the participants' level of agreement with the perception statements regarding learning and communication in distance education is high.

In the final version of the second sub-dimension of DEPS called "The Benefit and Importance of Distance Education", since there are 10 items in total, the expected lowest score is 10.00, the highest score is 50.00, and the width is 40.00. The lowest score the participants received from the second subscale is 10.00 and the highest score is 50.00. The scale mean was calculated as 28.82 and the standard deviation was .34. These findings show that the participants' level of agreement with the perception statements regarding the benefit and importance of distance education is at a medium level.

Since there are a total of 9 items in the final version of the third sub-dimension of DEPS called "The Place of Technology in Distance Education", the expected minimum score is 9.00, the highest score is 45.00, and the width is 36.00. The lowest score the participants received from the third subscale was 9.00 and the highest score was 45.00. The width is calculated as 36.00. The scale mean was calculated as 33.22 and the standard deviation was 5.39. These findings show that the participants' level of agreement with the perception statements regarding the place of technology in distance education is high.

Since there are a total of 5 items in the final version of the fourth sub-dimension of DEPS called "Measurement and Evaluation in Distance Education", the expected minimum score is 5.00, the highest score is 25.00, and the width is 20.00. The lowest score the participants received from the fourth subscale was 5.00 and the highest score was 25.00. The width is calculated as 20.00. The scale mean was calculated as 17.76 and the standard deviation was 3.30. These findings show that the participants' level of agreement with the perception statements regarding measurement and evaluation in distance education is high.

According to the findings regarding the sub-dimensions of the DEPS, it can be said that the participants' level of agreement with the perception statements in the benefit and importance of distance education dimension is relatively lower compared to the other dimensions of the DEPS.

Analysis of Students' Perceptions towards Distance Education in Terms of Various Variables

The Independent-Samples T-Test results, used to test whether university students' perceptions towards distance education differ in terms of gender, working situation, and some variables about opinion and attitude towards distance education are given in Table 5.

Table 5. Analysis of Participants' Perceptions Towards Distance Education in Terms of Age, Gender, Working Status, Difficulty in Accessing Courses, and Opinion and Attitude Variables on Distance Education.

Age	N	\bar{X}	S	sd	t	p
1) 18-24 Years	398	114.54	17.08	404	-.789	.430
2) 25 years and above	8	119.38	20.38			
Levene Test for Equality of variances F=.437, p=.481 p>.05*						
Gender	N	\bar{X}	S	sd.	t	p
1) Woman	334	114.30	16.36	404	-.865	.388
2) Men	72	116.22	20.41			
Levene Test for Equality of variances F=1.509, p=.220 p>.05						
Working situation	N	\bar{X}	S	sd.	t	p
1) I'm working	24	114.75	22.99	404	-.033	.974
2) I don't work	382	114.63	16.74			
Levene Test for Equality of variances F=.045, p=.832 p>.05						
Having trouble accessing courses	N	\bar{X}	S	sd.	t	p
1) I'm having trouble	116	112.35	17.53	404	-1.703	.089
2) I don't have any trouble	290	115.55	16.92			
Levene Test for Equality of variances F=.001, p=.970 p>.05						
Preferring that education should always to be continued remotely	N	\bar{X}	S	sd.	t	p
1) I prefer	48	126.60	16.42	404	5,323	.000 **
2) I do not prefer	358	113.03	16.61			
Levene Test for Equality of variances F=.044, p=.833 p<.01**						
Finding convenient to distance education for the program being Studied	N	\bar{X}	S	sd.	t	p
1) I find it convenient	59	127.15	14.96	404	6,356	.000 **
2) I don't find it convenient	347	112.51	16.58			
Levene Test for Equality of variances F=.311, p=.578 p<.01**						
Believing that practices specific to the program being studied can be carried out with distance education	N	\bar{X}	S	sd.	t	p
1) I believe it	34	126.88	16.68	404	4,453	.000 **
2) I don't believe it	372	113.52	16.76			
Levene Test for Equality of variances F=.024, p=.876 p<.01**						
Finding distance education suitable for personality	N	\bar{X}	S	sd.	t	p
1) I find it suitable	97	124.78	13.61	404	7,077	.000 **
2) I don't find it suitable	309	111.45	16.91			
Levene Test for Equality of variances F=1.381, p=.241 p<.01**						
Finding distance education effective	N	\bar{X}	S	sd.	t	p
1) I find it effective	75	126.04	15.01	404	6,721	.000 **
2) I don't find it effective	331	112.05	16.54			
Levene Test for Equality of variances F=.076, p=.783 p<.01**						
Finding distance education instructive	N	\bar{X}	S	sd.	t	p
1) I find it instructive	86	126.45	13.37	404	7,704	.000 **
2) I don't find it tutorial	320	111.46	16.66			
Levene Test for Equality of variances F=1.629, p=.203 p<.01**						
Being prone to distance education	N	\bar{X}	S	sd.	t	p
1) I am prone	110	124.17	14.41	404	7,257	.000 **
2) I am not prone	296	111.09	16.73			
Levene Test for Equality of variances F=.198, p=.657 p<.01**						

As can be seen in Table 5, there is no significant difference between the participants' perception scores towards distance education according to age, gender, working situation and having trouble accessing courses. On the other hand, there is a significant difference between the participants' perception scores towards distance education according to "preferring that education should always be continued remotely, finding convenient to distance education for the program being studied, believing that practices specific to the program being studied can be carried out with distance education, finding distance education suitable for the personality, finding distance education effective, finding distance education instructive. Being prone to distance education" variables. The Independent-Samples T Test results reveal that the perception levels of those who prefer education to be continued remotely are higher than those who do not prefer education to be continued remotely. Again, according to the Independent-Samples T Test results; the perception levels of those who find distance education convenient in terms of the program they are studying are higher than those who do not find distance education convenient in terms of the program they are studying. Similarly, those who believe that applications specific to the program being studied can be carried out through distance education have higher perception levels towards distance education than those who do not believe that applications specific to the program being studied can be carried out through distance education. Again, the perception levels of those who find distance education suitable for their personality are higher than those who do not find distance education suitable for their personality. Those who find distance education effective and instructive have higher perception levels towards distance education than those who do not find distance education effective and instructive. Again, the perception levels of those who think they are prone to distance education are higher than those who think they are not prone to distance education. These results reveal that those who develop positive attitudes towards distance education also have positive perceptions towards distance education.

The One-Way ANOVA results regarding the analysis of the participants' perceptions towards distance education according to class and the types of vehicle that mainly provides accessing courses by internet connection are given in the Table.

Table 6. Analysis of Participants' Perceptions towards Distance Education in Terms of Class and the Types of Vehicle that Mainly Provides Accessing Courses by Internet Connection

Class	N	\bar{X}	S
1) 1th grade	187	113.90	1.25
2) 2nd grade	73	116.96	1.91
3) 3rd grade	64	119.03	1.74
4) 4th grade	82	110.83	2.14
Total	406	114.64	.85

Source of Variance	Sum of Squares	df	Mean Squares F	p	Significant Difference
Between Groups	2920.282	3	973,427	3,373	.019 3-4
Within Groups	116013.493	402	288,591		
Total	118933.776	405			

Levene Test for homogeneity of variances $F = 797$; $df=3, 402$; $p=.496$

$P<.05^*$

Type of vehicle that mainly provides accessing courses by internet connection	N	\bar{X}	S
1) Desktop computer	206	115.63	17.21
2) Mobile phone	183	113.33	17.33
3) Tablet	17	116.71	13.62
Total	406	114.64	17.14

Source of Variance	Sum of Squares	df	Mean Squares F	p	Significant Difference
Between Groups	585,361	2	292,681	.997	.376 -
Within Groups	118348.415	403	293,669		
Total	118933.776	405			

Levene Test for homogeneity of variances $F = .353$; $df=2, 403$; $p=.703$

$P<.05^*$

As seen in Table 6, according to the analysis of variance results, the difference between the average scores of the participants regarding their perception levels towards distance education according to the class variable was significant. On the other hand, the difference between the average scores of the participants regarding their perception levels towards distance education according to the variable of the device used to access the courses or the type of device provided with internet connection was not found to be significant. This finding reveals that the participants' perception levels towards distance education vary depending on the class they attend, but do not vary according to the type of tools they use to access the courses. Scheffe Multiple Comparison Test was used to determine between which groups there was a difference in the perception levels of the participants towards distance education according to class. The test results show that the differences in question are; It was revealed that it was among the students attending the 3rd and 4th grades. As can be seen in Table 6, 4th grade students' perception levels towards distance education are lower than students in other grades. This situation can be explained by the fact that, unlike the students attending other classes, 4th grade students experienced distance education for

the first time with application lessons and the negative attitude they developed that the distance education methods followed in the conduct of these courses were not suitable for the purpose of the application lessons . Applied courses create an environment that allows students to transfer and integrate the knowledge, skills and values they have acquired during their education into the field. In this environment where face-to-face interaction is important, the student is expected to transfer the knowledge, skills and values he has acquired during the education process to the field in which he practices, and to gain experience by gaining awareness of himself and his professional knowledge, skills and values. The immediate and inevitable transition to distance education in formal education, which is expressed as an applied learning process in which face-to-face interaction is important , has made it difficult for students to effectively conduct applied courses. In this regard, it is an expected result that the perception levels of 4th grade students, who are practice students or interns, regarding distance education are lower than the students in other grades.

The research findings show that the scale used to collect data in the study is valid and reliable, that students are generally hesitant about distance education and that these hesitations increase in terms of applied courses and internship practices. In addition, research findings reveal that students' perception levels of the benefit and importance of distance education are lower than the learning and communication, technology and measurement-evaluation dimensions of distance education.

Conclusion

The main purpose of this research is to develop a valid and reliable Likert-type scale to determine how university students perceive distance education. Research findings show that the scale consists of highly interrelated items and four factors called "Learning and Communication in Distance Education", "Benefit and Importance of Distance Education", "The Place of Technology in Distance Education" and "Measurement and Evaluation in Distance Education". In addition the scale measures the structure defined as students' perception of distance education, and the scale is reliable. In addition, with the DEPS, which was found to be valid and reliable in this study, the personality characteristics of university students, their opinions and attitudes towards distance education, their perceptions towards distance education and whether these perceptions differ according to various variables were also investigated.

The research results reveal that;

- The majority of students are women, the majority of students continue their education without working, students use computers, mobile phones and tablets to access courses, and a significant number of students have problems accessing courses remotely due to poverty and deprivation.
- Students have negative attitudes about conducting education remotely, especially the implementation of practices specific to the program they are studying in, through distance education.

- The participants' level of agreement with whole scale statements is medium level, but close to the high level limit. On the basis of sub-dimensions, participants have high levels of agreement with the perception statements in DEPS regarding learning and communication in distance education, the place of technology in distance education, and measurement and evaluation in distance education. However the participants' level of agreement only with the perception statements regarding the benefit and importance of distance education is at a medium level. In addition technology and communication, which are among the most important dimensions of distance education, are the most important elements.
- There is no significant difference between the participants' perception scores towards distance education according to age, gender, working situation and having trouble accessing courses. However, there is a significant difference between the participants' perception scores towards distance education according to "preferring that education should always be continued remotely, finding convenient to distance education for the program being studied, believing that practices specific to the program being studied can be carried out with distance education, finding distance education suitable for the personality, finding distance education effective, finding distance education instructive. being prone to distance education" variables.
- Those who develop positive attitudes towards distance education also have positive perceptions towards distance education.
- The perception levels of the participants towards distance education vary depending on the grade they attend, and that the perception levels of fourth grade students towards distance education are lower than the students in other grades. On the other hand, research findings reveal that students' perception levels towards distance education do not vary depending on the type of tool they use to access courses.

Recommendations

The research findings are limited to the data obtained from 406 students included in the research. In order to eliminate this limitation, it may be recommended to repeat this study in different groups with similar characteristics outside the scope of this study and compare the results obtained with the results of this study. In addition, in terms of standardization of the DEPS, it would be useful to conduct validity and reliability studies by applying the scale to different sample groups in order to repeat the validity and reliability studies.

Knowing students' perceptions towards distance education is important in terms of developing courses through distance learning environments for programs and evaluating the effectiveness of these courses, as well as in terms of implementing quality-increasing policies in distance education. It is expected that the results of the research will be guiding in terms of studies aimed at improving the quality of education in universities in today's conditions where distance education has become widespread with hybrid applications and will make a serious contribution to the literature.

References

- Akbulut, Y. (2010). SPSS applications in social sciences: frequently used statistical analyzes and annotated SPSS solutions. Istanbul: Ideal Culture Publishing.
- Alley, L. & Jansak, K. (2001). The ten keys to quality insurance and assesment in online learning. *Journal of Interactive Instruction Development*, 13(3), 3-18.
- Anadolu University Open Education Faculty (2022, June 26). Open education faculty undergraduate programs (4 years). <https://www.anadolu.edu.tr/acikogretim/turkiye-programlari/acikogretim-sistemdeki-programlar>
- Aydemir, M. (2018). Distance education program, course and material design. Ankara: Education Publishing House.
- Balaban Tuesday, J. (2018). Qualifications that data collection tools should have. In A. Şimşek (Editor) *Research methods in social sciences* (134-161). Eskişehir: Anadolu University Publications No: 2653, AÖF Publications No: 1619.
- Balaman, F. & Hanbay Tiryaki, S. (2021). Teacher opinions about compulsory distance education due to CoronaVirus (Covid-19). *Journal of Human and Social Sciences Research*, 10 (1): 52-84.
- Başar, M. & Arslan, S. & Günsel, E. & Akpınar, M. (2019). Teacher candidates' perception of distance education. *Journal of multidisciplinary studies in education*, 3 (2): 14-22. <https://dergipark.org.tr/tr/pub/jmse/issue/45032/555407>
- Bates AW. (1995). *Technology, Open Learning and Distance Education*. London: Routledge.
- Baykul, Y. (2000). *Measurement in Education and Psychology: Classical Test Theory and Practice*, Ankara: ÖSYM Publications.
- Bozkurt, A. (2017). Past, present and future of distance education in Turkey, *Journal of Open Education Practices and Research*, 3 (2): 85-124.
- Boz-Yuksekdag, E & Karaca, E. (2017) The Perception Scale Towards Distance Nursing Education (perstoDNE). *International Women Online Journal of Distance Education*, 6 (2), 53-66.
- Büyüköztürk, Ş. & Kılıç Çakmak, E. & Akgün, Ö. A. & Karadeniz, Ş. & Demirel, F. (2008). *Scientific research methods*, Ankara: Pegem Akademi.
- Büyüköztürk, Ş. (2002). *Data analysis handbook* (1st ed.). Ankara: Pegem A Publishing.
- Büyüköztürk, Ş. (2011). *Handbook of data analysis for social sciences, statistics, research design, spss applications and interpretation* (15th ed.). Ankara: Pegem Akademi.
- Council of Higher Education (2022). All universities with a social work (faculty) program. YÖK Undergraduate Atlas. <https://yokatlas.yok.gov.tr/lisans-bolum.php?b=10193>

- Duman, S. N. (2020). Evaluation of the distance education process carried out during the epidemic period, *National Education*, 49 (Special Issue 1): 95-112.
- Durdu, E. & Albayrak, M. (2020). Evaluation of students' perceptions and attitudes towards distance learning. *International Journal of Sciences and Education Research*, 6 (2): 252-268.
- Egerton, E. L. (2007). Faculty and students' perceptions of learner-centered instruction in online nursing education courses. (Unpublished PhD thesis), George Mason University. Available from ProQuest Dissertations and Theses database (UMI: 3256274).
- Elitaş, T. (2017). New communication technologies in the distance education undergraduate process: Atatürk University distance education center (Unpublished Doctoral Thesis).
- Er Türküresin, H. (2020). Examination of distance education practices carried out during the COVID_19 pandemic period in the context of teacher candidates' opinions. *Journal of National Education*, 49 (1): 597-618. <https://dergipark.org.tr/tr/download/article-file/1263116>
- Field, A. (2009). *Discovering statistics using SPSS:(and sex, drugs and rock'n'roll)*. New York: Sage.
- Gök, B. & Kılıç Çakmak, E. (2020). Distance education perception of instructors teaching in distance education, *Kastamonu Education Journal*, 28 (5): 1915-1931.
- Gökbulut, B. (2021). Distance Education and Mobile Learning from the Perspective of Distance Education Students, *Educational Technology Theory and Practice*, 11 (1): 160-177.
- Gorsuch, R. L. (1974). *Factor analysis*. Philadelphia: Saunders.
- Hair, J. F. & Black, W. & Babin, B. & Anderson, R.E., & Tatham, R.L. (2005). *Multivariate data analysis*. (5th Edition). Upper Saddle River, NJ: Prentice Hall.
- <https://docs.google.com/forms/d/1nDUDWIBnIZ13DihOv742tffpWhDmYI73p3eQSCuJ-W4/edit>
- Isman, A. (2011). *Distance Learning*. 4th Edition, Ankara: Pegem A Publications.
- Kaiser, H.F. (1958). The varimax criterion for analytic rotation in factor analysis. *Psychometrika*, 23, 187-200.
- Karaca, E. (2020). *Scale development in social work research and the use of SPSS in this process*. Eskişehir: Nisan Bookstore.
- Karaca, İ., Karaca, N., Karamustafaoğlu, N., and Özcan, M. (2021). Atif Cite Examination of teachers' perceptions of the benefits of distance education. *Humanistic Perspective*, 3 (1), 209-224. <https://doi.org/10.47793/hp.844113>

- Karasar, N. (2000). Report preparation in research (10th ed.). Ankara: Nobel Publishing Distribution.
- Kocayiğit, A. & Uşun, S. (2020). Attitudes of teachers working in schools affiliated to the Ministry of National Education towards distance education (Burdur province example). *Eurasia Journal of International Studies*, pp (23): 285-299.
<https://dergipark.org.tr/tr/download/article-file/894290>
- Kurnaz, E. & Serçemeli, M. (2020). A research on academics' perspectives on distance education and distance accounting education during the Covid-19 pandemic period. *International Journal of the Academy of Social Sciences*, Year: 2, (3): 262-288.
<https://dergipark.org.tr/tr/download/article-file/1163428>
- Lee, H. B. & Comrey, A. L. (1979). Distortions in a commonly used factor analytic procedure. *Multivariate Behavioral Research*, 14 (3): 301-321.
https://doi.org/10.1207/s15327906mbr1403_2
- Mayers, A. (2013). *Introduction to statistics and SPSS in psychology*. Pearson Education Limited.
- Moçoşoğlu, B. & Kaya, A. (2020). Examining teacher attitudes towards distance education implemented due to coronavirus disease (COVID-19), *Kahramanmaraş Sütçü İmam University Education Journal*, 2 (1): 15-43.
- Moore, M. & Kearsley, G. (2005). *Distance Education. A Systems View*. 2nd ed. Thomson.
- Özdoğan, A. Ç. & Berkant, H. G. (2020). Examining stakeholder views on distance education during the COVID-19 pandemic period, *National Education*, 49 (Special Issue 1): 13-43.
- Paydar, S. & Doğan, A. (2019). Teacher Candidates' Opinions on Open and Distance Learning Environments. *Education and Technology*, 1 (22): 154-162.
- Rea, L. M., & Parker, R. A. (2014). *Designing and conducting survey research: a comprehensive guide*. New Jersey: John Wiley & Sons.
- Scherer, R. F. & Wiebe F. A. & Luther, D. C. & Adams J. S. (1988). Dimensionality of coping: factor stability using the ways of coping questionnaire. *Psychological Reports*. 62, 763-770.
- Schlosser, L. A. & Simonson, M. (2010). *Distance education: Definition and glossary of terms*. 3rd Edition, Charlotte, North Carolina: Information Age Publishing.
- Seçer, İ. (2015). *Practical data analysis with SPSS and LISREL (2nd Edition)*. Ankara: Anı Publishing.
- Taskiran, A. (2021). Management, learning, technology and evaluation dimensions of open and distance learning processes. *Journal of Open Education Applications and Research (AUAd)*, 7(4), 80-98. <https://doi.org/10.51948/auad.984969>).

Tavşancıl, E. & Keser, H. (2002). Development of a Likert-type attitude scale towards internet use. *Journal of Educational Sciences*, 1, 1, 79-100.

Yavuz, M., Kayalı, B., Balat, Ş. and Karaman, S. (2020). Examination of emergency distance education practices of higher education institutions in Turkey during the epidemic period. *National Education*, 49 (1): 129-154. <https://dergipark.org.tr/tr/download/article-file/1255140>

Yenal, Ü. (2009). History of the information society. *History School Journal*, 2009 (5): 123-144. <https://dergipark.org.tr/tr/download/article-file/144913>



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