Predicting the Effect of COVID-19 on Education Process in Turkey[*]

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Article Information	ABSTRACT
Received: 01.05.2021 *Accepted*: 15.12.2021 *Online First*: 27.06.2022 *Published*: 31.07.2022	COVID-19 has affected education. Education is one of the areas affected. Although many countries closed educational institutions, as the government policy offered, Turkey continued through distance education. The aim of this study is finding out the effects of distance education on assignments and exams, distance education satisfaction level, and effects of some factors (gender, employment status, state of education, age) on education. Sampling group consisted of 683 volunteer parents of students selected by simple random sampling method. "Distance Education Activities Satisfaction Scale" was developed for data collection Results show that gender and employment status created a significant difference in distance education satisfaction level; and state of education created a significant difference in effect of distance education on assignments and exams, distance education satisfaction level, and effect of COVID-19 on education. Furthermore, the effect of COVID-19 on education was predicted by some variables; effect of distance education on assignments and exams, parents' state of education and distance education satisfaction level. **Keywords:** COVID-19, distance education activities, distance education satisfaction, effect of distance education on assignments and exams

1. INTRODUCTION

Pandemics affecting numerous people worldwide generally occur as a result of the transmission of microorganisms in animals to humans. They have caused millions of people to lose lives to date by appearing time after time through human history. The most recent pandemic the world has witnessed is COVID-19 emerged in November 2019 in China and firstly recognized in early January 2020. World Health Organization (WHO) declared COVID-19 as a pandemic on 11th May 2020 (Erçetin et al., 2020) as COVID-19 started to threaten human health and life in a very short time due to its transmission feature.

Due to COVID-19 pandemic, countries have tried to protect their citizens with rules such as social isolation, curfew, social distance (Potas et al., 2022). For this reason, COVID-19 affected life in many areas (Neyişci et al., 2022) and one of the most damaging effects was on education (Erçetin et al., 2021; Dinçman & Çelik, 2021). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), formal education institutions were temporarily closed in over 160 countries because of COVID-19 (Açıkgöz & Günay, 2020). It did not take long that the OECD released another report stating, it forced school closures in 188 countries, disrupted the learning process heavily of more than 1.7 billion children, youth, and their families (OECD, 2020). COVID-19 almost stopped educational services and practices so, most countries had to take some measures, and took initiatives to limit the pandemic's effects on education. Distance education activities have been among these measures that came up in the field of education. It was seen as a way out. In other words, distance education activities emerged as an alternative to classical education activities (Khoshemehr, 2013).

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Distance education is a process that information is produced and accessed but the source of education and students do not share the same environment in terms of time and place (Buselic, 2012; Gregory & Lodge, 2015; Simonson, Schlosser & Orellana, 2011). When using distance education technology, students take advantage of the convenience and flexibility of taking classes at the times and locations they prefer (Yuan-Sun & Rueda, 2011).

Although the concept of distance education has recently become a trend topic around the world due to the regulations created by governments to allow learners and teachers continue their education and practices during times of Covid-19 Pandemic, it has a long history indeed. As Harting & Erthal (2005) state, distance education is not a new phenomenon as it has actually been available since the 1700s. The first form of distance education was the correspondence school model, which evolved into an electronic form to deliver education at a distance, but technology-based distance education might be best linked to the introduction of audio-visual devices into the schools in the early 1900s (Jeffries, 2009).

The fact is some countries had already had distance teaching experiences for long before this pandemic process. For instance, according to the statistic, from 2012 to 2017 in China, the number of people receiving education online reached 109.8 million and is expected to grow to 263.8 million by 2022 (Statista, 2019). Similarly, with hundreds of online colleges, e-learning institutions and thousands of online courses accessed by students the US is one of the leaders in online education today. A study conducted by Sloan Consortium shed light on the fact that 6 million students in the United States were studying through some online course or another. This significant number made several prestigious institutions to offer online learning courses. Universities like Stanford, Berkeley, Princeton, UCLA, and a number of other institutions have made a place for eLearning classes to help those who demand this method of learning (Hallberg, 2017). As part of distance education in Turkey there are very few institutions giving Open University education. The universities having open education faculties are Anadolu University since 1982, Istanbul and Atatürk Universities since 2010. The number of students in these universities has reached almost 4 million since 2017. Besides, MEF University gives flipped education. 120 universities have distance education and open courses but they give limited number of courses each year (Council of Higher Education, 2020).

The reasons why distance education became more and more popular are stated in the literature as; distance education has advantages thanks to offering education anytime and anywhere, being cost-efficient, increasing academic success, offering flexibility, being time-efficient and providing education opportunities for everyone (Brady, Holcomb & Smith, 2010; Goyal, 2012; Gökçe, 2008; Manning, Cohen & DeMichiell, 2003; Olson & Wisher, 2002; Sadeghi, 2019; Yılmaz, 2016). Moreover, it helps accommodating students working full-time, as well as students with special needs and complex schedules (Lei & Gupta, 2010). Other groups of students that prefer distance education are rural students, sick or hospitalized children, gifted children, traveling families, and students who have problems in regular classrooms (Mupinga, 2005).

Besides its advantageous aspects, it also has some disadvantages. Lack of social interaction, high cost, risk of internet-related problems, and inefficiency in acquisition of sensory and psycho-motor behaviours can be counted among some disadvantages. Additionally, there is a possibility of experiencing some discipline problems as well (Bolliger & Wasilik, 2009; Kang, Liew, Kim & Jung, 2011; Kaya, 2002; Rovai, 2002; Özgöl, Sarıkaya & Öztürk, 2017; Tryon & Bisop, 2009; Yurdakul, 2005).

For the advantages to outweigh, educational revolutions and technological innovations of the 21st century helped distance education to evolve. While there used to be almost no interaction between students and teachers in former distance education activities, interaction has become the most important feature in today's distance education activities (Tuncer & Taşpınar, 2008). Because through technology, interaction and collaboration are now attainable in either asynchronous or synchronous learning networks. The emergence of social software that enables a group of individuals to collaborate via the Internet has added a new dimension to online learning. (Beldarrain, 2007).

It is necessary to point out that the main difference between former distance education practices and now is that because of the COVID-19 pandemic and social isolation procedures, not only voluntary students but all students were required to receive distance education. As in many countries, educational authorities in Turkey; Ministry of Education and Council of Higher Education gave priority to digital learning and started distance education. In compulsory education, which is the main target of this research; Ministry of Education launched some daily courses for elementary, secondary, and high school levels via EBA TV (Education Information Network). Three separate television channels were assigned by Turkish Radio and Television Corporation (TRT), a state foundation. For daily broadcasts, necessary and supportive materials were supplied by teachers and experts of the Ministry. Besides TV channels, EBA provided an online platform for synchronous lessons and some additional communication applications (Zoom, Skype, WhatsApp, etc.) were also used for connection between students and teachers to be built. All these efforts clearly show that it was a priority to take necessary steps to improve distance education for sustaining the educational services and practices with better quality. These practices done with futuristic concerns can be best explained as 'Disruption in the education of young people would be a significant threat to the quality of their lives in a post-crisis society' (Bojović, Bojović, Vujošević and Šuh, 2020).

In the literature, there are several research stating differences in attitudes and perceptions about distance education. For instance, while there are some studies whose findings of attitudes and perceptions are negative towards distance education (Ağır, 2007; Hannay & Newvine, 2006; Tao & Yeh, 2008), there are some others whose findings are positive (Bati, 2022; Gillies, 2008; Horzum, 2005; Karal, Çebi and Turgut, 2011). For instance, the researchers Shahzad et al. (2020), who studied

the effects of Covid-19 on higher education, stated that online learning and teaching experiences have created many positive opportunities. The researchers predicted that education will be borderless in 5 to 10 years and education costs will decrease as well. They suggested that E-learning systems and E-learning portals could be used worldwide due to providing some advantages such as being accessible 24/7, having user friendly design, quality and error-free information, and content quality.

Bartolic et al. (2021) also studied the changes in teaching and learning activities on the face of Covid-19 focusing both on behavioral and attitudinal changes. In the end of their study they summarized some hardships that academic staff experiences; the academic staff reported that they felt overwhelmed, but managed online teaching successfully; and academic standards were more flexible but course instructors felt proud because they could transform their courses in a perfect way. As it is clear from these examples, the Covid process has brought many hardships but also gave educators some reasons and courage to fight those and find some practical and sustainable solutions to overcome those hardships, turn them into opportunities (Adedoyin & Soykan, 2020) and prevent learning loss.

Gillian & Gillian (2004) point out that the deficiencies seen in distance education can only be corrected with the necessary regulations. So, in the period of COVID-19, deficiencies of distance education activities must be searched and identified, and this can contribute to education. In this respect, it is considered that searching out the impacts of; distance education activities, distance education satisfaction level and some personal variables (gender, employment status, state of education, and age) on COVID-19 education process will contribute to reveal the effectiveness of distance education activities. Findings of this research will shed light on future decisions and practices of teachers and administrators' so that they can revise or generate new plans and policies for the needs of students and parents related to distance education.

The aim of this study is to find out; the effect of COVID-19 on education, the effect of distance education on assignments and exams, and distance education activities satisfaction level. Another aim is to find out to what extent some factors (gender, employment status, state of education, and age) affect the distance education satisfaction level and to find out effect of distance education on assignments and exams, and their impact on education as well.

2. METHODOLOGY

2.1. Sampling and Data Collection

The sampling group of the study consists of parents of students living in various cities in Turkey. So, the study was conducted on 683 people who were reached, and they participated voluntarily. Participants of the study were determined by simple random sampling, one of the probabilistic methods. The nature of this study allowed to use this method because simple sandom sampling "should be used with a homogeneous population. That is, all the units in a population should possess the same attributes that we are interested in measuring (Potas & Ok, 2020). The characteristics of homogeneity may include age, sex, income, social status, geographical region, etc." (Naidu, 2021, p.269). This is a study of internal validity. Therefore, there is no purpose of generalization to the population in the study. The independent or predictive variables are mostly aimed at explaining the dependent (predicted) variable. Data was collected via google-online forms. Participants were informed about the aim of the study and instructions were given on how to fill in the scale before answering the research questions. In the instructions form it was highlighted that participating in this study was based on "volunteerism". Data was collected between 10th May 2020 and 20th May 2020, contacting 683 parents online.

2.2. Statistical Analysis

For the validity and reliability of the study, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were employed. For these analyses, SPSS 24.00 and AMOS 24.00 statistics package software were used.

Descriptive statistics of the study was carried out in terms of frequency, percentage, mean, and standard deviation measures. Since the conditions of normality were not met in the study; for two groups, one of non-parametric tests Mann-Whitney U test was done, and to see the difference among variables consisted of more than two categories, Kruskal-Wallis H test was applied. Significant differences with the multiple comparison of non-parametric tests were identified through Mann-Whitney U test verifying. Effect size values of the study were obtained by dividing the Z score by the square root of the number of participants (Field, 2009). Estimated size effects were defined as 0.10, 0.30 and 0.50, and were categorized as small, medium and big in order (Cohen, 1988). All the analyses of the study were interpreted according to .01 and .05 significance levels. The relationship between variables of the study and the effects of COVID-19 on education was identified by the Ordinal Logistic Regression Model. Ordinal Logistic Regression assumption, proportional odds, multicollinearity, goodness of fit, and pseudo R^2 values were tested. For these analyses, SPSS 24.00 statistics program was employed. Analyses were tested in .05 significance level.

2.3. Measurement Tools

In the research, participants were asked to indicate their gender, employment status, state of education, and age. They were also asked additional questions to find out the effect of COVID-19 on education and the effect of distance education on assignments and exams.

1. Do you think that the COVID-19 pandemic has influenced the education process? (0="No"- 5="Absolutely")

2. Do you think that distance education during the pandemic has influenced the homework and exams? (0="No"- 5="Absolutely")

In addition, distance education satisfaction level was measured by "Distance Education Activities Satisfaction Scale" developed by the researchers. Within the scope of validity and reliability studies of the 19-item scale, a pilot study was conducted on 184 parents of students.

According to the EFA analysis of the scale, KMO value is .89 and Barlett test χ^2 value is 913.015 (p< .001). According to the results of CFA, communality values are between .50 and .77; Eigenvalues are 2.951 in the first dimension, 2.554 in the second dimension and 1.867 in the third dimension; factor loadings are between .41 and .82; and total variance explained is %67.024. Variance ratios explained by each factor of the scale are %26.826 in the first factor, %23.221 in the second factor and %16.976 in the third factor. Moreover, in analyses 5 overlapping items, and 3 other items whose item factor loads were below 0.40 were extracted from the scale. By this way, "Distance Education Activities Satisfaction Scale" consists of independent 3 factors and 11 items in total. In the scale there are 4 items in the dimension of "Preparation Process Satisfaction", (1st, 2nd, 3rd and 4th items), 4 items in the dimension of "Learning-Teaching Process Satisfaction" (5th, 6th, 7th and 8th items), and 3 items in the dimension of "Teacher-Student and Parent Interaction Satisfaction" (9th, 10th and 11th items). There are no contradictory items in the scale. A four-point Likert scale was used, and equal intervals were graded from *"(1) totally disagree"* to *"(4) totally agree"*. The high grade obtained from the scale means that participants have high distance education satisfaction level and low grade shows that their distance education satisfaction level is low.

Following the exploratory factor analysis (EFA), in order to determine whether the factor structure can be verified or not, confirmatory factor analysis (CFA) was employed by AMOS 24.00 packaged software. "The CFA models are generally evaluated based on the four fit indices. That is, a CFA model is said to show a good model-data fit if the p-value of the chi-square test is higher than .05" (Orçan, 2018, p.417). As the results of CFA indicate, goodness of fit results of 3-dimension factorial structure are (CFI= .95, TLI=. 94, AGFI= .88, GFI=.93, IFI=.95, PGFI= .57, PNFI= .68, RMSEA = .074, χ^2 / df = 81.795 / 41= 1.995) and path diagram in Figure 1 shows that model fits well with the research data. Path coefficients of items are between .51 and .85; and mean squared error (MSE) differs between .18 and .58.
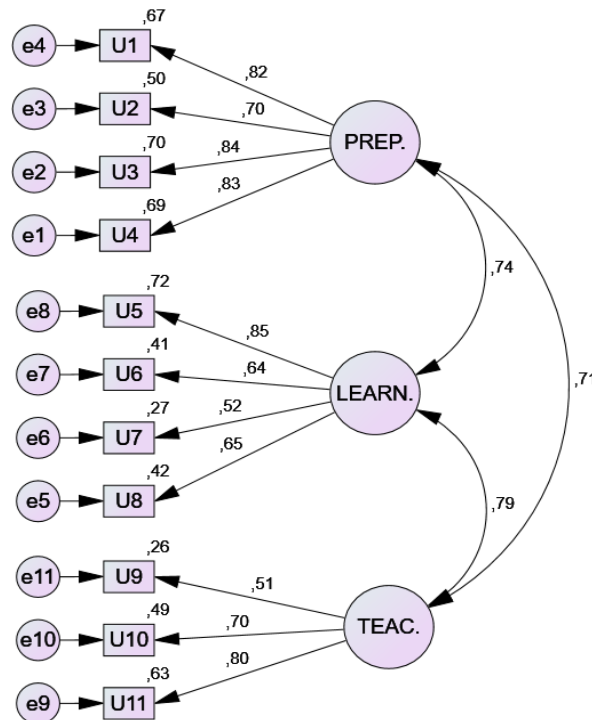

Figure 1. 3-factor path diagram of the scale

Reliability of the scale was determined by considering the values of Cronbach's Alpha. According to the results, for the 1st dimension of the scale Cronbach's Alpha is .87; for the second dimension it is .76; for the 3rd dimension it is .72 and for the whole scale Cronbach's Alpha is .88. When all validity and reliability results are considered together, it is concluded that "Distance Education Activities Satisfaction Scale" is an appropriate measurement tool that can be used psychometrically.

Validity and reliability studies of the scale were retested. Within the scope of CFA of the scale and to be applied on 683 people, goodness of fit test results of 3-dimensional factor structure (NFI = .95, NNFI = .94, RFI = .93, CFI = .96, IFI = .96, AGFI= .93, GFI= .96, RMR = .030, SRMR = .036, RMSEA= .068, χ^2= 165.778, df= 40, χ^2 / df = 165.778 / 40= 4.144) show that it fits well with the research data. Furthermore, for the main application of this research Cronbach Alpha (α) is .86 in the first dimension, .75 in the second dimension, .72 in the third dimension and .90 in the whole scale.

3. RESULTS

Findings of the descriptive analysis of the study were presented in Table 1.

Table 1.
Results of Descriptive Analysis

n=683	Category	n (%)	$\overline{x}$	s	Median	IQR
Gender	Woman	452 (66.2)			1.00	1.00 2.00
	Man	231 (33.8)				
State of education	Primary	60 (8.8)				2.00 3.00
	Secondary	125 (18.3)				
	University	415 (60.8)				
	Postgraduate	83 (12.2)				
Working status	Working	479 (70.1)				1.00 2.00
	Not working	204 (29.9)				
Age			37.45	10.334	38.00	30.0 44.0
Effect of distance education on assignments and exams			3.075	1.779	3.00	1.00 5.00
Distance education satisfaction level			2.513	.636	2.54	2.09 3.00
Effect of COVID-19 on education process			3.064	1.871	3.00	1.00 5.00

$\overline{x}$= Mean, s= Standard Deviation, IQR= Interquartile Range

As shown on Table 1, 452 of the participants (%66.2) are women and 231 (%33.8) are men. The number of primary education graduates are 60 (%8.8), secondary school graduates are 125 (%18.3), university graduates are 415 (%60.8), post graduates are 83 (%12.2). While 479 (%70.1) of the participants are working, 205 (%29.9) are not working in an institution. Age average of the participants is 37.45 (s=10.334, Median=38.00). Values of the other variables are as follows: effect of distance education on assignments and exams is ($\overline{x}$ =3.075, s=1.779, Median=3.00), distance education satisfaction level is ($\overline{x}$ =2.513, s=.636, Median=2.54) and effect of COVID-19 on education is ($\overline{x}$ =3.064, s=1.871, Median=3.00). Findings show that, parents of students evaluated the effect of distance education on assignments and exams and effect of COVID-19 on education as high, distance education satisfaction level as medium.

The effect of distance education on assignments and exams, distance education satisfaction level and effect of COVID-19 on education were compared in terms of gender, employment status and state of education and the results were shown in Table 2.

Table 2.
Mann-Whitney U Test and Kruskal Wallis H Test Results, Comparison of Variables

Variables	Level		n	Mean rank	Test Statistics	p	Post-hoc	Effect size
Effects of distance education on assignments and exams	Woman		452	340.71	51621.5[a]	.806		-
	Man		231	344.53				
	Working		479	349.35	45335.0[a]	.127		-
	Not working		204	324.73				
	Primary	(A)	60	419.33	13.075[b]	.004**	C<A	0.14
	Secondary	(B)	125	348.06				
	University	(C)	415	326.07				
	Post graduate	(D)	83	356.62				
Distance education satisfaction level	Woman		452	328.99	46324.5[a]	.016*		0.10
	Man		231	367.46				
	Working		479	353.40	43395.5[a]	.021*		0.09
	Not working		204	315.22				
	Primary	(A)	60	422.16	11.533[b]	.009**	C<A	0.13
	Secondary	(B)	125	346.80				
	University	(C)	415	330.53				
	Post graduate	(D)	83	334.19				
Effect of COVID-19 on education process	Woman		452	335.75	49381.0[a]	.237		-
	Man		231	354.23				
	Working		479	346.78	46567.5[a]	.321		-
	Not working		204	330.77				
	Primary	(A)	60	417.38	11.482[b]	.008**	B<A	0.11
	Secondary	(B)	125	333.16				C<A	0.13
	University	(C)	415	339.80				D<A	0.10
	Post graduate	(D)	83	311.83				

a:Mann-Whitney U Statistics b: Kruskal Wallis H Statistics; p**<.01, p*<.05

According to table 2, effect of distance education on assignments and exams (U=51621.500; p >.05) and effect of COVID-19 on education (U=49381.000; p>.05) do not show a significant difference in terms of "gender". However, in distance education satisfaction level (U=46324.500; p<.05; Effect size=0.10/low effect) and in the sub-dimension of preparation process of distance education (U=45480.000; p<.05; Effect size =0.11/low effect) a significant difference was identified. Generally, in distance education satisfaction level (Mean rank$_{Man}$=367.46, Meanrank$_{Woman}$=328.99) and in the sub-dimension of preparation process of distance education (Mean rank$_{Man}$=371.12, Mean rank$_{Woman}$ =327.12) men have higher means than women.

Effect of distance education on assignments and exams (χ^2=13.075, sd=3, p<.05), distance education satisfaction level (χ^2=11.533, sd=3, p<.05) and effect of COVID-19 on education (χ^2=11.482, sd=3, p<.05) show a significant difference in terms of parents' "state of education".

In the effects of distance education on assignments and exams, mean rank of primary education graduates (Meanrank$_{Primary}$ = 419.33) is higher than of university graduates (Meanrank$_{University}$ = 326.07). In distance education satisfaction level, mean rank of primary education graduates (Meanrank$_{Primary}$ = 422.16) is higher than mean rank of university graduates (Meanrank$_{University}$ = 330.55). Moreover, in the distance education satisfaction level; distance education preparation process satisfaction (χ^2=8.847, sd=3, p<.05), learning and teaching satisfaction (χ^2=9.280, sd=3, p<.05), teacher-students and parent interactions satisfaction (χ^2=13.284, sd=3, p<.05) have significant differences in terms of "state of education".

It is found out that within the significant differences about all sub-dimensions of distance education satisfaction level; mean rank of primary education graduates is higher than of university graduates. Findings for the effect of COVID-19 on education indicate that mean rank of primary education graduates (Meanrank$_{Primary}$=417.38) is higher than of secondary education graduates (Meanrank$_{Secondary}$=333.16), university graduates (Meanrank$_{University}$=339.80) and post graduates (Meanrank$_{Postgraduate}$=311.83).

The effect of distance education on assignments (U=45335.000; p>.05) and exams, and effect of COVID-19 on education (U=46567.500; p>.05) do not show significant differences in terms of "employment status". However, in distance education satisfaction level (U=43395.500; p<.05; Effect size=0.09/low effect) and the sub-dimension of distance education preparation process satisfaction (U=41629.000; p<.05; Effect size=0.12/low effect) significant difference was detected.

In distance education satisfaction level (Meanrank$_{Working}$=353.40, Meanrank$_{Not\ working}$= 315.22) and the sub-dimension of distance education preparation process satisfaction level (Meanrank$_{Working}$= 357.09, Meanrank$_{Notworking}$= 306.56); mean rank of the ones who are working is higher than the mean rank of the ones who are not working.

Independent variables of the research are; gender, employment status, state of education, age, effect of distance education on assignments and exams, and distance education satisfaction level. In this regard, ordinal logistic regression was employed in order to determine which independent variable has effected COVID-19 education. To be able to make comments on education, odds-ratio were found by taking exponentiated coefficients($\exp(\beta)$) (Çokluk, 2010). Table 3 presents ordinal logistic regression analysis findings of the research model.

Table 3.
Ordinal Logistic Regression Analysis Findings

Variables		β	Standard Error	z	Odds Ratio	p
Dependent Variables	0	-1.321	0.778			
	1	0.630	0.775			
	2	1.433	0.777			
	3	2.808	0.785			
	4	3.360	0.788			
Independent Variables	Gender	0.256	0.174	1.469	1.292	.142
	State of education	-0.334	0.116	-2.874	0.716	.004**
	Working status	-0.166	0.222	-0.747	0.847	.455
	Age	0.009	0.009	1.046	1.009	.295
	Effect of distance education on assignments and exams	1.178	0.066	17.723	3.247	p<.01**
	Distance education satisfaction level	-0.559	0.144	-3.888	0.572	p<.01**
Model evaluation						
-2 Log Likelihood		1435.489				p<.01**
Goodness of Fit						
Pearson χ^2		1218.594				.195
Deviation		1085564				.973
Cox and Snell R^2		.585				
Nagelkerke R^2		.609				
McFadden R^2		.273				

p**<.01, p*<.05

Chi-square test was employed to test the validity of linearity assumptions which is one of the important assumptions of Ordinal Logistic Regression Analysis. The result of the linearity assumption is (χ^2=31.806, p=.061) which means that the proportional odds assumption of the model is valid. There is a significant difference between the model set up with independent variables and the initial model set up without independent variables (χ^2=175.145, p=.000). This result proves that there is a relationship between the dependent variable and independent variables. When goodness of fit was tested, Pearson (χ^2= 1218.594, p= .195) and deviation (χ^2=1085564, p= .973) values were found. This proves that the model is valid. (Şenel and Alatlı, 2014). In addition, values of pseudo-R^2, were found as Cox and Snell= .585, Nagelkerke= .609 and McFadden= .273. In terms of Nagelkerke value, independent variables in the model explain the dependent variable by 60%.

When significance levels of the variables of this research were tested, it was seen that only; effect of distance education, distance education satisfaction level and education state of parents have significant effects on the COVID-19 education process. For ordinal logistic regression analysis findings to be interpreted, significance of coefficients was calculated by odds ratio (Garson, 2012). If the odds ratio is bigger than 1, there is an increase, and if the odds ratio is smaller than 1, there is a decrease in the dependent variable. (Field, 2009).

In terms of odds ratio, one unit increase within effect of distance education on assignments and exams will increase the effect of COVID-19 on education by 3.247 times. Similarly, in terms of odds ratio, one unit increase within educational level of parents will reduce the effect of COVID-19 on education by 0.716 unit. Similarly, one unit increase within distance education satisfaction level will reduce the effect of COVID-19 on education by 0.572. So, it can be concluded that when the effect of distance education on assignments and exams increases, it will increase the effect of COVID-19 on education; but when distance education satisfaction level increases, it will reduce the effect of COVID-19 on education; and when parents' education level increases, it will reduce the effect of COVID-19 on education.

The model is displayed as follows;

The effect of COVID-19 on education = 1.178 × The effect of distance education on assignments and exams- 0.559 × Distance education satisfaction level -0.334 × State of education

4. DISCUSSION

In this research the aim was to find out the effect of distance education on assignments and exams, distance education satisfaction level, and some factors (gender, empowment status, state of education and age) on COVID-19 education process; and the results indicate that parents of students evaluated the effect of distance education on assignments and exams, and effect of COVID-19 on education process as high; and they evaluated distance education satisfaction level as medium.

Considering these results, the reason why participants evaluated the effect of COVID-19 on assignments and exams, and the effect of COVID-19 on education as high is that educational activities and exams were not executed during the COVID-19 pandemic in traditional way. Parents served as teachers and at times when their knowledge was not sufficient, they studied as much as students. However, it is also striking that parents' distance education satisfaction is in medium level. And the reason for that is although many other countries closed their education institutions, Turkey, as the state policy, sustained this service through distance education and teachers supported this service by using some applications (EBA, ZOOM, Skype, WhatsApp, etc.). It is predicted that among the reasons why some parents were not satisfied with distance education and evaluated as medium, are frequent technical problems occurred and not being able to have sufficient opportunities to access distance education services. The findings of a research conducted by Güvercin et al. (2021) are useful in providing insight into teacher-parents' perceptions of problems encountered in distance education, such as managerial problems, social interaction, academic competence, technical skills, motivation, technical support, and internet access costs. In addition to students and teachers, the study highlighted the importance of supporting parents.

The results show that in terms of "gender", while parents have similar views with the effects of distance education on assignments and the effect of COVID-19 on education; their views differ with distance education satisfaction level. The reason why male parents' distance education satisfaction level is higher than of female parents' might be explained by the fact of staying away because most of them worked. That is, male parents' staying away from distance education practices may have prevented them from seeing the shortcomings. And this may have led male parents to have a more positive approach towards distance education. While researching the effects of distance education during pandemics, Demir and Demir (2021) found that parents complained about a lack of motivation for their child. Research shows that the amount of interest decreases when stay-at-home time is prolonged. According to the study, even though the study does not specify the gender of the parents, they acknowledged that they better understood the role of teachers and school during this process. There are two important aspects of this result; first it helps parents to understand their children's learning strengths and weaknesses and the second is it may contribute to the status of the teaching profession in the society.

In terms of "state of education", it is found out that parents' views differ about the effect of distance education on assignments and exams, distance education satisfaction level and effect of COVID-19 on education. For the effect of distance education on assignments and exams, distance education satisfaction level and effect of COVID-19 on education, in general, views of parents who are primary education graduates are higher than the parents who are secondary education graduates, university graduates and post graduates; and this might be related to the fact that primary school graduates do not have sufficient knowledge and qualification to carry out educational activities. For example, the probability that a parent who is a primary education graduate may not be able to help his/her child in high school might have caused him/her to create a more positive approach towards distance education. In other words, higher graduation status can increase expectations for distance education. Increasing expectations depending on the education level may create negative thoughts about the effect of distance education on assignments and exams, distance education satisfaction level and effect of COVID-19 on education.

In terms of "employment status" in the research, it is found that there is a significant difference in only distance education satisfaction level. Satisfaction level of working parents is higher than not-working parents. That working parents have other responsibilities due to working in a place may have affected the requirement for distance education. It is thought that this requirement increases the satisfaction level because working parents do not have enough time to deal with their children.

One of the most important results of the study is that the effect of COVID-19 on education is predicted by independent variables; parents' state of education, the effect of distance education on assignments and exams, and distance education satisfaction level. Regarding that, the results have been reached are; as the effect of distance education on homework and exams increases, the effect of COVID-19 on the education also increases; as the distance education satisfaction level increases, the effect of COVID-19 on education process decreases; and as the educational status of parents increases, the effect of COVID-19 on education decreases. It can be stated that parents who think distance education affected homework and exams negatively, think COVID-19 affected the education. When distance education satisfaction level increases, it reduces negative thoughts about effect of COVID-19 on education. Parents expressed that high education status did not affect COVID-19 education process. According to these implications, it can be suggested that distance education practices and works of the

government policies on teachers and education have been successful. In other saying, teachers reached students by various technological opportunities and this shaped the thoughts of parents on COVID-19 education process.

4.1. Limitations

That the research was conducted on only the population of parents and that the questionnaire was given online may be considered as limitations. This research can be re-conducted on larger and different samples as teachers and administrators and more detailed conclusions could be reached.

4.2. Suggestions

Depending on the ideas of parents of students who had to follow their kids' performances and be an active part of learning and teaching activities at times -as a way to help their kids to learn and succeed in this novel system (novel for all primary and secondary level students), and most of whom are without any preparation or any prior experience, because this way of distance education was preferred to prevent learning loss during the crisis of COVID-19, some conclusions and suggestions could be drawn.

This research highlights the need to increase parents' satisfaction of distance education practices, assignments and examinations in order not education to be interrupted because of COVID-19. In the lights of this study, it would be beneficial to bring suggestions from two different perspectives.

First of all, based on the assumption that the pandemic situation will continue for a while, making distance education systems ready and using them effectively in times of extreme cases can be suggested to countries. In order to build general consensus of the effectiveness of all forms of distance education (including online learning and Web-based instruction) (Abrami, et al., 2011), following steps need to be taken;

-In the long term, teachers, administrators and experts should collaborate to revise the available curriculum and course goals, if necessary make changes with curriculum and import new strategies, teaching methods, learning activities (individual, peer and group activities to create interaction and autonomy of students) and additional resources. In the following step, as stated in a report released by OECD (2020) "*A Framework to Guide an Education Response to COVID-19*", a website might be created to communicate with teachers, students and parents about these curriculum goals, strategies, activities and resources.

-New assessment methods and criteria should be defined to measure students' knowledge, skills and performances. New innovative technologies should be used in assessments, pedagogical teams should be employed to recognize and respond to the needs of students. To understand students' attitudes and experiences on e-assessment methods (Okada, Whitelock, Holmes & Edwards, 2019) will definitely improve the satisfaction level to because students will have an evidence on their achievement and teachers will have an idea on the intended learning outcomes.

-In order to support teachers' effective use of online sources and web-based systems, teachers should be given clear instructions and guidance, they should also be encouraged to improve and adapt materials for students' needs and contribute to the distance education materials archive.

-Because there has been a quick transition to distance education, students and parents may lack information on how to use the tools and software, so they should be given support to access and use them easily.

-Psychological counselling and guidance experts (there are at least one or two in each school in Turkey) should be assigned to organize activities 'with motivational strategies in the form of motivational communications that should serve to help distance education students to become or stay motivated, so that they will successfully complete their courses' (Visser, Plomp & Kuiper, 1999), if needed parents can be a part of these activities in lower grades because they support the learning of their children.

Secondly, based on the assumption that the rate of transmission and spread of the virus will decrease, schools will be opened in new normal conditions and face to face education will begin again; by making distance education systems always available, more opportunities for adults, women and disadvantaged groups who left schools should be ensured. A lot researches have been done on disadvantaged groups: living in rural areas (Yu & Wang, 2006), having socially disadvantaged background on both individual and family level (Johansson & Höjer, 2012), being socio-economically disadvantaged (Bozkurt Altan & Köroğlu, 2019) being severely disabled or chronically ill (Ommerborn & Schuemer, 2001; Catalano, 2014), being sexually abused (Daignault & Hebert, 2009) and having emotional neglect and abuse (Gülırmak & Orak, 2020).

Various forms of distance education are available in secondary and higher education levels for these disadvantaged groups in many countries. However, there are very few or no opportunities for students in compulsory education, especially in primary level. These students should be detected and must not be neglected. They ought to be given enough encouragement and chance to continue their compulsory education no matter what their conditions are. The practices in the time of COVID-19

must set an example on how to sustain distance education for these groups, and new plans and policies should be prepared to prevent them being detached from life, even when these pandemic process is over. These practices will also lead to a decrease in dropout rates in the long run. Similar to higher education, scholarships and counselling might be provided for these children and to compensate for academic failure caused by special reasons, revisions and make-ups might be provided in the systems of compulsory education as well. In this way, both disadvantaged individuals will be brought into the society and distance education will be used permanently and more effectively.

Research and Publication Ethics Statement

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Contribution Rates of Authors to the Article

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