Relationship between computer use related self-efficacy perceptions and academic success of conservatory students during distance education in the COVID-19 pandemic

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ABSTRACT

This research aims to determine the relationship between the computer use related self-efficacy perceptions and academic success of conservatory students in distance education during the COVID-19 pandemic. The sample group of the study consists of 130 students who received distance education at Zonguldak Bülent Ecevit University State Conservatory during the COVID-19 pandemic. The quantitative data of the study were obtained via the "Computer Self-Efficacy Perception Scale" developed by Aşkar and Umay, and the academic success scores were obtained through correspondence with the conservatory administration. The demographic characteristics of the participants including gender, branch, age, and class information in the sample group were collected through a form prepared by the researcher. SPSS 21.0 program was used in the analysis of the research data. The data was analysed using a t-test, ANOVA and correlation and regression analyses. According to the results of the research, there is a positive, significant, and moderate relationship between conservatory students' computer self-efficacy perceptions and their academic success scores in distance education. The current study revealed that conservatory students' computer self-efficacy perceptions are a predictor of the academic success scores in distance education and can explain 30.2% of the academic success score. Gender, branch, age, and class variables do not have a significant effect on academic success scores and computer self-efficacy perceptions.

Keywords: Music, music education, conservatory, computer self-efficacy perception, academic success.

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INTRODUCTION

Many global developments in the world are not only limited to the geography in which they occur but also affect the entire world. One of the developments that caused multidimensional problems in almost every field by affecting the whole world is the Covid-19 pandemic. The disease, named Covid-19, is an infectious disease caused by Coronavirus-2, leading to the severe acute respiratory syndrome. The first data on the disease began to come from Wuhan, China, in December 2019 (Yang et al., 2020). Coronavirus-2 (SARS-2, CoV-2) virus was identified on January 13, 2020, as a result of studies conducted on a series of patients with respiratory tract disorders such as shortness of breath, high fever, cough. On February 11, 2020, the name of the disease was determined by WHO as Covid-19 (Hasöksüz et al., 2020). After the infectious disease spread rapidly in China and then all over the world, Covid 19 disease was declared as a global epidemic, that is, a pandemic by the World Health Organization (WHO) on March 11, 2020.

With the rapid spread of the disease and increasing death rates, the devastating effects of the global epidemic have had their impact all over the world. States

have had to take various measures in every field to protect themselves from this destructive effect. The initial measures were to prevent people from physically gathering and to apply various restrictions to prevent transmission. Education is one of the areas most affected by these restrictions and measures. According to the data of WHO (2020) and UNESCO (2020), 191 countries have suspended the face-to-face activities of formal education institutions at the national and local level during the pandemic process and decided to switch to distance education. More than 1.5 million students have been affected by these restrictions. In this process, countries have implemented the distance education model and made use of various tools; such as television, radio, and computers. OECD reported that distance education methods had been used in almost all member and partner countries (Gouëdard et al., 2020).

Distance education is a structured, planned, and guided learning environment that takes place using various media tools; where the student and the instructor are separated in terms of space and time (Gunawardena and McIsaac, 2004; Rumble, 1986; Holmberg, 1986; Eastmond, 1998; Locatis and Weisburg, 1997). Distance education developed its sphere of influence with the spread of radio and television in the 1950s and 1960s. However, as Harasim (2000) stated, the main propulsive force in the spread of distance education has been computer and web technologies. Computers which are the most viable tools for the nature of distance education have played a central role in educational programs in the pandemic. Keegan (1988) states the main features of distance education as follows: It is an industrial form of education, it separates the student and the teacher, it requires the use of media to connect the student and the teacher, it emphasizes individuality in education and requires two-way communication. Sherry (1996) asserts that recent distance education research has focused on student needs, the media and teaching process, access issues, and the changing roles of teachers and students.

As Varol and Türel (2003) stated, although distance education has some advantages such as cost, time, and space flexibility, it has brought great difficulties in terms of practiced lessons, especially in art education. Since such a rapid change of the educational environment because of the pandemic is not a pre-planned process, a need for the creation of distance education-friendly materials on short notice, and all individuals of the educational environment had to make tremendous effort to adapt to distance education.

As Joosten and Cusatis (2020) point out, students need to have different qualifications in terms of technology knowledge to use distance education applications efficiently. Dimaggio et al. (2004) indicate that people's skills regarding communication technologies are different and this difference may affect the level of benefit they can obtain. The level of technological skill expected of students in distance education during the pandemic period is very different from face-to-face education. In addition, for students, these qualifications have become essentiality, not optional. However, students had not received any training for these technological skills previously, nor have they had the opportunity to prepare for this rapid transition period. Hargittai and Micheli (2019) also state that some students may not have the knowledge to use digital media effectively to manage distance education during the pandemic. One of the research areas that Sherry also proposes for distance education is related to technology-based challenges (1996). Zawacki-Richter (2009) also states that one of the research areas of distance education is student qualifications related to digital literacy. For this reason, it is important to determine the relationship between computer use related self-efficacy perceptions and academic success of conservatory students' during distance education, which almost makes use of computers compulsory. So, this research aims to reveal the relationship between computer self-efficacy perceptions and academic success of conservatory students' during distance education in the Covid-19 pandemic. Research on distance education shows that many variables affect the learning process (Altmann and Arambasich, 1982; Atan et al., 2002; Cooper, 1990; Parker, 1999). For this reason, this study aims to illuminate whether the data obtained differed significantly among the demographic variables within the sampling of the study.

METHODOLOGY

Research model

Studies aiming to reveal the level of relationship between two or more variables are in the relational screening model (Karasar, 2005:81). This study is a relational survey model as it investigates the relationship between conservatory students' perceptions of computer use related self-efficacy and their academic success during the pandemic process.

The universe and sample of the research

Conservatory students constitute the universe of the research. Since the time frame of the study is pandemic period, the sample group was chosen among Zonguldak Bülent Ecevit University State Conservatory students in the 2020-2021 academic year. A simple random sampling method was used in sample selection. Required permissions were obtained from the ethics committee and board of directors of Zonguldak Bülent Ecevit University, State Conservatory. The information of the participants in the sample group is given in Table 1.

Table 1. Frequency and percentage distributions regarding the demographic characteristics of the students.

Variables	Groups	f	%
Gender	Female	76	58.5
	Male	54	41.5
	Total	130	100
Age	18-19	8	6.2
	20-21	30	23.1
	22 and over	92	70.8
	Total	130	100
Branch	Opera	56	43.1
	Music	12	9.2
	Theatre	46	35.4
	Instrument Making	16	12.3
	Total	130	100
Grade		28	21.5
	1st	22	16.9
	2nd	26	20.0
	3rd	36	27.7
	4th	18	13.8
	Total	130	100

Data collection

Data were collected from three sources within the scope of the research. First, a form including gender, branch, age, and grade information was prepared by the researchers to determine the demographic characteristics of the participants in the sample group. The demographic information of the research was collected by this form.

Secondly, the participants in the sample group were asked to fill in the "Computer Self-Efficacy Scale" administered online. "Computer Self-Efficacy Scale" was developed by Aşkar and Umay on university students (2001). The scale consists of 18 items and is a 5-point Likert type. Aşkar and Umay calculated the Cronbach α internal consistency coefficient of the scale as .71. Items in the scale are scored as "Always" (5), "Most of the time" (4), "Sometimes" (3), "Rarely" (2), "Never" (1). 7 items of the scale are scored in reverse. A control factor analysis was executed on the scale by Deryakulu (2007) and it was stated that the scale can be applied as a single factor. At the beginning of the survey, participants have presented information about the purpose of the study and that the information obtained will not be shared with anyone.

Thirdly, the 2020-2021 academic year success scores of the participants in the sample group were required in the scope of the research. To reach these scores, the necessary correspondence was made with the Zonguldak Bülent Ecevit University State Conservatory Directorate and the academic success scores of the students during the pandemic period were obtained.

Research application

Permission was obtained from the Human Research Ethics Committee of Zonguldak Bülent Ecevit University with a letter numbered 40457 and dated 18.05.2021 to conduct the study. Information Form and Computer Self-Efficacy Scale were transferred to the computer and uploaded to https://docs.google.com/forms/d/1R5rLa9 Ketal0TTKVyogippgCqzVjCDyYeWlOuF2Ge4/edit. The form and the link containing the scale were sent to all participants in the sample group via SMS and e-mail. General information about the research and a written consent form were included at the beginning of the scale. Information forms and surveys were collected in April, May and June 2021.

Statistical analysis

SPSS 21.0 program was used in the analysis of research data (SPSS Inc., Chicago, IL, USA). Descriptive statistics of the research data were given as frequency distributions, means, and standard deviation. The t-test was used to compare the means of two independent groups, and a one-way analysis of variance was used to

compare the means of more than two groups. Analysis results were evaluated at a 95% confidence interval.

Kolmogorov-Smirnov and Shapiro Wilk tests were analyzed to determine the normality distribution of the scale and it was seen that the data met the normality assumption (Table 2).

As shown in Table 3, to accept that the data shows a normal distribution, the value obtained by dividing the skewness and kurtosis coefficients by the standard error must remain between -1.96 and +1.96 (Rees, 1987; Argyrous, 1997; Sokal and Rohlf, 1981). The skewness value of the scale for these coefficients was -1.14 and the kurtosis value was -0.88. In the light of the distribution analyses of the scale, the data show a normal distribution. Therefore parametric tests were used in the analysis of the data. The Cronbach Alpha (α) coefficient of the scale was found .91. This finding suggests that the research results are reliable.

Table 2. Test of normality.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	p	Statistic	df	p
Total	.104	130	.078	.973	130	.173

Table 3. Test of skewness and kurtosis.

	Statistic	Std. error
Skewness	-.339	.297
Kurtosis	-.519	.586

RESULTS

In this section, the findings related to the purpose of the research are given. The relationship between students' academic success in distance education during the Covid-19 pandemic and their computer use related self-efficacy perceptions are presented in Table 4.

In Table 4, it is seen that there is a significant linear relationship between conservatory students' computer self-efficacy perceptions and their academic success in the distance learning process (p = .000). When the correlation values between the dependent and independent variables are examined, it is considered that the values are in the range of 0.50-0.70, therefore the correlational relationship is at a moderate level (Hinkle et al., 2003; Mukaka, 2012; Overholser and Sowinski, 2008).

A simple linear regression analysis was performed on dependent and independent variables to determine the relationship between computer self-efficacy perceptions and academic success of conservatory students' during distance education. The results of the simple linear regression analysis are presented in Table 5.

When the bivariate and partial correlations between the dependent and independent variables are examined in the light of the data in Table 5; there is a positive, significant, and moderate relationship between computer self-efficacy perceptions and academic success in the distance education process (r = +.55). In addition, it is seen that the results of the t-test and F test are also significant. According to the results of the regression analysis, the computer self-efficacy perceptions of the conservatory students have a significant, positive, and moderate effect on their academic success in distance education.

It was observed that conservatory students' computer self-efficacy perceptions could explain 30.2% of their academic success in distance education (R^2 = .302). Therefore, it can be said that conservatory students' computer self-efficacy perceptions are a significant predictor of their academic success in distance education.

An independent sample t-test was administered to identify the effect of gender variables. Table 6 presents the effect of gender variables on computer self-efficacy perceptions and academic success.

According to the t-test results given in Table 6, computer self-efficacy perceptions and academic success scores of conservatory students' in distance education do not show a significant difference in terms of gender variable.

One-way analysis of variance (ANOVA) was used to determine whether there was a statistically significant difference between the means of the groups in terms of grade level. Table 7 presents the effect of grade level variables on computer self-efficacy perceptions and academic success.

According to the variance analysis results given in Table 7, computer self-efficacy perceptions and academic success scores of conservatory students' in distance education do not show a significant difference in terms of grade variable.

One-way analysis of variance (ANOVA) was used to determine whether there was a statistically significant difference between the means of the groups in terms of age. Table 8 presents the effect of age variable on the computer self-efficacy perceptions and academic success.

According to the variance analysis results given in Table 8, computer self-efficacy perceptions and

Table 4. P-value and correlation coefficient between computer self-efficacy perceptions and academic success in distance education.

	Academic success
Computer self-efficacy perceptions	.000
	.550**

*p < 0.05, **p < 0.01.

Table 5. Regression analysis results on the effect of computer self-efficacy perceptions on academic success.

	β	SH	B	t	p	Bivariate r	Partial r
Constant	1.978	.204		9.698	.000		
Computer self-efficacy perceptions*	.318	.061	.550	5.221	.000	.55	.55

*Academic Success (Dependent Variable) Constant
R=.550; R^2=.302; F=27.261; p=.000; D.W. 2.023
*Tollerance 1 V.I.F. 1; Condition Index 9.286.

Table 6. Computer self-efficacy perceptions and academic success of conservatory students in the context of gender variable.

	Gender	n	x̄	Std. Deviation	t	p
Computer self-efficacy perceptions	Female	76	3.1959	.72202	-.954	.986
	Male	54	3.3683	.71232		
Academic success	Female	76	3.0889	.40736	1.643	.745
	Male	54	2.9193	.41454		

Table 7. Computer self-efficacy perceptions and academic success of conservatory students' in the context of grade variable.

		Sum of squares	df	Mean square	f	p
Computer self-efficacy perceptions	Between Groups	.520	2	.130		
	Within Groups	32.430	128	.540	.241	.914
	Total	32.950	130			
Academic success	Between Groups	1.394	2	.349		
	Within Groups	9.668	128	.161	2.163	.084
	Total	11.062	130			

Table 8. Computer self-efficacy perceptions and academic success of conservatory students' in the context of age variable.

		Sum of squares	df	Mean square	f	p
Computer self-efficacy perceptions	Between Groups	.833	2	.416		
	Within Groups	31.071	128	.518	.804	.452
	Total	31.904	130			
Academic success	Between Groups	.739	2	.370		
	Within Groups	10.198	128	.170	2.174	.123
	Total	10.937	130			

academic success scores of conservatory students' in distance education do not show a significant difference in terms of age variable.

One-way analysis of variance (ANOVA) was used to determine whether there was a statistically significant difference between the means of the groups in terms of the branch. Table 9 presents the effect of the branch variable on the computer self-efficacy perceptions and academic success.

According to the variance analysis results given in Table 9, computer self-efficacy perceptions and academic success scores of conservatory students' in distance education do not show a significant difference in terms of branch variable.

Table 9. Computer self-efficacy perceptions and academic success of conservatory students' in the context of branch variable.

		Sum of squares	df	Mean square	f	p
Computer self-efficacy perceptions	Between Groups	2.820	2	.940		
	Within Groups	30.130	128	.494	1.903	.139
	Total	32.950	130			
Academic success	Between Groups	1.085	2	.362		
	Within Groups	9.977	128	.164	2.212	.096
	Total	11.062	130			

DISCUSSION AND CONCLUSION

According to the results of the research, variables such as gender, age, class, and branch do not have any significant effect on the academic success scores of conservatory students and their computer self-efficacy perceptions. These variables do not have a significant effect on the data obtained within the scope of the research.

It has been observed that there is a significant relationship between the computer self-efficacy perceptions of conservatory students and their academic success levels in distance education. According to the results of the research, there is a moderately positive and significant relationship between the computer self-efficacy perceptions of conservatory students and their academic success levels in distance education. Regression analysis results show that conservatory students' computer self-efficacy perceptions are a predictor of their academic success scores in the distance education process and can explain 30.2% of their academic success score. According to this result, as the computer self-efficacy perceptions of conservatory students increase their academic success levels increases in distance education, or on the contrary, as the computer self-efficacy perceptions of conservatory students decrease, their academic success levels decrease.

The sudden emergence of distance education as a necessity during the Covid-19 pandemic has caused conservatory students to start the distance education process without being adequately prepared. In this process, although distance education applications are widely carried out through computers, the qualification of students in using computers has been widely ignored. According to the results of the research, the students'

self-efficacy perceptions about the computer affected their academic success, and the students who thought that they were sufficient in computer use were more successful academically. In other words, although there is no requirement or prerequisite to use a computer in acquiring the course's qualifications, the academic success levels of students who consider themselves inadequate in using computers was lower compared to other students. Considering that students did not choose these educational conditions with their own will; these conditions have emerged as a result of the pandemic, it is possible to say that there is a situation of inequity among students in terms of computer-based education.

Equality in education is equality in opportunities to increase their qualifications so that all individuals can compete freely (Ünal and Özsoy, 1998). It is understood that the principle of equal opportunity in education, which means equal access to or benefit from educational resources, has been damaged during the pandemic period. Students with low self-efficacy perception towards computers are at a disadvantage in terms of academic success.

Conservatory education, which is a special dimension of art education, includes many pedagogical difficulties even in face-to-face education. The distance education method adds new dimensions to these pedagogical challenges. The computer self-efficacy perception is one of the pedagogical challenges that arise with distance education. In an education system designed with the principles of distance education, the competencies of the students for all information and communication technologies to be used in the educational environment, especially the computer, must be taken into consideration. To facilitate the adaptation to distance education, students with lower proficiency in the media tools should be provided with supportive information and

communication technologies training prior to the distance education period itself.

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