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Computer Self-Efficacy Perceptions of Music Teacher Candidates and Their Attitudes towards Digital Technology

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Abstract: The aim of this study is to investigate the attitudes of music teacher candidates on computer self-efficacy perceptions and digital technology according to different variables. In this research, correlational survey model is used as a general survey model and also during data collection process of the research, criterion sampling is used as purposive sampling. The focus group of the research consists of 102 students studying music education at Ondokuz Mayis University in the 2018-2019 academic year. Computer Self-Efficacy Perception Scale and Attitude Scale towards Digital Technology Scale were used as data collection tools for the study. According to the results of the study, it was found that there was a significant relationship between the levels of computer self-efficacy perception and the attitudes towards digital technology of the music teacher candidates who participated in the research. The self-efficacy perceptions of the students significantly differed according to their gender, having a personal computer and the time they first used the computer for educational purpose. Besides, their attitudes towards digital technology also significantly differed according to their gender, class level and computer ownership.

Keywords: *Computer self-efficacy perception, attitudes towards digital technology, music teacher candidates.*

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Introduction

Rapid developments in the field of technology have brought about the necessity of the cooperation between education and technology and the integration of technology into education. As a result of these developments, expectations for individuals who grew up in the 21st century have changed. It was expected that today individuals know how to access information and use technology effectively to reach that information (P21, 2009; EARGED, 2011). Thanks to technological development, the dissemination of information, infrastructure of communication to wide geographical areas and accessing data and information through mobile technologies, communication become independent of time and place allowing individuals, institutions and societies to carry out their communication via computer networks. In this context, introducing computers and internet to the educational environment, computer-aided applications, interactive training and teachers' ability to use the technological tools effectively have become a highly important issue (Ozden, Cagiltay & Cagiltay, 2004).

During the 21st century, existing technological tools are individualized by minimizing and projects that enable to give personal technological tools to each student have started by leaving the idea of creating laboratories behind. The main discourse in these projects was to reach a better education process, to solve the problems that could not be solved in education until now, to improve teaching through improving technical conditions (Cuban, 2001). This process, which was started with the use of computers in education, has been accelerating with introducing new technologies in educational environments everyday and shaping students' attitudes, concerns and self-efficacy perceptions towards information technologies.

Self-efficacy, which was emerged as an important concept in Bandura's (1986) social learning theory, is known to increase the ability of an individual to cope with and challenge the difficulties that an individual may face while performing a task, and as a result is observed to positively affect his/her motivation and success. According to Bandura (1997), success does not depend solely on the skills necessary to do a job; but it also requires effective use of these

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skills. Bandura (1997) stresses that self-efficacy is the belief that one can do something regardless of the idea that whether he or she can manage to do it or not.

In many studies, teachers with high self-efficacy perception have been found to be more willing to teach and more successful in implementing the curriculum (Browers & Tomic, 2000; Friedman & Kass, 2001; Tschannen, Moren & Woolfolk, 2001). These results reveal the importance of computer self-efficacy perception for prospective teachers who will use the computer as an indispensable tool in their professional lives. Computer self-efficacy perception affects the individual's expectations from computer use. Since the individual with a low computer self-efficacy perception will not find himself/ herself competent enough to use a computer, he/she will be less likely to use computers in the long term. On the other hand, a high level of computer self-efficacy reduces computer-related concerns while increasing the performance of employees and their frequency of using new technologies (Khorrami-Arani, 2001).

There are many factors that affect teachers' use of computers in their profession. These factors include whether teachers receive an adequate training on this subject and whether they have financial facility, enough self-confidence and positive attitudes towards computers (Ipek & Acuner, 2011). Investments in technology all over the world have made computers and other digital technologies a part of everyday life. These innovations have begun to be used in all levels of education and the computer has been the indispensable technological tool of the lessons. However, it can be assumed that teachers' attitudes towards the use of computers and digital technologies and their sense of being sufficient about this issue continue to have an impact on the use of computers and digital technologies in education. At this point, as stated by Usta and Korkmaz (2010), having teacher candidates gain the skills of using digital technology can be considered as an important variable affecting the quality of the education system. Moreover, in order to educate individuals who can use digital technology, teachers should also have a positive attitude towards using digital technology appropriately (Cetin, Caliskan & Menzi, 2012). Teo, Chai, Hung and Lee (2008) stated that teachers were affected by many reasons such as self-efficacy belief, perceived ease of use, usefulness, pedagogical beliefs, and more importantly attitudes towards digital technology. Defining students' attitudes towards digital technology will have an impact on the design and organization of teaching environments. In many studies on information systems, it was found that one of the most important factors affecting the successful use of information systems in any institution was individuals' attitudes toward it (Gokhale, Brauchle & Machina, 2013). In this context, a teacher who has a positive attitude towards digital technology was expected to be more open and willing to develop himself/herself in using it and he/she could use the technology much more effectively in his/her classroom (Gibbone, Rukavina & Silverman, 2010).

In the studies on self-efficacy perception and attitude in the field of computer and educational technologies, it was seen that gender, computer experience and the lessons learned or courses were determinants of self-efficacy perception and attitudes of individuals (Ipek & Acuner, 2011). In the study conducted by Busch (1995), it was found that the self-efficacy perception of basic computer skills did not change according to gender, but the self-efficacy perception of men in advanced computer skills was higher than women. Watson (1997) examined the attitudes of candidate teachers about computer use in terms of gender and age variables, and observed that they had low self-efficacy in using computers and did not have positive attitudes towards information technologies. Albirini (2006) investigated the attitudes of teachers towards information and communication technologies and stated that teachers who have high computer use skills have a more positive attitude towards information and communication technologies which in return lead an increase of utilization of technology within the classroom. Usta and Korkmaz (2010) found that as candidate teachers' competencies towards technology increase, they develop more positive attitudes towards technology use in educational environment. Cuhadar and Yucel (2010) found that candidate teachers consider themselves sufficient to use educational technologies in courses. When the conducted studies about the issue examined in long term from past to present day, it can be said that the self-efficacy perceptions and attitudes of both teachers and candidate teachers towards computer and digital technologies have improved in a positive way.

The aim of this research was to investigate the attitudes of music teacher candidates towards computer technology and their perception of digital technology. In this context, the following research questions were stated:

1. Was there a meaningful relationship between music teacher candidates' perceptions of computer self-efficacy and their attitudes towards digital technology?

2) What was the level of computer self-efficacy of music teacher candidates?

3) Were the music teacher candidates' self-efficacy perceptions significantly different according to their gender, class level, computer ownership, and the time they first met with the computer in their educational life?

4) What was the level of attitudes of music teacher candidates towards digital technology?

5) Were the attitudes of music teacher candidates towards digital technology significantly different according to gender, class level, computer ownership, and the time they first met with the computer in their educational life?

Methodology

Research Design

In this research, correlational survey model is used as a general survey model. Correlational survey model is used during this research, since the relationship between dependent and independent variables that affect music teacher trainees' computer self-efficacy perceptions and their attitude towards digital technology is invetigated. Correlational survey models aim to define past or present cases as they are. In this model, research subjects or objects are studied under their own circumstances (Karasar, 2009).

Sample Participants

During data collection process of this research, criterion sampling is used as purposive sampling. Purposive sampling enables studying the cases that are thought to have a rich information source deeply. In researches done with criterion sampling, observation units can be consisted of people with certain qualifications, situations or cases. While determining music teacher trainees who will be involved in this research, taking the course of Instructional Technology and Material Development is set as a key criterion. The content of the course, given by the researcher, is carried out in the framework of technology assisted music teaching practices. Concordantly, the effect of the course on teacher trainees' computer self-efficacy perceptions and their attitude to digital technology is aimed to be defined. In accordance with this criterion, opinion of 102 music teaching trainees' who continue their education in Ondokuz Mayis University Music Department Undergraduate Program as a first, second, third and fourth grade students in 2018-2019 educational term is taken.

Table 1. Frequency and percentage distributions of music teacher candidates according to demographic characteristics

Variable	Group	N	%
Gender	Female	64	62.7
	Male	38	37.3
Class	First	27	26.5
	Second	23	22.5
	Third	28	27.5
	Fourth	24	23.5
PC ownership	Yes	72	70.6
	No	30	29.4
First time met with PC in education	Elementary	71	69.6
	Secondary	27	26.5
	University	4	3.9

62.7% of the students were female and 26.5% were 1st grade, 22.5% were 2nd grade, 27.5% were 3rd grade and 23.5% were 4th grade. 70.6% of the students stated that they have a personal computer, 69.6% of them say that they meet with computer in primary education, 26.5% with secondary education and the remaining 3.9% in university education.

The Data Collection Tool

In this study, Computer Self-Efficacy Perception Scale developed by Isiksal and Askar (2010) and the Attitude Scale for Digital Technology developed by Cabi (2016) were used.

The self-efficacy perception scale consists of 10 items and 2 factors. The items of the scale, which were arranged in 5-point Likert type, were evaluated between Strongly disagree (1) and Strongly agree (5) choices by the music teacher candidates. The high score of the scale and the subscales indicate that the individual's perception of competence related to computer use was high/positive and the low score was low/negative. The reliability coefficient (Cronbach's Alpha) of this scale was calculated as .89.

The attitude scale for digital technology consists of 39 items and 8 factors. The items of the scale, which were arranged in 5-point Likert type, were evaluated between Storngly disagree (1) and Strongly agree (5) choices by the music teacher candidates. The high score of the scale and its subscales indicate that the individual's attitude towards digital technology was positive and the low score was negative. The reliability scale of the attitude scale for digital technology (Cronbach's Alpha) for this research is .94.

Based on the assumption that the intervals between the options in the measurement tool were equal, the interval between the two intervals was calculated to be 0.80 (4/5 = 0.80). The score ranges and options for the items of the scales were as follows:

Score Range	Option	Efficacy Level
1.00-1.80	Strongly disagree	Very low
1.81-2.60	Disagree	Low
2.61-3.40	Not sure	Moderate
3.41-4.20	Agree	High
4.21-5.00	Strongly agree	Very high

Analyzing of Data

Before the analysis of the data obtained from the students for the study, it was checked whether the data were within the limits specified in the questionnaire, whether they contained errors and serious deficiencies. Then, with the *Kolmogorov-Smirnov* (K-S) test, normality distributions of the scores were examined. In order for data group to show the normality distributions, it should be p>.05 (Pallant, 2005). After *Kolmogorov – Smirnov* (K-S) test, it has been found that conditions like students' gender and if they have a personal computer or not showed normality on scale scores distribution (p>0,005). However, class and education status variables did not show normality distribution on scale scores. Following the *Kolmogorov-Smirnov* test for the distribution of normality, the following analyses were performed depending on the purpose of the study.

1. In order to summarize the demographics characteristics of the students, the frequency (n) and percentage (%) distributions of the variables were calculated.

2. In order to investigate students' levels of computer self-efficacy and attitudes towards digital technology, the mean (*M*) and standard deviation (SD) values of the scores related to the overall and sub-dimensions of the related scales were calculated.

3. In order to investigate whether the students' levels of computer self-efficacy and attitudes towards digital technology significantly differ according to their gender and personal computer status, the independent samples t-test was conducted.

4. In order to investigate whether students' levels of computer self-efficacy and attitudes towards digital technology significantly differ according to time of encounter with computer in classroom and educational life, Kruskal-Wallis test conducted and as a post hoc-test Mann-Whitney U test was used.

The significance level was accepted as .05 in all statistical calculations. When the significance value was found to be less than .05 (p<.05), the difference/relationship between the groups of the independent variables were considered significant.

Findings

This section discusses music teacher candidates' computer self-efficacy perceptions and attitudes towards digital technology, data analysis, research findings and interpretations.

Findings and Interpretation on the First Research Question

The findings of the relationship between the level of computer self-efficacy and the attitudes towards digital technology of music teacher candidates.

Table 2. Correlation coefficients between the students' self-efficacy perceptions and their attitudes towards digital technology

Size / Scale		General computer knowledge	Special computer knowledge	Computer self-efficacy
Proficiency	*r*	.508***	.592***	.600***
	p	.000	.000	.000
Social networks	*r*	.104	.004	.055
	p	.297	.966	.583
Using technology in classroom settings	*r*	.197*	.245*	.242*
	p	.047	.013	.014
Interest in technology	*r*	.366***	.351***	.389***
	p	.000	.000	.000
Technology for me	*r*	.339***	.365***	.384***
	p	.000	.000	.000
Negative aspects	*r*	-.360***	-.254**	-.329**
	p	.000	.010	.001
Leisure use	r	.159	.229*	.213*
	p	.110	.021	.031
Conscious use	*r*	.400***	.291**	.371***
	p	.000	.003	.000
Attitudes towards digital technology	*r*	.439***	.416***	.463***
	p	.000	.000	.000

**p<.05, **p<.01, ***p<.001*

In Table 2, the coefficients of Pearson product-moment correlation were examined to determine the relationship between teachers' computer self-efficacy levels and attitudes towards digital technology.

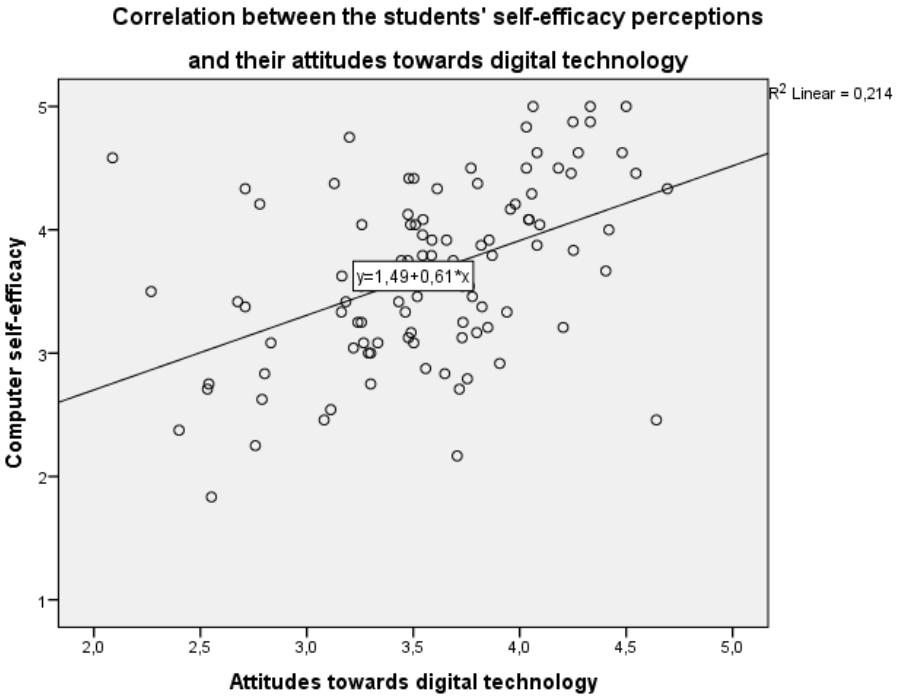

Figure 1. The relationship between students' scores of the attitude towards digital technology and computer self-efficacy

The correlation coefficients for the relationships between the two scales were interpreted according to the following criteria (Jawlik, 2016):

r	**Correlation Level**
0.00-0.10	No relation
0.10-0.30	Weak
0.30-0.50	Moderate
0.50-0.70	Strong
0.70-1.00	Very strong

There was a positive, moderate and significant relationship between computer self-efficacy perception and digital technology attitudes (r=.463; p <.001). Students have positive attitudes towards digital technology as their level of computer self-efficacy increases or vice versa. As computer self-efficacy levels decrease, their positive attitudes towards digital technology also decrease.

Findings and Interpretation on the Second Research Question

Findings related to the levels of computer self-efficacy of music teacher candidates:

Table 3. Descriptive statistics about students' computer self-efficacy levels

Score	**M**	**SD**	**Level of Efficacy**
General computer knowledge	3.99	.72	High
Special computer knowledge	3.32	.83	Moderate
Computer self-efficacy	**3.66**	**.71**	**High**

While the students' perceptions of general computer knowledge levels were high, the competence perceptions of special computer skills remained moderate (Table 3). General computer self-efficacy perception levels of the students were found to be high too. When the results were evaluated together, it can be said that the music teacher candidates' level of self-efficacy perceptions about computer was high but not very high.

Findings and Interpretation on the Third Research Question

Findings of whether music teacher candidates differ on computer self-efficacy perception according to their gender, class level, computer ownership, and the time they first met with their computer in their education life:

Table 4. t-test for the comparison of computer self-efficacy levels of the students according to gender variable

Score	Gender	Descriptive			t-test		
		n	M	SD	t	df	p
General computer knowledge	Female	64	3.96	.70	.63	100	.532
	Male	38	4.05	.75			
Special computer knowledge	Female	64	3.14	.75	2.89	100	.005**
	Male	38	3.62	.89			
Computer self-efficacy	**Female**	**64**	**3.50**	**.66**	**2.07**	**100**	**.047***
	Male	**38**	**3.88**	**.76**			

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

While there was no significant difference between self-efficacy perception levels of general computer knowledge of female and male music teacher candidates, there was a significant difference between self-efficacy perceptions of special computer skills and this difference was found to be in favor of male students. When the average scores of the groups were examined, it was seen that male students have more self-efficacy than female students in special computer skills. It was found that there was a significant difference between (general) levels of computer self-efficacy in male and female students, and this difference was in favor of male students again. Male students' self-efficacy perception levels were higher/more positive than female students.

Tablo 5. Kruskal-Wallis test for the comparison of computer self-efficacy levels of the students according to class

Score	Class	Descriptive		Kruskal-Wallis			Post-hoc (M-W)
		n	Mean Rank	X^2	df	p	
General computer knowledge	1. Grade	27	49.85	2.99	3	.394	-
	2. Grade	23	60.74				
	3. Grade	28	48.80				
	4. Grade	24	47.65				
Special computer knowledge	1. Grade	27	46.91	3.30	3	.347	-
	2. Grade	23	59.78				
	3. Grade	28	53.45				
	4. Grade	24	46.46				
Computer self-efficacy	**1.Grade**	**27**	**47.70**	**3.62**	**3**	**.306**	**-**
	2.Grade	**23**	**60.96**				
	3.Grade	**28**	**52.05**				
	4.Grade	**24**	**46.06**				

**p<.05*

There was no significant difference between the levels of computer self-efficacy perception of the students according to the class they were studying (Table 5). In other words, general knowledge, computer skills, and general computer self-efficacy levels of students studying in different classes were similar.

Table 6. t-test for the comparison of computer self-efficacy levels of the students according to own a computer

Score	PC ownership	Descriptive			t-test		
		n	M	SD	t	df	p
General computer knowledge	Yes	72	4.13	.66	3.29	100	.001**
	No	30	3.64	.75			
Special computer knowledge	Yes	72	3.47	.82	2.81	100	.006**
	No	30	2.98	.75			
Computer self-efficacy	**Yes**	**72**	**3.80**	**.68**	**3.32**	**100**	**.001****
	No	**30**	**3.31**	**.67**			

***p<.01*

It was found that there were significant differences between students' general knowledge level about computers and special computer skill levels (Table 6) according to having a personal computer. When the average scores of the groups

were examined, it was seen that general computer knowledge level of students and special computer skills levels of students who have personal computers at home were higher than students who do not have a computer at home. A significant difference was also found between the levels of computer self-efficacy (general) perception of the students according to having a computer at home. The levels of computer (general) self-efficacy perception of the students with personal computers at home were higher.

Table 7. Kruskal-Wallis test for the comparison of computer self-efficacy levels of the students according to their first acquaintance with the computer in their educational life

Score	First time met with a PC	Descriptive		Kruskal-Wallis			Post-hoc (M-W)
		n	Mean R.	X^2	df	p	
General computer knowledge	Elementary	71	56.68	7.58	2	.023*	1 with 2, 3
	Secondary	27	37.85				
	University	4	34.38				
Special computer knowledge	Elementary	71	59.82	6.12	2	.041*	1 with 2, 3
	Secondary	27	45.13				
	University	4	43.00				
Computer self-efficacy	Elementary	**71**	**59.66**	**6.65**	**2**	**.038***	**1 with 2, 3**
	Secondary	**27**	**40.28**				
	University	**4**	**37.88**				

**p<.05*

It was found that students' general knowledge, special knowledge and computer self-efficacy levels related to computer were significantly different depending on the first time they met with computer in their educational lives (Table 7). According to the post-hoc Mann-Whitney test conducted to investigate which groups have different levels of computer-related knowledge (scores) among students; The level of general knowledge, special knowledge and computer self-efficacy related to computer were higher for students who first time met with computers in their elementay school years than the students who met with computer in their secondary school years or at university.

Findings and Interpretation on the Fourth Research Question

Findings about the attitudes of music teacher candidates towards digital technology:

Table 8. Descriptive statistics about music teacher candidates' towards digital technology

Score	M	SD	Attitude Level
Proficiency	3.40	.80	Moderate
Social networks	3.65	.94	Positive/high
Using technology in class settings	3.63	.73	Positive/high
Interest	3.65	.88	Positive/high
Technology for me	4.09	.66	Positive/high
Negative aspects	2.89	.77	Moderate
Leisure use	2.89	.77	Moderate
Conscious use	4.12	.82	Positive/high
Attitudes toward digital technology	**3.57**	**.55**	**Positive/high**

While the average attitude scores of the music teacher candidates towards the negative aspects of digital technology, leisure use and proficiency were at moderate level, the attitude scores related to all other dimensions were high/positive (Table 8). The highest average attitude score of the students was intended for the conscious use of digital technology. Students' attitudes towards general digital technology were also found to be positive/high. When the results are evaluated together, it can be said that the attitudes of the music teacher candidates participating in the research towards digital technology were generally positive/high but not very high.

Findings and Interpretation on the Fifth Research Question

Findings of how music teacher candidates' attitudes towards digital technology differ according to gender, class level, computer ownership and the time they first meet with the computer in their education life were presented below.

Table 9. t-test for the comparison of attitudes towards digital technology of the students according to their gender

Score	Gender	Descriptive			t-test		
		n	M	SD	t	df	p
Proficiency	Female	64	3.22	.76	3.07	100	.003**
	Male	38	3.70	.78			
Social networks	Female	64	3.73	.93	1.10	100	.276
	Male	38	3.52	.96			
Using technology in class settings	Female	64	3.47	.72	3.01	100	.003**
	Male	38	3.90	.67			
Interest	Female	64	3.56	.89	1.29	100	.199
	Male	38	3.79	.86			
Technology for me	Female	64	3.97	.54	2.37	100	.020*
	Male	38	4.28	.80			
Negative aspects	Female	64	2.86	.68	.55	100	.585
	Male	38	2.78	.84			
Leisure use	Female	64	2.73	.67	2.88	100	.005**
	Male	38	3.16	.86			
Conscious use	Female	64	4.12	.79	.02	100	.986
	Male	38	4.12	.88			
Attitudes toward digital technology	**Female**	**64**	**3.49**	**.52**	**2.02**	**100**	**.046***
	Male	**38**	**3.71**	**.57**			

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

It was found that the female and male music teacher candidates' attitudes towards digital technology were significantly different for the sub scales of *proficiency*, *using technology in class settings*, *technology for me*, *lesiure use* and general attitudes toward digital technology (Table 9). It was found that there is a significant difference between male and female music teacher candidates' attitudes towards digital technology. When the mean scores of the groups (female vs male) were examined, it was seen that the male students' attitudes towards digital technology were higher than the female students in general and for four sub scales (*proficiency*, *using technology in class settings*, *technology for me*, *lesiure use*).

Table 10. Kruskal-Wallis test for the comparison of attitudes towards digital technology of the students according to their class level

Score	Class	Descriptives		Kruskal-Wallis			
		n	Mean Rank	X^2	df	p	Post-hoc (M-W)
Proficiency	1. Grade	27	42.57	5.97	3	.113	-
	2. Grade	23	61.28				
	3. Grade	28	48.05				
	4. Grade	24	56.19				
Social networks	1. Grade	27	61.43	11.53	3	.009**	1, 2 with 4
	2. Grade	23	59.42				
	3. Grade	28	51.20				
	4. Grade	24	36.33				
Using technology in class settings	1. Grade	27	44.61	3.51	3	.319	-
	2. Grade	23	59.67				
	3. Grade	28	49.57				
	4. Grade	24	53.67				
Interest	1. Grade	27	47.54	3.49	3	.322	-
	2. Grade	23	54.41				
	3. Grade	28	46.00				
	4. Grade	24	59.58				
Technology for me	1. Grade	27	66.20	8.65	3	.034*	1 with 3, 4
	2. Grade	23	52.65				
	3. Grade	28	45.37				
	4. Grade	24	44.36				
Negative aspects	1. Grade	27	54.26	0.51	3	.917	-
	2. Grade	23	50.09				
	3. Grade	28	49.09				
	4. Grade	24	52.56				

Table 10. Continued

Score	Class	Descriptives		Kruskal-Wallis			
		n	Mean Rank	X^2	df	p	Post-hoc (M-W)
Leisure use	1. Grade	27	43.48	3.31	3	.346	-
	2. Grade	23	54.30				
	3. Grade	28	51.54				
	4. Grade	24	57.79				
Conscious use	1. Grade	27	50.04	1.99	3	.574	-
	2. Grade	23	51.57				
	3. Grade	28	47.11				
	4. Grade	24	58.21				
Attitudes toward digital technology	**1.Grade**	**27**	**60.52**	**7.89**	**3**	**.048***	1, 2 with 4
	2.Grade	**23**	**58.42**				
	3.Grade	**28**	**49.57**				
	4.Grade	**24**	**39.67**				

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

Music teacher candidate students' attitudes towards digital technology cause a significant difference generally and in terms of two sub-dimensions of the scale (social networks and technology for me) depending on their grades (Table 10).

It was found that the students' attitudes towards *social networks* showed a significant difference depending on the classes they studied. According to the post-hoc Mann-Whitney test; the attitudes of 1st and 2nd grade students towards *social networks* were more positive than the 4th grade students.

It was found that the students' attitudes towards the technology dimension *for me* also showed a significant difference depending on the classes they studied. According to the post-hoc Mann-Whitney test; 1st grade students' attitude towards technology for themselves were more positive than 3rd and 4th grade students.

Moreover, it was found that students' (general) attitude towards digital technology showed a significant difference depending on the classes they studied, too. According to the post-hoc Mann-Whitney test; 1st and 2nd grade students' attitudes towards digital technology were more positive than 4th grade students.

Table 11. t-test for the comparison of attitudes towards digital technology of the students according to own a computer

Score	Owning computer	Descriptives			t-test		
		n	M	SD	t	df	p
Proficiency	Yes	72	3.50	.81	3.32	100	.001**
	No	30	3.15	.74			
Social networks	Yes	72	3.73	.93	2.06	100	.042*
	No	30	3.52	.98			
Using technology in class settings	Yes	72	3.70	.67	.47	100	.636
	No	30	3.45	.83			
Interest	Yes	72	3.74	.92	2.12	100	.037*
	No	30	3.50	.78			
Technology for me	Yes	72	4.16	.60	.76	100	.451
	No	30	3.90	.78			
Negative aspects	Yes	72	2.80	.76	.60	100	.550
	No	30	2.90	.72			
Leisure use	Yes	72	2.94	.76	.97	100	.334
	No	30	2.78	.79			
Conscious use	Yes	72	4.21	.75	2.07	100	.041*
	No	30	3.90	.95			
Attitudes toward digital tech.	**Yes**	**72**	**3.66**	**.54**	**2.18**	**100**	**.030***
	No	**30**	**3.41**	**.53**			

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

T-test showed that students' attitudes towards digital technology significantly differentiated for four sub scales (*proficiency, social Networks, interest and conscious use*) and general attitudes depending on to own a computer or not (Table11).

Accordingly; when the average scores of the groups (who owns a computer and who do not) were examined, it was seen that the students who had a personal computer at home were more positive on perceiving himself/herself proficient, using social networks, being interested in using digital technology and using technology more consciously. Last but not least, students who had a personal computer at home also have higher/more positive attitudes towards digital technology than students without a personal computer.

Table 12. Kruskal-Wallis test for the comparison of attitudes towards digital technology of the students according to their first encounter with a computer in their education life

Score	Encountering with computer	Descriptives		Kruskal-Wallis			Post-hoc (M-W)
		N	Mean Rank	X^2	df	p	
Proficiency	Elementary	71	53.92	1.57	2	.455	-
	Secondary	27	45.85				
	University	4	46.63				
Social networks	Elementary	71	49.63	1.02	2	.601	-
	Secondary	27	55.24				
	University	4	59.50				
Using technology in class settings	Elementary	71	51.79	1.62	2		-
	Secondary	27	53.41				
	University	4	33.50				
Interest	Elementary	71	54.36	2.21	2	.332	-
	Secondary	27	44.74				
	University	4	46.38				
Technology for me	Elementary	71	52.65	1.38	2	.500	-
	Secondary	27	50.93				
	University	4	35.00				
Negative aspects	Elementary	71	49.53	2.93	2	.231	-
	Secondary	27	53.22				
	University	4	74.88				
Leisure use	Elementary	71	51.23	.52	2	.770	-
	Secondary	27	53.56				
	University	4	42.38				
Conscious use	Elementary	71	56.18	6.29	2	.043*	1 ile 3
	Secondary	27	41.74				
	University	4	34.38				
Attitudes toward digital tech.	**Elementary**	**71**	**53.32**	**1.73**	**2**	**.420**	**-**
	Secondary	**27**	**49.20**				
	University	**4**	**34.63**				

**p<.05*

The attitudes of the music teacher candidates participating in the study towards digital technology cause a significant difference only in the sub-scale of *conscious use* due to their first acquaintance with the computer in their educational life (Table 12). According to the post-hoc Mann-Whitney test; students who had encountered with computer in elementary school years were using digital technology in a more conscious way than the students who had encountered with computer in university.

Discussion and Conclusion

The results of the study were discussed by comparing the results of the other related studies.

It was determined that there was a significant relationship between the levels of computer self-efficacy perception and attitudes towards digital technology. In many similar studies on this subject, there were positive correlations between students' self-efficacy towards computer and their attitudes towards technology (Saracaloglu, Dincel & Dedebali, 2017; Yilmaz, 2016; Sayginer, 2016; Yenice & Ozden, 2015).

General computer self-efficacy perception levels of the students were found to be high. Poelmans, Truyen, and Stockman (2012) found that ICT skills, general computer use skills, and computer self-efficacy of higher education students were at a very high level. Kass (2014), in his study on teaching staff and students, found that students provided with a special support have a high level of computer self-efficacy in using a new technology by themselves or by following others using it.

Male students' self-efficacy perception levels were found to be higher than female students. Different researches also reveal that there is a significant relationship between computer proficiency level and gender (Ipek & Acuner, 2011;

Simsek, 2011; Cetin, Caliskan & Menzi, 2012; Cetin & Gungor, 2014; Sayginer, 2016). In most of these studies, it was found that the difference was in favor of males. However, some other studies indicate that it was found that there was no significant difference in the perception of computer self-efficacy in terms of genders (Seferoglu & Akbiyik, 2005; Timur, Yilmaz & Timur, 2013). In other words, the relationship between gender and perception of computer self-efficacy variables is far from being conclusive.

Computer use was initially associated with men as well as computer geeks, but more women with different roles started using computers and getting online, and it resulted in less gender differences. As the NTIA and Pew national computer / internet usage surveys indicated, there was a noticeable gender difference in the general computer / internet use in the late 1990s, but in the late 2000s, this difference was largely eliminated. However, the gender gap still continues in favor of men (Dixon, Correa, Straubhaar, Covarrubias, Graber, Spence & Rojas, 2014).

There was no significant difference between the levels of computer self-efficacy perception of the students participating in the study according to their grades. As there are many studies reached similar result (Sezer, Yildirim and Pinar 2013; Yenice and Ozden, 2015), there are also some studies discusses that students' computer self-efficacy perception was differentiated according to their grade levels (Cetin, 2008; Akkoyunlu and Kurbanoglu, 2003).

Students with personal computers at home have higher levels of computer self-efficacy than students without a personal computer. This result supports other studies' results because the student with her/his own computer will use it more frequently and as a matter of course he/she would know every aspect of it by experiencing it day by day. In their studies, Cetin (2008), Ozcelik and Kurt (2007), Sezer, Yildirim and Pinar (2010), found a similar relationship between owning personal computers at home and computer self-efficacy perception.

The level of computer self-efficacy perception of the students who met with computer in their primary school years was higher than the students who met with computer in their secondary education and university years. In his study, John (2013) found that basic computer knowledge and previous computer experiences had a positive impact on the individual's self-efficacy and intentions to use social networking programs.

It was found that the attitudes of the music teacher candidates participating in the research towards the digital technology were positive/high but this was not at a very high level. This result is consistent with other studies' results which show teacher candidates have positive attitudes towards digital technology and its utilization (Jenset, 2011; Akturk, Izci, Caliskan & Sahin, 2015; Birkollu, Yucesoy, Baglama & Kanbul, 2017).

Four main factors affecting the use of technology in an educational setting were: (a) resources, (b) institutional and administrative support, (c) education and experience, and (d) attitudes or personal traits. Although it is important to establish funding, education and appropriate support policies, it may be more complex and difficult to create experiences and positive attitudes (Brinkerhoff, 2006).

Male students' general attitudes towards digital technology were higher than female students. However, as there are studies which have determined that males have a more positive attitude towards technology than females (Akturk, Izci, Caliskan & Sahin, 2015; Arslan, Kutluca and Ozpinar, 2011), other studies show that females have more positive attitudes than males (Yaman 2007; Dargut & Steel, 2014).

Gender discrimination is one of the most significant variables in technological inequality. Women are behind men in the development of technology and technological skills. Men spend more time using computers and the Internet than women and develop their digital skills by taking more technology courses than women (Cooper, 2006; Correa, 2010; Fallows, 2005; Livingstone & Helsper, 2007; Losh, 2004; Pinkard, 2005; Wilson, Wallin & Reiser, 2003). Giddens (1984), Terry and Gomez (2010) stated that social structures, cultural and psychological factors may hinder the thoughts and the use of technology.

1st and 2nd grade students' attitudes towards digital technology were more positive than 4th grade students. Saracaloglu, Dincer and Dedebali (2017) have reached similar results in their study, as well. Now, the reduction of the prices to buy digital technology (hardware or software) and increasing accessibility to it have a positive effect on students' perceptions and attitudes.

Students with a personal computer have more positive attitudes towards using digital technology in a conscious way than students without a personal computer. Cetin and Gungor (2014) found that having personal computers and internet access positively affected attitudes towards technology. De Haan (2004) and Van Dijk (2006) stated that people with new technologies have more access to other resources than others.

The students who met with computers during their primary education years were more likely to have more positive attitudes towards using digital technology than the students who were introduced to the computer in their university years. The first years of being acquainted with computer in the education life can be considered as the first computer experience. This improves the ability to use technology consciously. In this context, while Cavas, Cavas, Karaoglan and Kisla (2009) found that students' computer experience influenced attitudes towards technology, Cassidy and Eachus (2002) determined that the computer experience of individuals was related to computer self-efficacy.

Good planning of computer-assisted learning-teaching processes of candidate teachers will improve the effectiveness of the program by increasing the success of students and teachers by developing positive attitudes towards digital technology. Teachers' use of computers and digital technology in the classroom settings on-site and in a useful way will be an effective model for students. It can be said that music teacher education programs' formal and informal learning environments need to be rearranged in order to enable teachers to use digital technology effectively. Increasing technology-related courses in teacher candidate education and the application of technology-supported projects will enable the development of positive attitudes towards the use of digital technology.

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