

*Full Length Research Paper*

## Music teachers' computer anxiety and self-efficacy

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**This study aims to examine the computer anxiety and self-efficacy of music teachers in terms of different variables. The research is implemented on 124 music teachers. A personal information form and scales of Computer Anxiety and Self Efficacy are implemented on 124 music teachers. Data are analyzed with one way analysis of variance (ANOVA) and Pearson correlation coefficient. The results of the research show that gender creates a significant discrepancy in the perception of both computer anxiety (the computer anxiety of female teachers is higher) and self-efficacy (computer self-efficacy of male teachers is higher). The variables of occupational seniority, computer use frequency and having a computer of own do not create a significant difference for computer anxiety and its sub-factors "anxiety of harming the computer and the job", "learning anxiety" and computer self efficiency. In addition, the variable of computer anxiety has been shown to make a significant difference for computer self-efficacy with computer anxiety and its sub-factors. In addition, it is seen that the music teachers who have their own computers, who use computers frequently and who have more experience in using computers have less computer anxiety and higher self-efficacy. Another finding of the study indicates that there is a high level of negative significant relationship between computer self-efficacy and computer anxiety. This reveals that those who have higher computer self-efficacy have less computer anxiety.**

**Key words:** Music teacher, computer anxiety, computer self-efficacy.

### INTRODUCTION

In the education and training process, utilizing information and communication technologies have caused significant innovations in education and also in many other fields. Undoubtedly, one of these fields is music and music education (Robyler and Edwards, 2000). Recent developments in music technology provide new opportunities for teachers and student in the musical field. Computer-aided music education contributes to more permanent and effective learning by increasing the motivation of students thanks to its auditory and visual content (Wai-chung, 2004; Rudolph et al., 2005). In the light of this

approach, it can be expected that using technology in music lessons will develop the students' knowledge and skills of singing and playing, and making them enjoy music lessons with entertaining games. For this reason, using information and communication technologies in education and training process is important. Using computers, software and internet technologies which have an important place for students' education should be one of the significant aims of an efficient music teacher. Using software programs in music lessons provide students with important contributions with new

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methods in individual and group studies, while they also help them to develop their skills of composing and creativity (Robyler and Edwards, 2000).

The dissemination and implementation of educational innovations depend mainly upon teachers' adopting these innovations (Beckers and Schmidt, 2003). Studies have revealed that teachers cannot use technology in the education process to increase learning and that they do not feel ready (Haydn and Barton, 2007). However, computer is one of the developing technologies and it is important to use computers both in daily life and in educational environments as a teaching aid (Durkin et al., 2010). This enables many people to gain experience directly or indirectly about computer usage. In addition, researches revealed that teachers develop their own ideas and judgments about using technology in class and these facts affect the educational practice (Miller and Olson, 1999). Thus, it is emphasized that people who make great efforts and who are attentive to and allocate time for using computer technology in the education process have more self-esteem and self-efficacy (Rugayah et al., 2004).

Undoubtedly, it is possible to use computers effectively in the education and training process if there are teachers who are well-trained on using information technologies (Christanse, 2002; Özden et al., 2004). It is important for the teacher to utilize technology in classroom to make the students learn the subjects more profoundly and permanently (Wilson and Lowry, 2000). At this point, it is crucial to analyze the teachers' computer anxiety levels and self-efficacy beliefs. Upon analyzing the literature, it is seen that teachers' anxiety levels decrease as their computer self-efficacy increase and they tend to use technology more in their classes (Niederhauser and Perkmen, 2010; Anderson et al., 2011; Liu, 2011). Within this context, teachers' computer anxiety levels and self-efficacies are two different variances that should be considered to enable them to use computer and education technologies more efficiently and effectively in their education and training activities.

Computer anxiety is defined as a preconceived opinion and fear that arises when using computer technology (Chua et al., 1999); and as a feeling of tension and anxiety that is hard to understand towards using computers (Sam et al., 2005; Beckers et al., 2007). Researches in literature emphasize that computer anxiety is a situation-specific and momentary (state) anxiety that can be shaped (Barbeite and Weiss, 2004); and indicate that computer anxiety exists and is measurable (Saadé and Kira, 2007). The results of the literature study revealed that computer efficacy, which is the psychological sub-dimension of computer anxiety, affects the utilization of information technology and that there is a reverse relation between computer anxiety and computer

self-efficacy (Chua et al., 1999; Namlu and Ceyhan, 2002).

Efficacy is a social-psychological behavior that emphasizes the belief about the individual's ability to be effective on his/her own behavior, thoughts and motivations (Schrivver and Czerniak, 1999). The basis of teacher efficacy concept is based upon Bandura's self-efficacy theory, while Bandura and Rotter are people who influenced the field of teacher efficacy (Rotter, 1966). According to Bandura, self-efficacy "is people's judgments about their capacities to perform and organize the actions required for a certain performance (Bandura, 1997, p.3).

Bandura's theory of self-efficacy is important in terms of revealing the levels of teachers' beliefs in their competence (Yılmaz et al., 2004). In this context, people with high levels of self-efficacies have confidence, are more ambitious in education and display better performance (Perkmen and Pamuk, 2011). When they encounter any challenge, they do not give up the struggle and preserve their patience (Dorman, 2001). In addition, it is determined that teachers whose self-efficacy is low tend to avoid challenges and do not seek new solutions to make the students learn more easily (Cappara et al., 2006). There are studies that indicate self-efficacy belief, which is an important field of study in raising teachers, increase people's strength and resistance to cope with challenges he/she might come across when performing a task, as well as increasing their motivation, assertiveness and success at work (Bandura, 1997; Goddard et al., 2000). These findings reveal the importance of computer self-efficacy belief and the importance of computers which will be an indispensable part of their professional life for teachers.

Bandura's theory of self-efficacy emphasizes the ability to control emotional state, fear, anxiety and stress. That is, the anxiety about a specific area (computer) and the self-efficacy about a specific area (computer) are the two sub-dimensions of computer self-efficacy within the framework of Bandura's theory of efficacy (Bandura, 1997). Computer self-efficacy concept came up by adapting the self-efficacy concept, which is a concept developed in the field of social psychology, to the area of computers (Lev, 1997). People's tendencies towards technology are closely related to their computer self-efficacy (Zhang and Espinoza, 1998). Within this context, computer self-efficacy is defined as an important structure that affects one's belief in his/her computer usage skills; and teachers' usage of computers in classroom (Albion, 1999). Studies of literature on computer self-efficacy determine that people whose computer self-efficacy belief is high are more eager when using computers, their anxieties about the computer is lower, they keep pace with the technological developments

more quickly, they trust themselves in challenges about computers, and they are more successful in resolving these issues (Doyle et al., 2005).

In addition, researches show that personality (Perkmen and Çevik, 2010); gender (Beckers and Schmidt, 2003; Ong and Lai, 2006; Beckers et al., 2007; Meelissen and Drent, 2008); computer experience (Niederhauser and Stoddart, 1994; Hasan, 2003; Galanouli et al., 2004; Çevik and Alkan, 2012); factors affecting computer usage (Leventoğlu, 2004; Teo, 2009; Nacakçı and Dalkıran, 2011); attitude towards computers (Roussos, 2007; Meelissen and Drent, 2008; Teo, 2008); computer anxiety (Woszczyński, 2001; Çakıroğlu et al., 2008; Uslu, 2008; Korobili et al., 2010) and computer self-efficacy (Aşkar and Umay, 2001; Hasan, 2003; Özçelik and Kurt, 2007; Çetin and Güngör, 2014) are important factors in the development of computer self-efficacy.

There are researches that reveal there is a significant relation between gender, computer anxiety and self-efficacy (Namlu and Ceylan, 2002; Doyle et al., 2005; Kay, 2008). For instance, Namlu and Ceylan's study on university students in Turkey (2002) suggested that computer anxiety was affected by variables such as gender, department and overall competence level of the class. Chua et al.'s conclusion of the study indicated that female students had higher computer anxiety compared to male students. They also found that there was an inverse correlation between computer usage experience and computer anxiety. A similar study conducted by Şeyhoğlu (2005) focused on 390 teachers and managers working in and around the Bergama province of Izmir and it was found that teachers and managers had low computer anxiety. In addition, no meaningful difference was found regarding the gender of the teachers study; however, there was a meaningful difference in favor of female managers in terms of computer anxiety. In addition, the positive and significant relation between computer self-efficacy and experience is supported by the results of various researches (Gong et al., 2004; Çelik and Bindak, 2005). Studies have shown that people who have more past experience about computers have higher computer self-efficacy than those who have less computer experience. Torkzadeh and Koufteros (1994) indicated in their studies that the belief of the individual in his/her computer self-efficacy increases significantly in line with the computer experience they gain.

When the studies conducted in the field of music are viewed it is observed that computer self-sufficiency increases in parallel with computer experience. For instance, a study that selected its participants from music teachers of Anatolian Fine Arts High Schools in different regions and from different socioeconomic background, found that these teachers found themselves competent in terms of recognizing sound and computer technologies

however, a few of the teachers considered themselves partially able (Sevinç and Koldemir, 2009). Çevik and Alkan (2012), in their study on pre-service music teachers, found that computer assisted learning was more effective and enjoyable and that it would increase the overall motivation of students thus prompting them to do more research as it provided a visual aspect to the class which may allow the topic to be understood better and also it would generate active participation of the individual by ensuring their access to information. In this respect, it focuses on the necessity that pre-service music teachers should be trained in a way that would enable them to use technologies and allow them to have the experience.

### **Objectives and significance of the study**

In today's world, rapidly changing and developing technology deemed it necessary and unavoidable for us to include computer use and its advantages in education as well as incorporating computers with classes for permanent and more effective teaching. So, teachers need to be able to use computers effectively and efficiently. This matter led researchers to give priority to certain aspects such as computer anxiety and self-sufficiency. Therefore, it is crucial to rationalize the teachers' beliefs and values on computer usage in education in order to change their prejudices.

This study is important as it will reveal the music teachers' computer usage abilities. When the studies on this subject are examined it is clear that most studies concentrate on pre-service teachers. Literature search reveals the scarcity of research on this subject apart from the following citations: math (Çakıroğlu et al., 2008; Uslu, 2008) and computer (Özçelik and Kurt, 2007; Çetin and Güngör, 2014) teachers' computer anxiety levels and self-sufficiency. It has been examined that music education includes studies only about functionality and usability of computers and situations where computer assisted music education can be utilized (Leventoğlu, 2004; Sevinç and Koldemir, 2009; Nacakçı and Dalkıran, 2011; Çevik and Alkan, 2012). It has been highlighted that national literature has a very limited number of studies on computer anxiety and self-sufficiency and it has led to the idea that a study on this area might be beneficial. There is almost no more search which finds out computer anxiety and self-sufficiency of music teachers in our country and this made the conduct of the study necessary. This as the starting point makes this research important, as the study in question should be scrutinized for the determination of deficiencies in it and also to present solutions.

In this context, it should be considered that determining

whether music teachers feel self-sufficient while using computers is important as it is in every field in terms of reaching the technological standards of today and so that teaching methods are updated to ensure that computers can be used efficiently and effectively in classroom scenarios. Uncovering the factors that affect music teachers' computer anxiety and self-sufficiency is of the greatest importance in their using computers effectively and efficiently throughout their entire education and training. It is believed that this study will be a trail blazer for researchers that are planning studies in this or similar subjects. The aim of this study therefore is to detect how computer anxiety and self-sufficiency change based on the factors of gender, professional experience, computer usage frequency, computer experience and owning a computer in an attempt to understand the correlation between computer anxiety and self-sufficiency. This study sought answers to the following research questions:

1. Do the computer anxiety and self-efficacy of music teachers differ significantly according to the gender variable?
2. Do the computer anxiety and self-efficacy of music teachers differ significantly according to the professional seniority variable?
3. Do the computer anxiety and self-efficacy of music teachers differ significantly according to the computer usage frequency variable?
4. Do the computer anxiety and self-efficacy of music teachers differ significantly according to the computer experience variable?
5. Do the computer anxiety and self-efficacy of music teachers differ significantly according to the variable of having a computer?

## METHOD

### Participants

The study group of this research consists of 124 music teachers (76 females and 48 males) who work in various parts of Turkey and who are determined by easily accessible sampling method, which is one of the nonrandom sampling methods. The easily accessible case sampling method provides speed and practicality for the researcher because in this method, the researcher chooses a close and easily accessible case (Yıldırım and Şimşek, 2008). 42 teachers (%34) are from Marmara region, 40 (%32) teachers are from Aegean region, while 42 teachers (%34) participated in the study from other regions. The teaching experience of the participants varies between 1 year, 21 years and more.

### Instruments

Personal Information Form, Computer Anxiety Scale and Computer Self-Efficacy Scale are used in this research to collect data.

**Personal Information Form:** A personal information form is composed in order to gain personal information from the teachers who attend the research. Personal information form constitutes of two sections. The first section on personal characteristics includes questions on gender and professional seniority regarding personal information; whereas the second section on computer experience includes questions on the computer usage frequency, computer experience, having a computer or not.

**Computer Anxiety Scale (CAS):** Developed by Ceyhan and Namlu (2000), this scale consists of 28 items and a structure of three factors. The first subscale is affective anxiety, second one is the anxiety of harming the computer and the job, and the third one is the anxiety of learning. The factor analysis shows that the scale explains 53% of the variance. The highest factor eigenvalue regarding the items obtained from the factor analysis of the scale is .76 whereas the lowest is .44. There are 13 items (Items 1-13) in the affective anxiety sub-dimension regarding computers, 9 items (Items 14-22) in the sub-dimension of anxiety of harming the computer and the job and 6 items (Items 23-28) in the sub-dimension of computer learning anxiety. For example, the item that states "I cannot feel comfortable at all when working with the computer" measures affective anxiety, the item that states "I feel nervous when using computer" measures the anxiety of harming the computer and the job, the item that states "The thought of making a mistake affects my working on the computer negatively" measures the anxiety of learning. The scale items that include positive statements are scored as "Always: 4, Frequently: 3, Sometimes: 2, Never: 1". There are 24 negative and 4 positive statements in the scale. The positive statements are calculated in reverse order. The total score gained from calculation the computer anxiety level of the students is divided into 28, which is the number of questions. Accordingly, every person in this study achieved computer anxiety scores varying from 1 to 4. Higher score means higher anxiety. The internal consistency coefficient for all items is .92. The  $\alpha$  coefficients of CAS's sub-factors are as follows: affective anxiety sub-factor regarding computers (Items 1-13) is .92; the sub-factor of the anxiety of harming the computer and the job (Items 14-22) is .89; the sub-factor that measures computer learning anxiety (Items 23-28) is .73. Cronbach alpha value of computer anxiety scale is .90 in this study.

**Computer Self-Efficacy Scale** is developed by Aşkar and Umay (2001) and the reliability coefficient of the scale that consists of 18 items is .71. The answers are scored in accordance with the fivefold Likert scale. The positive items are scored as 5 points for "Always" and 1 point for "Never", while the scoring is reversed in negative items as 1 point for "Always" and 5 points for "Never". Some of the items in computer self-efficacy scale are "I feel sufficient on the computer", "I can solve problems about computers if I try enough", "I think I can use computer effectively". When the distinctiveness of the items in scale are calculated (the correlation of scale scores and the scores they get from the item) it is understood that the distinctiveness of most of the items is high (Average 0.50). This result means that the item validity of the scale is acceptable.

### Data analysis

Independent samples t-test is used in comparisons over two variables whereas One-Way ANOVA (Single-Factor Variance Analysis) is used in Independent samples for more than two variables. If the F-test is significant as a result of variability analysis, Tukey-HSD test is used in order to determine the group this discrepancy results from. The significance level in the statistical

**Table 1.** Results of t-test regarding computer anxiety and self-efficacy in terms of gender

	Gender	N	$\bar{X}$	SD	t-test	
					t	p
Computer anxiety	Female	76	3.85	.78	1.539	.01*
	Male	48	3.31	.58		
Affective anxiety	Female	76	2.48	.52	1.085	.48
	Male	48	2.40	.60		
Anxiety of harming the computer and the job	Female	76	3.01	.76	2.615	.12
	Male	48	3.88	.70		
Anxiety of learning	Female	76	2.70	.65	2.077	.04*
	Male	48	3.63	.71		
Computer self-efficacy	Female	76	2.54	.44	1.673	.03*
	Male	48	2.93	.70		

\* $p < .05$ .

analysis used in the study is .05. In addition, pearson correlation analysis is applied to determine the relation between computer anxiety and self-efficacy.

**RESULTS AND FINDINGS**

**Findings on the variables about demographic characteristics**

The findings on the variables of gender and professional seniority of music teachers' scores regarding computer anxiety, its subscales and computer self-efficacy are given in Table 1.

When computer anxiety was examined in terms of gender, it was found that computer anxiety among female music teachers ( $\bar{X} = 3.85$ ) was higher than among male teachers ( $\bar{X} = 3.31$ ) [ $t = 1.539, p < .05$ ], while the scores of male music teachers in "anxiety about learning the computer" ( $\bar{X} = 3.63$ ) was higher than among the female teachers ( $\bar{X} = 2.70$ ). Furthermore, it was also seen that the computer self-efficacy of female music teachers ( $\bar{X} = 2.54$ ) was lower than that of male teachers ( $\bar{X} = 2.93$ ) [ $t = 1.673, p < .05$ ].

As seen in Table 2, the analysis shows that computer anxiety, anxiety about harming the computer and the job and the learning anxiety of music teachers with 1-5 year professional seniority ( $\bar{X} = 2.33$ ) is lower than in teachers whose seniority is 6-10 years ( $\bar{X} = 2.65$ ), 11-15 years ( $\bar{X} = 3.22$ ), 21 years and more ( $\bar{X} = 3.88$ ). In contrast, the computer self-efficacy of music teachers whose professional seniority is 1-5 years ( $\bar{X} = 3.48$ ) is higher

than of teachers with seniority of above 16-20 years ( $\bar{X} = 2.86$ ) and 21 years and more ( $\bar{X} = 2.47$ ).

**Findings on variables regarding computer experience**

Findings on the variables regarding computer usage frequency, computer experience, computer ownership of music teachers' scores on computer anxiety, its subscales and computer self-efficacy are given below.

As seen in Table 3, it was seen that computer usage frequency creates a statistically significant discrepancy in terms of computer anxiety, anxiety of harming the computer and the job, anxiety of learning and computer self-efficacy. However, it is seen that the level of affective anxiety does not create a statistically significant discrepancy. The teachers who use computers every day ( $\bar{X} = 2.63$ ) have less computer anxiety than teachers who use computers once a week ( $\bar{X} = 3.98$ ) and those who use computers several times a week ( $\bar{X} = 3.02$ ). In contrast, the computer self-efficacy ( $\bar{X} = 3.50$ ) of the music teachers who use computers "everyday" is significantly higher than music teachers who use computers several times a week ( $\bar{X} = 3.10$ ) and once a week ( $\bar{X} = 2.61$ ). On the other hand, the computer self-efficacy of music teachers who use computers several times a week is higher than those who use computers once a week.

When Table 4 is analyzed, computer experience reveals significant discrepancy for computer anxiety, affective anxiety, anxiety regarding harming the computer and the job, anxiety of learning and computer self-

**Table 2.** ANOVA results regarding computer anxiety and self-efficacy in terms of professional seniority.

	Variance resource	Sum of squares	Degree of freedom	Mean of Squares (S)	Significance value (F)	p	Significant difference
Computer Anxiety Total	Intergroup	7325.01	2	3662.50	9.406	.00*	1-5; 2-5; 3-5
	Intragroup	46720.82	120	389.34			
	Total	54045.83	122				
Affective anxiety	Intergroup	1020.83	2	510.41	3.315	.16	-
	Intragroup	18626.91	121	153.94			
	Total	19647.74	123				
Anxiety of harming the computer and the job	Intergroup	345.11	2	172.55	2.738	.03*	1-5; 2-5;3-5
	Intragroup	7563.13	120	63.02			
	Total	7908.24	122				
Anxiety of learning	Intergroup	34.52	2	17.26	2.006	.00*	1-5; 2-5; 3-5
	Intragroup	1041.23	121	8.60			
	Total	5248.75	123				
Computer self-efficacy	Intergroup	12.35	2	6.17	6.993	.00*	1-4; 1-5
	Intragroup	105.14	119	.88			
	Total	117.49	121				

\*p<.0.5 Professional seniority (1= 1-5 years; 2= 6-10 years; 3= 11-15 years; 4= 16-20 years; 5= 21 years and more).

**Table 3.** ANOVA results of computer anxiety and self-efficacy in terms of computer usage frequency.

	Variance resource	Sum of squares	Sd	Mean of squares	F	p	Significant difference
Computer Anxiety Total	Intergroup	5026.11	2	2513.05	4.111	.03*	1-2; 1-3; 2-3
	Intragroup	73354.20	120	611.28			
	Total	78380.31	122				
Affective Anxiety	Intergroup	27.45	2	13.72	.911	.18	-
	Intragroup	1822.45	121	15.06			
	Total	1849.9	123				
Anxiety of harming the computer and the job	Intergroup	158.43	2	79.21	1.385	.00*	1-2; 1-3; 2-3
	Intragroup	6860.51	120	57.17			
	Total	7018.94	122				
Anxiety of learning	Intergroup	25.31	2	12.65	1.484	.02*	1-2; 1-3; 2-3
	Intragroup	1031.04	121	8.52			
	Total	1056.35	123				
Computer self-efficacy	Intergroup	10.32	2	5.16	5.931	.00*	1-2; 1-3; 2-3
	Intragroup	103.56	119	.87			
	Total	113.88	121				

\*p<.0.5 Computer usage frequency (1= Once a week; 2= Several times a week; 3= Every day).

efficacy. It is seen that computer anxiety ( $\bar{X}$  =3.85), affective anxiety ( $\bar{X}$  =2.99) and harming the computer

and the job ( $\bar{X}$  =2.10) among music teachers who say they are very experienced in using computers is lower

**Table 4.** ANOVA results of computer anxiety and self-efficacy in terms of computer experience.

	Variance resource	Sum of squares	Sd	Mean of squares	F	p	Significant difference
Computer Anxiety Total	Intergroup	5531.29	2	2765.64	4.575	.00*	1-2; 1-3; 2-3
	Intragroup	72530.31	120	604.41			
	Total	78061.6	122				
Affective Anxiety	Intergroup	32.58	2	16.29	.837	.01*	1-2; 1-3; 2-3
	Intragroup	2345.21	121	19.46			
	Total	2377.79	123				
Anxiety of harming the computer and the job	Intergroup	231.25	2	115.62	1.986	.00*	1-2; 1-3; 2-3
	Intragroup	6983.20	120	58.19			
	Total	7214.45	122				
Anxiety of learning	Intergroup	25.21	2	12.60	1.431	.02*	1-3
	Intragroup	1065.23	121	8.80			
	Total	1090.44	123				
Computer self-efficacy	Intergroup	12.36	2	6.18	6.652	.00*	1-2; 1-3; 2-3
	Intragroup	110.62	119	.92			
	Total	122.98	121				

\* $p < .05$  Computer experience (1= No experience; 2= Little experience; 3= Very experienced).

than among those who say they have little experience and those who say they have no experience in using computers. Also, it was revealed that the computer self-efficacy scores of the music teachers who said they are very experienced in using computers ( $\bar{X} = 3.75$ ), was significantly higher than those who said they have no experience ( $\bar{X} = 2.44$ ) and those who said they have little experience ( $\bar{X} = 3.21$ ). The learning anxiety ( $\bar{X} = 3.83$ ) of the music teachers who said they are very experienced was significantly higher than those who have no experience ( $\bar{X} = 2.48$ ).

Computer anxiety among teachers who do not have their own computers ( $\bar{x} = 4.15$ ) is higher than among those who have their own computers ( $\bar{X} = 3.96$ ) [ $t = 5.674, p < .05$ ]. In addition, considering the anxiety of harming the computer and the job, it is seen that the score of those who do not have their own computers ( $\bar{X} = 3.74$ ) is higher than of those who have their own computers ( $\bar{X} = 3.58$ ). Considering "learning anxiety", it is seen that the score of those who do not have their own computers ( $\bar{X} = 4.11$ ) is higher than those who have their own computers ( $\bar{X} = 4.09$ ). Another result of the research reveals that the music teachers' computer self-efficacy statistically differs when considered in terms of computer ownership [ $t = 4.643, p < .05$ ]. In other words, the computer self-efficacy of those who have their own computers ( $\bar{x} = 3.78$ ) is higher than those who do not have their own compu-

ters ( $\bar{X} = 3.43$ ) [ $t = 4.643, p < .05$ ] (Table 5).

**Findings on the relation between computer self-efficacy, computer anxiety**

As seen in Table 6, it is seen that there is a high-level, negative and significant relation between computer self-efficacy and computer anxiety ( $r = -.77, p < .01$ ). It is revealed that there is a high-level, negative and significant relation ( $r = -.65, p < .01$ ) between computer self-efficacy and affective anxiety; a high-level, negative and significant relation ( $r = -.61, p < .01$ ) between computer self-efficacy and the anxiety of harming the computer and the job; and a low-level, positive and significant relation ( $r = .18, p < .05$ ) between computer self-efficacy and the anxiety of learning.

This study, which was conducted to reveal the computer anxiety and self-sufficiency of music teachers, reached the following conclusions:

1. Female music teachers have higher computer anxiety compared to their male counterparts.
2. The anxiety scores of male music teachers related to "learning to use the computer" were higher than those of the female teachers.
3. Female music teachers have lower computer self-sufficiency compared to male teachers.
4. Those who have between 1 to 5 years of seniority in their professions have less "computer anxiety," "anxiety in

**Table 5.** ANOVA results of computer anxiety and self-efficacy in terms of computer ownership.

	Ownership status	N	$\bar{X}$	SD	t-test	
					t	p
Computer Anxiety	Yes	88	3.96	.49	5.674	.01*
	No	36	4.15	.54		
Affective Anxiety	Yes	88	3.50	.56	4.885	.48
	No	36	3.62	.59		
Anxiety of harming the computer and the job	Yes	88	3.58	.65	5.615	.02*
	No	36	3.74	.59		
Anxiety of learning	Yes	88	4.09	.52	4.977	.04*
	No	36	4.11	.54		
Computer self-efficacy	Yes	88	3.78	.62	4.643	.03*
	No	36	3.43	.65		

\* $p < .05$ .**Table 6.** The relation between computer self-efficacy, computer anxiety.

	1	2	3	4	5
1. Computer Anxiety	-				
2. Affective Anxiety	.89**	-			
3. Anxiety of Harming the Computer and the Job	.84**	.71**	-		
4. Anxiety of Learning	.32**	.18*	.21**	-	
5. Computer Self-efficacy	-.77**	-.65**	-.61**	.18*	-

\* $p < .05$ ; \*\* $p < .01$

learning," and "anxiety regarding harming the job they are working for" when compared to those who have between 6-10, 11-15, 21 or more years of seniority in their profession.

5. Music teachers who have a seniority of 1-5 years in their profession have higher computer self-sufficiency when compared to those with 16 to years of working experience or those with more than 21 years of experience.

6. Computer usage frequency does not form a meaningful correlation for computer anxiety, spoiling the work they are working for and computer self-sufficiency. Music teachers using computers every day have less anxiety than those who use computers once a week or a few times a week.

7. Music teachers using computers every day have higher self-sufficiency than those who use them once or a few times a week and those who use computers a few times a week have higher self-sufficiency than teachers using computers once a week.

8. The teacher who claims to have "a lot of computer experience" has lower computer anxiety, affective anxiety

and a fear of harming the computer and the work they are doing compared to those who say they have little experience and those who state they have no experience.

9. The music teachers who claimed to have a lot of computer experience had higher computer self-sufficiency compared to those who stated that they had no experience and those who declared having little experience.

10. Music teachers who claimed to have a lot of computer experience had higher learning anxiety compared to those who had no computer experience.

11. Music teachers who did not have their own computers had more computer anxiety than those who had their own computer.

12. Music teachers who did not have their own computer had higher scores on items such as "harming the computer and work being studied on" and "learning anxiety" than teachers with their own computers.

13. Music teachers with their own computers had higher computer self-sufficiency than those who did not have a computer of their own.



14. There is a high negative and meaningful correlation between computer self-sufficiency and computer anxiety.

15. There is a high level of negative and meaningful correlation between the sub-level of computer anxiety, which are affective anxiety and computer anxiety.

16. There is a high-level, negative and significant relation between computer self-efficacy and the anxiety of harming the computer and the job.

17. It was found that there was a positive and meaningful low-level correlation between "computer self-sufficiency" and "learning anxiety."

## DISCUSSION

In information age, there is a need for people who can access information quickly. Thus, it is possible to access any kind of information thanks to the rapid changes and developments in technology. In this context, the importance of computer in disseminating and sharing information is undeniable. The rapid changes and developments in science and technology provide new opportunities in education. With these opportunities, it is very important for the teachers to gain the ability of using these opportunities. Concordantly, this study aims to reveal the relation between computer anxiety and self-efficacy by analyzing the computer anxiety and self-efficacy of music teachers in terms of various variables.

According to the findings of the study, computer anxiety levels of female music teachers were higher than those of male music teachers. There are similar results in literature regarding this finding (Chua et al., 1999; Namlu and Ceyhan, 2002; Beckers and Schmitt, 2003). However, there are also studies that reveal there is no significant relation between computer anxiety and gender (North and Noyes, 2002; Sam et al., 2005; Tekinarlan, 2008). One of the reasons behind the results of the research is that not only men but also women cannot remain unresponsive to the rapidly changing and developing technology and their eagerness towards using computers increase with that. On the other hand, there are also researches that say the reason why the computer anxiety levels of women is higher than men is because of the gender roles determined by the society. These studies emphasize that women receive less support than men in being guided towards professions related with computers and in working with technological tools. This may be considered as another reason why women avoid technology more than men do (Namlu and Ceyhan, 2002; Deryakulu and Olkun, 2007). The research also reveals that male teachers score higher than women in the anxiety sub-dimension of computer anxiety scale and they are more anxious in learning how to use computers. Other studies also support this result

(Miura, 1987).

Another finding of the study was that the self-efficacy of female music teachers was seen to be lower than their male counterparts. This reason of this may be the fact that men are more interested and curious about technology starting from their childhood. Collis and Ollila (1990) indicate that computer usage is a rather male-specific activity starting from childhood. The study of Seybert (2007) emphasize that men use computers more, they have more computer skills and work in computer-related jobs more than women. There are similar results in literature regarding these findings (Durndell et al., 2000; Tekin, 2007; İpek and Acuner, 2011). However, many studies carried out within this context reveal that there is no significant discrepancy between computer self-efficacy and gender (Kuş, 2005; Sam et al., 2005; Pamuk, 2009; Balci, 2013).

The computer anxiety levels of music teachers who attended the research show a statistically significant discrepancy in terms of professional seniority. There are studies in literature that support this finding (Çevik, 2006; Uslu, 2008). Şeyhoğlu (2005) examines teachers' computer anxiety according to their professional seniority. Delvecchio (1995) indicates that young people have the opportunity of interacting with computers more than their previous generation, and the young ones have less computer anxiety when compared to the elder. It is evident that the level of computer anxiety increases with the professional seniority. This makes us think that young teachers use computer in their daily lives more and can deal with the technology better as the importance of computer education increases in Teachers College that train teachers. Another result of the research reveals that there is a statistically significant discrepancy between music teachers' computer self-efficacy and the variable of professional seniority. It can be said that the beginner teachers have higher computer self-efficacy and less computer anxiety. This finding is parallel with the studies carried out in this field (Kuş, 2005; Özçelik, 2006). Rowand (2000) emphasizes in his research that the teachers whose experience is less than 9 years use the Internet more frequently to gain more information and share information with their colleagues than the teachers who have experience for 20 years and more. It is evident this result shows that the beginner teachers take computer lessons during their undergraduate study and have more opportunity to use computer, which is why they are more interested in computers and have better cognitive basis related with computers. In addition, the teachers who are at the beginning of their profession can be more efficient and effective in following up with the new technology, thanks to their knowledge and experience.

Here, it is seen that the frequency of computer usage

creates a statistically significant discrepancy for computer anxiety and its sub-dimensions which are the anxiety of harming the computer and the job, and also computer self-efficacy. This result shows that using computer everyday increases computer self-efficacy and reduces computer anxiety. In this context, teachers' beliefs, experiences and approaches affect computer usage in the education and training process (Andris, 1995). There are studies in literature that reveal the relation between computer anxiety and computer usage (Pope-Davis and Vispoel, 1993; Kay, 2008). In addition, several studies show that the frequency of computer use reduces computer anxiety and increases self-efficacy (Zhang and Espinoza, 1998; Aşkar and Umay, 2001; Wilfong, 2006; Korobili et al., 2010). These findings support the study. Brown (2008) indicates that there is a relation between computer usage and self-efficacy, and the perceptions of the individual have a determining role on computer skills. He also emphasized that the people who have high levels of computer self-efficacy are more determined in performing computer tasks and completing these tasks despite potential challenges. There are other studies that support this finding (Langford and Reeves, 1998). It is evident that most of the studies show that computer usage is effective in the learning process of the individual (Naevdal, 2007; Kubiato and Vlckova, 2010). In a study conducted on music teacher candidates, it is reported that individuals may actively attain knowledge and gain experience through computer-aided music lessons (Çevik and Alkan, 2012).

It is seen that computer experience, which is another variable of the research, creates a statistically significant discrepancy for computer anxiety and its sub-dimensions which are affective anxiety, anxiety of harming the computer and the job, anxiety of learning and computer self-efficacy. This finding reveals that the music teachers who are very experienced in using computers have higher computer self-efficacy and less computer anxiety than the others. There are studies that emphasize computer experience has a positive effect on computer anxiety and self-efficacy (Chua et al., 1999; Wilfong, 2006; Korobili et al., 2010). These findings support the aforementioned studies and also show that the people who are very experienced in using computers and who use computer frequently have less computer anxiety and higher self-efficacy levels. The studies examine the variables such as computer usage time, computer usage frequency etc. under computer experience title. Thus, it is underlined that the computer experience increases and the anxiety decreases for the individual who use computer frequently (Chua et al., 1999, Wilfong, 2006).

There are also studies that reveal many teachers have very little experience in learning via computers in their own self-improvement (Niederhauser and Stoddart,

1994). Marcoulides and Wang (1990) show that there is a negative and significant relation between computer experience and computer anxiety. There are also studies in literature that reveal there is a positive relation between computer experience and computer self-efficacy (Chua et al., 1999; Milbrath and Kinzie, 2000). This can be because the individual is supported to use computer and also because he has former experience (course, lesson, etc.) before he starts teaching profession. It can be said that the people who have such experience may have higher self-efficacy perceptions regarding computer usage. A study emphasizes that experience is one of the factors that affect self-efficacy and there is a close relation between behaviors and experience, and also between experience and the development of self-efficacy (Akkoyunlu and Kurbanoğlu, 2003). Skills are developed as the experience increases, and the self-efficacy perception improves accordingly (Bandura, 1997). These results support the findings of this study.

Another finding of the research shows that there is a statistically significant discrepancy when the computer anxiety of music teachers is analyzed according to computer ownership. It can be said that the eagerness for using computers shall increase and computer anxiety levels shall drop if the teachers who do not have their own computers become more familiarized with computers for their lives. These findings are in parallel with other studies (Albion, 1999; Hong and Koh, 2002; Şeyhoğlu, 2005). There is a statistically significant discrepancy when the computer self-efficacy of music teachers is analyzed according to computer ownership. This finding supports other studies in literature (Özçelik, 2006; Topkaya, 2010; İpek and Acuner, 2011). If teachers have their own computers, they are expected to access the information they want anytime according to their computer usage frequencies. It can be said that they can feel more sufficient in using computers and their self-efficacy levels can increase as the frequency of using computers gets higher. On the other hand, a research shows that there is no significant relation between computer ownership and computer self-efficacy (Usluel and Seferoğlu, 2003).

Another important finding in the research reveals a high-level, negative and significant relationship between computer anxiety and computer self-efficacy. This finding supports the findings of other studies in literature (Wilfong, 2006). This result shows that the people who have lower computer self-efficacy levels experience more anxiety and those who have higher self-efficacy experience less anxiety. At this point, the computer usage frequency and computer experience increases computer self-efficacy and reduces the anxiety. In conclusion, this study offers a useful perspective to understand the computer anxiety and self-efficacy of

music teachers.

It would be useful for the following researches to analyze the music teachers' technology integration self-efficacy levels instead of computer self-efficacy. A teacher's high computer self-efficacy level does not guarantee that he/she will be able to efficiently integrate technology in class environment. Accordingly, it is essential to determine the self-efficacy of music teachers in technology integration (Wang et al., 2004; Niederhauser and Perkmén, 2008) and to analyze the relation between that and technology integration performance (Perkmén and Pamuk, 2011) and motivation (Perkmén, 2014).

### Conflict of Interests

The author has not declared any conflict of interests.

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