

## The Elicitation of Prospective EFL Teachers' Computer Anxiety and Attitudes

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### Abstract

This study aimed at investigating the relationship between computer anxiety and computer attitude and examining the effects of background characteristics on prospective EFL teachers' computer anxiety and computer attitude. Computer Anxiety Scale (CARS), designed by Heinssen, Glass & Knight (1987) and Computer Attitude Scale (CAS), developed by Loyd & Gressard (1985) and modified by Yuen & Ma (2001) were administered to 70 prospective EFL teachers. Descriptive results indicated that prospective EFL teachers had relatively moderate scores in CARS ( $M=3.20$ ;  $SD=.35729$ ) and the sub-scales of CAS, computer confidence ( $M=3.02$ ;  $SD=.43951$ ), computer liking ( $M=3.17$ ;  $SD=.47379$ ) and computer usefulness ( $M=3.35$ ;  $SD=.67647$ ). Although a significant correlation was found between computer anxiety and computer liking ( $r = .35$ ,  $n=70$ ,  $p< 0.01$ ), no significant correlation was found between computer anxiety and computer confidence ( $r = .19$ ,  $n=70$ ,  $p>0.01$ ) and between computer anxiety and computer usefulness ( $r = .22$ ,  $n=70$ ,  $p>0.01$ ). In the study, age, year of study, computer ownership and degree of access to computers were not found to be significant correlates of computer anxiety and computer attitude. While gender and the CAS subscale "usefulness" ( $r = .28$ ,  $n=70$ ,  $p< 0.05$ ) and CGPA (Cumulative Grade Point Average) and CAS subscale "liking" ( $r = .23$ ,  $n=70$ ,  $p< 0.05$ ) were found to be positively correlated, computer courses taken previously and the CAS subscale "liking" ( $r = -.24$ ,  $n=70$ ,  $p< 0.05$ ) and computer experience and the CAS subscale "confidence" ( $r = -.30$ ,  $n=70$ ,  $p< 0.01$ ) were found to be negatively correlated.

**Key Words:** computer anxiety, computer attitude, prospective EFL teachers, foreign language teaching

### Introduction

Computers are fast becoming an indispensable component of education and computer use is viewed as fundamental to the school curriculum providing opportunities for students to obtain information and maximize their learning (Durkin, Ramsden & Walker, 2010). The increasing use of computers at educational contexts leads people to learn the computer applications and hence people become more educated by using personal computers, productivity software, multimedia, and network resources (Sam, Othman, & Nordin, 2005). Computer literacy and a myriad of applications of computers resulted in stressing

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the computer-based training at both school and college levels. Since students, workers, organizations and researchers are engaged in computer-based training and learning, researchers attempt to emphasize the psychological part of human-computer interface (Bozionelos, 1997; Gilroy & Desai, 1986).

It has long been accepted that attitudes toward computers play a crucial role in unearthing how individuals perceive the computer as a learning tool (Teo, 2008). Moreover, it has been indicated that attitudes affect related and future behaviors regarding the computer such as employing it beyond the school/college environment, for instance, when doing homework or when involving in further study (Huang & Liaw, 2005; Rosen & Weil, 1995). This attitude-behavior relationship has been examined by researchers who are concerned with technology acceptance and adoption (Fiore, Yah, & Yoh, 2000; Sanders & Morrison-Shetlar, 2001).

Computer anxiety has been described as one of three basic factors of computer attitudes, the other two including computer importance (perceived usefulness) and computer enjoyment (liking) (Woodrow, 1991). Computer anxiety refers to an individual's feelings of unease, apprehension and fear about computer use (Igbaria & Parasuraman, 1989). Importantly, a large body of literature has provided consistent evidence of a relationship between computer anxiety and computer use (Bozionelos, 2001; Chua, Chen, & Wong, 1999; Czaja, Charness, Fisk, Hertzog, Nair, Rogers, 2006; Kay, 2008).

To illustrate, according to Bozionelos (2001), students who experience a high level of computer anxiety have been found to avoid computers or general areas where computers are found; be extremely cautious with computers; possess negative feelings about computers, and shorten the necessary use of computers. In Korobili, Togia & Malliari's (2010) viewpoint, computer anxiety and attitudes towards computers, which are two concepts closely tied to computer acceptance and hence to real computer usage, should be better comprehended, if new technologies are to be completely utilized by educators. Although these two concepts have been investigated in detail since the invention of computers in the 1980s, research studies on computer anxiety and attitudes are still

relevant today, especially in the field of teaching English as a second/foreign language (Burns & Coffin, 2001; Crystal, 2003; McKay, 2002).

Awareness of attitudes towards computers and of the factors affecting them is key to comprehending how prospective EFL teachers (English teacher candidates) respond to technology and whether computer anxiety gives rise to a cognitive behavior that hinders their realizing the usefulness and the power of technology. The focus of the present study is, therefore, on the elicitation of whether there is a relationship between prospective EFL teachers' computer anxiety levels and their attitudes toward computers. In addition, this study will also examine the effect of certain background characteristics, such as age, gender, computer ownership, computer accessibility and computer experience on prospective EFL teachers' computer anxiety and attitudes. In the light of the results, the researchers offer suggestions concerning actions that will mitigate the effects of computer anxiety and negative attitudes towards computers. In Turkey, no previously conducted research has ever discussed prospective EFL teachers' computer anxiety and computer attitudes simultaneously. Hence, it should be emphasized that this study is prominent because it will make contribution to the literature regarding computer anxiety and computer attitudes of prospective Turkish EFL teachers.

## Theoretical Background

### Computer Anxiety

Although computer anxiety has been investigated for an extended period of time, there is still divergence of opinion in the literature among researchers concerning its definition (Beckers, Wicherts, & Schmidt, 2007). Glass and Knight (1988) define computer anxiety as negative emotions in cognitive states evoked in actual or imaginary interaction with computer-related technology. Leso and Peck (1992) indicate that computer anxiety is a feeling of being fearful or apprehensive when utilizing or considering the use of a computer. According to Bozionelos (2001), computer anxiety is a negative emotional state or negative cognition experienced by an individual when s/he is employing a computer or

computer equipment. The literature exhibited that most definitions of computer anxiety include a fear factor (Chua, Chen, & Wong, 1999). Computerphobia (Rosen, Sears, & Weil, 1987), computer apprehension (Anderson, 1996), computer resistance (Bohlin & Hunt, 1995), or technophobia (Brosnan, 1999) are some of the other concepts utilized identically with computer anxiety. Computer anxiety directly and indirectly affects a person's choice of learning about computers and attaining a rational level of competency in computers. Morgan (1997) and Brosnan and Davidson (1996) noted that a computer anxious person encounters emotions linked with anxiety such as apprehension, discomfort, discouragement, annoyance, frustration, perplexing feelings, feeling of retrogression in doing tasks, computer avoidance, fear of losing control, sweaty palms, chest pain, trembling, etc.

While some researchers assert that there exists a negative relationship between computer anxiety and performance (George, Lankford & Wilson, 1992; Harrington, 1988; Hayek & Stephens, 1989), other scholars emphasize that there is no relationship between computer anxiety and performance (Dimock & Cormier, 1991; Ward, 1989). Most surprisingly, some researchers (e.g., Brosnan, 1998; Hayek & Stephens, 1989; Vogel, 1994) emphasize that introversion and extroversion affect the relationship between computer anxiety and performance. To illustrate, Vogel (1994) found that extroverts and those with low computer anxiety had negative effects on performance. Chua, Chen, & Wong (1999) also deduced that high and low computer anxiety gave rise to lower level of performance and moderate level of anxiety resulted in higher performance. Further, Bozionelos (2001) remarked that students with a high level of computer anxiety avoid computers or general areas where computers are found. They become highly careful with computers, hold negative feelings concerning computers, and reduce the necessary employment of computers.

In recent years, a number of researchers (e.g., Beckers & Schmidt, 2001; Beckers, Wicherts, Schmidt, 2007) have viewed computer anxiety as a multi-sided phenomenon, covering psychological, operational, and sociological components. According to Goldstein, Dudley, Erickson, & Richer (2002), the psychological component covers psychological and

emotional characteristics such as attitudes toward computers, self-perceptions, self-efficacy, personality types, or avoidance. As Namlı & Ceyhan (2002) state, the operational component covers immediate factors resulting from computers or computer courses such as computer classes, teachers, composition of computers, former experiences, the frequency of use, the age of commencing to employ computers, and possessing a personal computer. As for the sociological dimension, it includes factors such as gender, age, ethnicity, academic major, nationality, or parents' socio-economic status (SES) (Baloğlu & Çevik, 2009).

Relevant to age and computer anxiety relationship, studies show that older students tend to experience higher computer anxiety (e.g., Delgouet, Marquie, & Escribe, 1997; Kelly & Charness, 1995; Marquie, Jourdan-Boddaert, & Huet, 2002; Rosen and Weil, 1995) than younger students. However, Laguna and Babcock (1997) found the contrary. Related to gender and computer anxiety relationship, studies reveal that females are more computer anxious than males (Chou, 2003; Durndell & Haag, 2002; Jackson, Ervin, Gardner, & Schmitt, 2001; Tsai, Lin, & Tsai, 2001). However, other studies found no significant differences between males and females with regard to computer anxiety (Anthony, Clarke, & Anderson, 2000; Havelka, Beasley, & Roussos, 2004; Jackson, Barbatsis, Biocca, Zhao, & Fitzgerald, 2003; McIlroy, Bunting, Tierney, & Gordon, 2001; North & Noyes, 2002; Popovich, Gullekson, Morris, & Morse, 2008; Sam, Othman, & Nordin, 2005; Truell & Meggison, 2003; Yang, Mohamed, & Beyerbach, 1999). Finally, with respect to computer ownership, computer experience and computer anxiety relationship, studies indicate that computer ownership and computer experience decrease computer anxiety (Arikan, 2002; Baloğlu & Çevik, 2008; Chou, 2003; Yushau, 2006).

## **Computer Attitudes**

The term attitude can be defined as "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" (Fishbein & Ajzen, 1975, p. 6). Simpson, Coballa, Oliver & Crawley (1994) describe attitudes towards computers as specific feelings that refer to whether a person likes or dislikes employing computers. A number of researchers have focused on the close relationship between attitudes towards

computers and computer use in education (e.g., van Braak, 2001). Attitudes towards computers affect teachers' adoption of the fruitfulness of technology, and also influence whether teachers infuse ICT into their classroom (Akbaba & Kurubacak, 1999; Clark, 2001). In Myers and Halpin's (2002) view, a crucial reason for examining teachers' attitudes is that it is a basic indicator of future classroom computer use. A variety of research studies (e.g., Khine, 2001; Van Braak, Tondeur & Valcke, 2004) showed that there was a significant relationship between teachers' computer attitudes and its integration in the classroom.

In the literature, factors such as gender, computer experience and age were found to have considerable effect on computer attitudes. Gender, in particular, was the most investigated factor. However, studies concerning the impact of gender on computer attitudes produced contradictory results. While some studies unearthed that males had more positive attitude toward computer than females (e.g., Brosnan & Lee, 1998; Comber, Colley, Hargreaves, & Dorn, 1997; Torkzadeh & Van Dyke, 2002; Whitley, 1997), other studies indicated that gender had no significant impact on participants' computer attitudes (e.g., Ropp, 1999; Roussos, 2007). Relevant to computer experience, a number of studies (e.g., Alghazo, 2006; Aral, Butun-Ayhan, Unlu, Erdogan, & Unal, 2006; Deniz, 2005; Garland & Noyes, 2004; İşman, Evirgen, & Çengel, 2008; Hong & Koh, 2002; Paraskeva, Bounta & Papagianni, 2008; Torkzadeh, Chang & Demirhan, 2006) revealed that positive attitudes maximized with increasing experience with computers. Related to age, while several studies (e.g., Blankenship, 1998; Varner, 2003) found that young teachers had more positive attitudes toward computers than their older colleagues, many studies (e.g., Jones, 1998; Lin, 2002; Roza, 1994; Spiegel, 2001) asserted that old teachers still have positive attitudes toward computers.

Regarding the relationship between computer anxiety and attitudes, a plethora of studies have focused on the relationship between computer anxiety and attitudes. These studies have also investigated the correlation of computer anxiety and that of computer attitude with a variety of independent variables. The relationship between computer anxiety and computer attitudes was found to be negative in a number of studies (e.g. Hong & Koh,

2002; Korobili, Togia, Malliari, 2010; Popovich, Gullekson, Morris, Morse, 2008; Sam, Othman, Nordin, 2005). To illustrate, Hong & Koh (2002) unearthed that the overall computer anxiety among the teachers was low and hence the overall attitudes towards computers were positive. Korobili et al. (2010) also found that computer anxiety among the respondents was low and the respondents' attitudes towards computers were positive. They indicated that knowledge of the English language, PC ownership, access of students to computers at younger ages, perceived advanced computer skills and computer experience were the factors correlated negatively with anxiety and positively with attitudes. On the other hand, several research studies revealed a positive relationship between computer anxiety and computer attitudes (Bozionelos, 2001; Brosnan, 1998; Brosnan & Lee, 1998; Chua et al., 1999; Durndell & Haag, 2002).

## Method

### Participants

The sample was comprised of undergraduate students from the English Language Teaching Department of Faculty of Arts and Sciences at European University of Lefke ( $n=70$ , females= 40, males= 30), from freshmen year ( $n= 3$ , 4.3%), sophomores year ( $n= 34$ , 48.6%), juniors year ( $n= 26$ , 37.1%) and seniors year ( $n= 7$ , 10%). The mean age of the sample was 22.4,  $SD= 3.05$ , and the respondents' Cumulative Grade Point Average (CGPA) ranged from 2.00 to 4.00 out of 4.00 ( $M=3.00$ ,  $SD = 1.00$ ). Most of the respondents indicated that they had taken two computer courses ( $n= 56$ , 80%). Although almost all of the respondents ( $n= 68$ , 97.1%) owned a PC at home, they were different from one another in terms of their degree of access (average,  $n= 36$ , 51.4%; high,  $n= 17$ , 24.3%; very high,  $n= 17$ , 24.3%) to and experience (low experience,  $n= 8$ , 11.4%; moderate experience,  $n= 41$ , 58.6%; high experience  $n= 21$ , 30%) in computers. The overall profile of the participants is depicted in Table 1 below.

**Table 1.** Profile of the respondents (n= 70)

		Frequency	Percentage (%)
Age	18-20	13	18.6
	21-23	35	50.0
	23+	22	31.4
Gender	Male	30	42.9
	Female	40	57.1
Year of study	Freshmen	3	4.3
	Sophomore	34	48.6
	Juniors	26	37.1
	Seniors	7	10.0
CGPA	2.00-2.49	15	21.4
	2.50-2.99	29	41.4
	3.00-3.49	12	17.1
	3.50-4.00	14	20.0
Computer courses taken previously	1 comp. course	8	11.4
	2 comp. courses	56	80.0
	3 comp. courses	6	8.6
Computer ownership	Yes	68	97.1
	No	2	2.9
Degree of access to computers	average	36	51.4
	high	17	24.3
	very high	17	24.3
Computer experience	low experience	8	11.4
	moderate experience	41	58.6
	high experience	21	30.0

## Instruments

**Computer anxiety scale.** The prospective EFL teachers' computer anxiety was measured employing the CARS, designed by Heinssen, Glass & Knight (1987). The scale, which consists of nineteen items rated on a five-point Likert scale, wherein "1" refers to "strongly disagree" and "5" to "strongly agree", had the Cronbach alpha of .82 for the

current study. The sample items of computer anxiety scale read as: "I feel insecure about my ability to interpret a computer printout"; "I look forward to using a computer on my job" and "I do not think I would be able to learn to use a computer".

**Computer attitude scale.** To measure the respondents' computer attitude, the scale developed by Loyd & Gressard (1985) and modified by Yuen & Ma (2001) was deployed. This scale consisting of four sub-categories, namely *computer anxiety*, *computer confidence*, *computer liking* and *computer usefulness* had forty items scored on a five-point Likert scale (from "1" indicating "strongly disagree" to "5" indicating "strongly agree"). The scale had the Cronbach alpha of .78 for the current study. However, all the items in the subcategory entitled computer anxiety were excluded because a specific computer anxiety scale was also utilized by the researcher. The sample items of computer attitude scale read as: "I am sure I could do work with computers"; "I think working with computers would be enjoyable and stimulating" and "I will use computers many ways in my life".

## Data Analysis

The data collected were transferred to computer environment and analyzed in two parts, namely descriptive statistics and inferential statistics by employing Statistical Package for Social Sciences (SPSS) 15.0. The mean scores and standard deviations of the variables were calculated for descriptive statistics. A Pearson product-moment correlation coefficient was computed to assess (a) the relationship between computer anxiety and the CAS subscale "confidence", (b) the relationship between computer anxiety and the CAS subscale "liking", (c) the relationship between computer anxiety and the CAS subscale "usefulness", (d) the effect of background characteristics (i.e. age, gender, year of study, CGPA, computer courses taken, computer ownership, degree of access to computers, computer experience) on computer anxiety and (e) the effect of background characteristics (i.e. age, gender, year of study, CGPA, computer courses taken, computer ownership, degree of access to computers, computer experience) on the CAS subscales, namely "confidence", "liking" and "usefulness".

## Results

### Descriptive Analysis

A descriptive analysis was made to reveal prospective EFL teachers' computer anxiety and computer attitude scores. Mean and standard deviations were computed for these variables. The results are shown in Table 2. As seen in the table, prospective EFL teachers' scores were relatively moderate in both the computer anxiety scale ( $M=3.20$ ;  $SD=.35729$ ) and the sub-scales of the computer attitude, namely computer confidence ( $M=3.02$ ;  $SD=.43951$ ), computer liking ( $M=3.17$ ;  $SD=.47379$ ) and computer usefulness ( $M=3.35$ ;  $SD=.67647$ ).

**Table 2.** Mean scores for computer anxiety and sub-scales of computer attitude scale

Computer anxiety (Mean, SD)	Subscales of computer attitude scale		
	Computer confidence (Mean, SD)	Computer liking (Mean, SD)	Computer usefulness (Mean, SD)
3.20 (.35729)	3.02 (.43951)	3.17 (.47379)	3.35 (.67647)

### The Relationship between Anxiety and Attitudes towards Computers

The relationship between computer anxiety and the sub-scales of the CAS was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure that there were no violations of the assumptions of normality, linearity and homoscedasticity. The results of Pearson product-moment correlation coefficient showed a significant correlation between computer anxiety and computer liking ( $r = .35$ ,  $n=70$ ,  $p< 0.01$ ). However, no significant correlation was found between computer anxiety and computer confidence and between computer anxiety and computer usefulness. The results are shown in Table 3 below.

**Table 3.** Correlation between computer anxiety and the subscales of computer attitude scale

	Subscales of Computer Attitudes		
	Computer confidence	Computer liking	Computer usefulness
Computer anxiety	.19	.35**	.22

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

### Effect of Background Characteristics on Computer Anxiety and the Subscales of Computer Attitudes

Correlations between computer anxiety and subscales of computer attitudes and between computer anxiety and certain background characteristics were examined. Age, year of study, computer ownership and degree of access to computers were not found to be significant correlates of computer anxiety and attitudes towards computers. While Pearson's correlation coefficients revealed significant negative associations between computer courses taken previously and the CAS subscale "liking" ( $r = -.24$ ,  $n=70$ ,  $p < 0.05$ ) and between computer experience and the CAS subscale "confidence" ( $r = -.30$ ,  $n=70$ ,  $p < 0.01$ ), they indicated positive relationships between gender and the CAS subscale "usefulness" ( $r = .28$ ,  $n=70$ ,  $p < 0.05$ ) and between CGPA and the CAS subscale "liking" ( $r = .23$ ,  $n=70$ ,  $p < 0.05$ ) (Table 4).

**Table 4.** Correlation of background characteristics with computer anxiety and subscales of computer attitude scale

Background Characteristics	Computer Anxiety	Subscales of Computer Attitude Scale		
		Computer Confidence	Computer Liking	Computer Usefulness
Age	-.10	.01	-.11	-.12
Gender	.02	-.17	.13	.28*
Year of study	.10	-.19	-.21	-.19
CGPA	.17	-.03	.23*	.01
Computer courses taken	.04	-.05	-.24*	-.11
Computer ownership	.05	-.01	-.21	-.03
Degree of access to computers	.02	-.12	.09	.11
Computer experience	-.11	-.30**	.00	.11

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

## **Discussion**

The present study showed that prospective EFL teachers' scores were relatively moderate in computer anxiety scale and sub-scales of computer attitude. This result is not in agreement with those of other studies (Gressard & Loyd, 1986; Loyd & Gressard, 1985; Nash & Moroz, 1997; Park & Gamon, 1995; Robb, 1996; Yuen & Ma, 2001; and Yushau, 2006) which found teachers to have high scores in computer anxiety scale and sub-scales of computer attitude.

Relevant to the association between computer anxiety and computer liking, the results of this study revealed a positive correlation between computer anxiety and computer liking. This finding is in accordance with previous studies, which found that moderately computer anxious subjects had more positive attitudes towards the use of computers and the Internet (e.g. Brosnan, 1998; Brosnan & Lee, 1998; Chua et al., 1999; Bozionelos, 2001; Durndell & Haag, 2002). However, no significant correlation was found between computer anxiety and computer confidence and between computer anxiety and computer usefulness.

Related to the impact of age on computer anxiety and the subscales of computer attitudes, this study found no significant relationship between age and computer anxiety and between age and subscales of computer attitudes. This finding is not in line with previous studies, which revealed that older participants tend to experience higher computer anxiety (e.g. Delgoulet, Marquie, & Escribe, 1997; Kelly & Charness, 1995; Marquie, Jourdan-Boddaert, & Huet, 2002; Namlu & Ceyhan, 2002) and that young teachers have more positive attitudes toward computers than their older colleagues (e.g., Davis, 1999; Na, 1993; Varner, 2003).

Regarding the effect of gender on the CAS subscale "usefulness", the study unearthed a significant positive relationship between gender and the CAS subscale "usefulness". This finding is in line with previous studies, which revealed that males had more positive attitude toward computers than females (e.g., Broos, 2005; Durndell & Thompson, 1997; Eşgi & Bardakçı, 2007; Igbaria and Chakrabarti, 1990; Rosen & Maguire, 1990; Rosen &

Weil, 1995; Torkzadeh & Van Dyke, 2002; Whately & Bernard, 1997). Related to the effect of gender on computer anxiety and the CAS subscales "confidence" and "liking", no significant relationship was found between gender and computer anxiety and between gender and the CAS subscales "confidence" and "liking" in the present study. However, literature revealed that females have greater computer anxiety than males (e.g. Brosnan, 1998; McIlroy, Bunting, Tierney, & Gordon, 2001; Rekabdarkolaei & Amuei, 2008; Rosen & Weil, 1995).

Regarding the effect of year of study on computer anxiety and the subscales of computer attitudes, this study revealed no significant relationship between year of study and computer anxiety and between year of study and the subscales of computer attitudes. This finding supports the finding of a study conducted by Birişçi, Metin & Karakaş (2009) which indicated that there was no significant difference between year of study and computer attitude and that freshman students had the highest level of computer anxiety and senior students had the lowest level of computer anxiety.

Related to the effect of CGPA on computer anxiety and the subscales of computer attitudes, while the present study found no significant relationship between CGPA and computer anxiety and between CGPA and the CAS subscales "confidence" and "usefulness", it found a significant positive association between CGPA and the CAS subscale "liking". In the literature, while a number of studies have focused on the effect of age, gender, year of study, computer experience and degree of access to computers on prospective EFL teachers' computer anxiety and computer attitude, no study has ever been conducted to reveal the effect of prospective EFL teachers' CGPA on computer anxiety and the sub-scales of the CAS. In this vein, the present study contributes to the literature with its overtly stated finding that prospective EFL teachers' CGPA positively affects their liking computers.

Relevant to the effect of computer courses taken previously on computer anxiety and the subscales of computer attitudes, while no significant relationship was found between computer courses taken previously and computer anxiety and between computer courses taken previously and CAS subscales "confidence" and "usefulness" in the present study, a

significant negative relationship was found between computer courses taken previously and CAS sub-scale "liking". This finding is not in accordance with previous studies, which found that teachers' attitudes about computers differ according to whether they have attended a computer-aided instruction course or not (e.g., Birgin, Catlioğlu, Gürbüz, Aydin, 2010; Dupagne & Krendl, 1992; Kutluca, 2010).

With respect to the effect of computer ownership on computer anxiety and the subscales of computer attitudes, this study found no significant relationship between computer ownership and computer anxiety and between computer ownership and prospective EFL teachers' computer attitudes. This finding is not parallel with the findings of a number of studies in the literature, which stress that computer owners have more favorable attitudes toward computers (e.g., Deniz, 2000; Levin, T., & Gordon, C., 1989; Namlu, A.G., & Ceyhan, E., 2003; Roussos, 2007) and that there is a significant relationship between computer ownership and computer anxiety (e.g., Hong & Koh, 2002; Igbaria, Parasuaman & Baroudi, 1996; Namlu & Ceyhan, 2002; Necessary & Parish, 1996; Selwyn, 1997; Roop, 1999).

Relevant to the effect of degree of access to computers on computer anxiety and the subscales of computer attitudes, this study found no significant relationship between degree of access to computers and computer anxiety and between degree of access to computers and the subscales of computer attitudes. This finding is not in accordance with previous studies, which reveal that prospective EFL teachers' level of computer anxiety differ related to frequency of computer use (e.g., Necessary & Parish, 1996) and that prospective EFL teachers' attitudes about computers differ according to their frequency of computer use (e.g., Birgin, Catlioğlu, Gürbüz, Aydin, 2010; Kutluca, 2010).

In relation to the effect of computer experience on computer anxiety, the present study found no significant relationship between computer experience and computer anxiety. This finding is not in line with the findings of other studies in the literature which indicate that there is a relationship between computer anxiety and computer experience (e.g. Chua et al., 1999; Yaghi & Ghait, 2002). While a number of researchers revealed a decline in the level of computer anxiety as computer experience maximized (e.g. Chua et al., 1999;

Gürcan-Namlu, A., & Ceyhan, E, 2003; Hallam, 2008; Thorpe, S. J., & Brosnan, M, 2007), the present study showed that individuals' computer anxiety levels do not significantly decrease when their computer experiences increase. Relevant to the effect of computer experience on the subscales of computer attitudes, while no significant relationship was found between computer experience and the CAS subscale "liking" and between computer experience and the CAS subscale "usefulness", a significant negative association was found between computer experience and the CAS subscale "confidence" in the present study. This finding is in opposition to the findings of a number of studies (Aral, Bütün-Ayhan, Ünlü, Erdoğan, & Unal, 2006; Deniz, 2005; İşman, Evirgen, & Çengel, 2008; Kutluca, 2010 and Sadık, 2006) which stated that positive attitudes increased with increasing experience with computers, and that those with more computer experience possessed more positive attitudes.

## Conclusion

Results displayed that overall prospective EFL teachers had relatively moderate scores in computer anxiety scale and the sub-scales of CAS, namely computer confidence, computer liking and computer usefulness. While a significant correlation was found between computer anxiety and computer liking, no significant correlation was found between computer anxiety and computer confidence and between computer anxiety and computer usefulness. Related to the impact of fixed participant features on computer anxiety and computer attitude, the study revealed that age, grade, computer ownership and degree of access to computers were not significant correlates of computer anxiety and attitudes towards computers. However, the study indicated that gender and the CAS subscale "usefulness" and CGPA and the CAS subscale "liking" were positively correlated. Finally, correlational analysis showed a significant negative association between computer courses taken previously and the CAS subscale "liking" and between computer experience and the CAS subscale "confidence". Hence, teacher educators in higher education contexts and program developers in the Ministry of Education should consider these results and modify or reshape the contents of the computer courses offered in English teacher training

programs to meet the needs and expectations of prospective EFL teachers. Only then can prospective EFL teachers be technogeeks having more positive computer attitudes and less computer anxiety rather than technophobes having negative computer attitudes and more computer anxiety.

### **Limitations**

As only 70 prospective EFL teachers from the English Language Teaching Department of European University of Lefke participated in this study, the findings cannot be generalized to the overall population of prospective EFL teachers in English Language Teaching Departments in Northern Cyprus Universities. Furthermore, the study was restricted to computer anxiety and computer attitudes of prospective EFL teachers at the English Language Teaching Department of a private university and it did not include prospective EFL teachers' computer anxiety and computer attitudes at other foreign language departments such as English Language and Literature Departments, Translation and Interpretation Departments in North Cyprus Universities to have more generalized results. Besides, because prospective EFL teachers differ from one other in terms of background characteristics (i.e. age, gender, year of study, computer experience, computer ownership, computer courses taken previously), computer anxiety and computer attitude, their computer anxiety level and computer attitude might not be the same as those of their peers.

### **Future Directions**

In future studies, prospective EFL teachers' computer anxiety and computer attitude can be compared and contrasted with prospective science teachers' computer anxiety and computer attitude. Studies that focus on classroom observation of computer-supported activities can also be conducted in the future to reveal whether there is a correlation between computer-supported activities and prospective EFL teachers' computer anxiety and computer attitude.

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