Examining the Computer Attitudes and Internet Attitudes of Substitute Teachers: Self-Confidence towards ICT*

Seyithan Demirdag[1]

*This paper was presented at International Journal of Arts & Sciences' (IJAS) *International Conference for Education,* 23-27 May, Boston, USA by a grant provided by Bulent Ecevit University with ID# 2016-YKD-19959079-01

[1]Assistant Professor, Department of Educational Sciences, Bulent Ecevit University, Turkey, seyithandemirdag@gmail.com

Abstract
The goal of this quantitative study was to determine the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards Information and Communications Technology (ICT). The participants of the study included 348 substitute teachers studying to receive their teaching certificates in pedagogical proficiency classes at a university in Zonguldak, Turkey. The study included three instruments: Computer Attitudes Scale-Marmara (BTO-M), Survey of Factors Affecting Teachers Teaching with Technology (SFA-T), and Attitude Scale Towards Internet Usage (ASTIU). The data were analyzed through independent samples t-tests, Anova tests, Pearson product-moment correlation coefficient, and regression analysis. The results indicated that there was a positive and a significant relationship between the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards ICT. In addition, the results suggested that substitute teachers' self-confidence towards ICT positively affected their computer attitudes and internet attitudes.

Keywords :Computer attitudes, internet attitudes, self-confidence towards ICT, substitute teachers.

Introduction

People have witnessed many developments and innovations related to new technologies in different areas and observed the changes that have affected the routines of their life. This situation has had an impact not only on social, cultural, and economic aspects of the community, but it has had a substantial effect on the technologies used in the educational arena. In this information age, schools, which invested in new technologies, were able to successfully disseminate knowledge on the use of technologies among teachers to provide quality teaching and learning for their students. The most prominent feature of this era is that it is called the information age as people are becoming more aware of the fact that having access to a specific knowledge is easier through technologies such as computers and internet. Since obtaining information through technology saves time and effort, training people to effectively use new technology and establishing positive attitudes towards such tools must be considered as a pivotal concern.

With information age, changes occurred in the field of information and communication technologies not only brought comfort into people's life but it eliminated the barriers preventing effective communication and provided fast and effective communication among peers (Özgür, 2013). The rapid changes in new technologies enabled some individuals to develop positive attitudes towards such tools in order to improve their knowledge and effectively communicate with others. On the other hand, getting adapted to the rapid changes in ICT has become a challenging issue for some other individuals as they started to observe deficiencies in their self-confidence towards ICT (Adıgüzel, 2010). Several factors have dictated the computer attitudes, internet attitudes, and self-confidence of people towards ICT. These factors included but were not limited to having an experience with computers in early ages, possessing a computer, and having access to ICT (Yucel, Acun, Tarman, and Mete, 2010).

Computer Attitudes

There have been efforts put into place in many countries to increase the instructional usage of computers in schools (Deniz, 1997). The widespread use of computers in schools has created fundamental changes in the perceptions of individuals, in instruction and learning,

and leadership process (Deniz, 2000). In addition, the usage of computers in the classrooms has affected the attitudes of both students and teachers. There have been several definitions made about attitudes. Eren (1993) suggested that attitude is a recognition process of values that are associated with a person's own beliefs. According to Mathis, Smith, and Hansen (1970), attitude is attributed to a person's psychological thoughts, feelings and behaviors. In that sense, computer attitudes refer to the tendency of a person towards computers, computer use, and the effects of computers on thoughts and feelings of society (Deniz, 1995). In general, the computer attitudes include computer anxiety, self-confidence in computers, interest in computers, fondness to computers, and prejudice against computers (Lloyd and Lloyd, 1985; Marcoulides, 1989). Research has been conducted about computer attitudes and it specifically focused on gender, experience, and computer literacy (Tans, 1990).

According to research conducted by Coilis and Williams (1987), males were more involved and interested in computer related activities than females. In another research, Tans (1990) found that both males and females had positive attitudes towards computers and that there were no significant differences on attitudes towards computers between males and females. A person's experience about computers depends on several factors: taking computer courses, spending enough time on computers, having a computer at home, and being able to use computers for various purposes (Anderson, 1987). In a study, Loyd and Gressard (1984) suggested that there was a meaningful relationship between developing positive attitudes towards computers and being experienced on computers. Ventura and Ramamurthy (2004) investigated the effect of computer experiences on students' achievement. They found that there were no significant relationships between two variables. Tans (1990) indicated that individuals lacking in computer literacy may establish computer anxiety in their cognition. He added that there was a strong relationship between computer literacy and computer attitudes.

Internet Attitudes

Internet has been one of the most indispensable technologies that people use as a venue to reach to knowledge and resources. Comparing to a decade ago, people have frequently been using internet as an active tool to collect information from certain resources. In this case, internet is the biggest international web, which creates communication among all computers (Yalin, 2002). The importance of internet has become clearer in this information era. It is evident that the needs and attitudes of people, who constantly seek knowledge, have increased (Akkoyunlu, Saglam, and Atav, 2006). The use of internet has become common not just in business related activities, but it has widely been used in schools to allow administrators, teachers, and students to benefit from the advantages of accessing knowledge through technology (Gökçearslan and Seferoglu, 2005). Internet has been in education for different purposes including instruction, research, social media, sharing information, and as educational tools (Akkoyunlu and Yılmaz, 2005). Using internet teaches students how to take responsibility in reaching knowledge and establish learning experiences in their school or community. Students would be able conduct research and learn how to communicate with others about their research topics and projects (Altun and Altun, 2000).

Research suggests that providing professional development for teachers on how to use internet may allow teachers to pass their knowledge onto next generations (Dursun and Çevik, 2005). According to Usta, Bozdoğan, and Yıldırım (2007), there was a difference in internet attitudes of students based on their genders. They suggested that students, who had a computer at their homes, had higher internet attitudes than those who did not have a computer. Researchers claimed that students, who started using computers at early ages, had more positive attitudes towards internet than students, who started using computers during college years. Lastly, they found that students mainly used internet for educational purposes

and social media. Another research results have showed that many universities prefer using internet in their classrooms as a convenient tool to teach certain courses (Gurcan, 1999). Internet enables academic researchers to have access to advanced universal technologies. Many students use internet to obtain information through electronic libraries and databases for their research projects or homework (Gurcan, 1999). Küçükahmet (2001) claimed that using internet for educational purposes should be mandatory for all schools as it provides oppurtunitites for students to adapt to new technologies and benefit from their advantages. He added that this approach would increase positive internet attitudes of the students.

Self-confidence towards ICT

Self-confidence refers to a person's belief in meeting challenges while performing on a certain task (Woodman and Hardy, 2003). Self-confidence towards ICT includes positive beliefs towards technology and communication related activities. Developments in ICT have dramatically changed over the time. Such developments have created fundamental changes in instructional and learning methods and strategies in school settings (Sam, Othman and Nordin, 2005). In this era, the use of ICT requires classroom teachers to be role models, productive, and effective in teaching and learning process (Tezci, 2010). Recent studies have focused on measuring the perceptions of students and teachers towards ICT. According to Madge, Meek, Wellens, and Hooley (2009), students use ICT to make friends and communicate with their peers and family. Kayri and Çakır (2010) claimed that students were willing to use ICT for life-long learning situations. Ma, Andersson, and Streith (2005) conducted a study and found that self-confidence towards using computers and finding the technology beneficial were two key factors affecting the attitudes of teachers towards computers while teaching.

Roussos (2007) has suggested that lack of knowledge in ICT should be considered as a disadvantageous situation for students and teachers. Lack of knowledge and experience of teachers about ICT creates lack of self-confidence and anxiety towards such technologies. Ertmer (2006) claimed that self-confidence was a strong indicator for teachers to use technologies in their classrooms. According to research, individuals with high levels of self-confidence had more tendencies in using ICT than those who had low levels of self-confidence (Sam et al., 2005; Shashaani and Khalili, 2001). Research also showed that gender (Olgletree and Williams, 1990), knowledge, and experience (Garland and Noyes, 2004; İşman and Çelikli, 2009) may be crucial factors in determining self-confidence of individuals. In a study, Bakırcı, Eyduran, and Erdemir (2009) found that teacher candidates did not receive enough training during the undergraduate years to develop their understanding on how to use computers for educational purposes. Lack of such training negatively affected the self-confidence of teacher candidates towards ICT (Acuner and İpek, 2011; Oral, 2008). In another study, Ekici and Kutluca (2010) indicated that the attitudes and self-confidence of teacher candidates towards ICT were positive in general and that genders and frequency in using computers were crucial indicators in determining such attitudes and self-confidence.

Purpose of Study

Research has been conducted to measure the knowledge, skills, and attitudes of in-service teachers and teacher candidates towards ICT, however only little research has been conducted to investigate the attitudes of substitute teachers towards technology. Moreover, there has been no research conducted on the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards ICT in Turkey. As a result, there is a deficiency in research in regards to the perceptions of substitute teachers towards ICT. Therefore, this research examined such perceptions of substitute teachers to resolve deficiency in the field and to make a contribution to the literature. In line with this, the aim of

this is study was to investigate the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards ICT. In line with this aim the following research questions were studied:

1- What are the computer attitude and internet attitude levels of substitute teachers?
2- What are the self-confidence levels of substitute teachers towards ICT?
3- What is the relationship among computer attitude, internet attitude, and self-confidence levels of substitute teachers towards ICT?
4- How do self-confidence levels towards ICT explain the computer attitudes and internet attitudes of substitute teachers?

Methods

Model

This quantitative study included a correlational design to examine the relationship between the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards ICT. The participants were selected through a convenience sampling method. The methodology of this research included a survey method, which aimed to describe a phenomenon in the past and present. The validity and reliability of the study were ensured using the member checking approach.

Table 1. *Percentages of genders and departments participating in the study*

Variables	Group	N	Percent	Cumulative Percent
Genders	Male	93	26.7	26.7
	Female	255	73.3	100.0
Departments	Turkish Teachers	184	52.9	52.9
	Math Teachers	61	17.5	70.4
	Science Teachers	51	14.7	85.1
	Social Studies Teachers	52	14.9	100.0

Setting and Participants

The study was conducted at a university, which included substitute teachers studying to receive their teaching certificates in pedagogical proficiency classrooms. The study was conducted during 2014-2015 school years in Zonguldak, Turkey. It employed a survey model and a random sample approach. The sample of the study included 348 participants (see Table 1). The participants included 93 males (%26.7) and 255 females (%73.3). In addition, the study included 184 Turkish teachers (%52.9), 61 Math teachers (%17.5), 51 Science teachers (%14.7), and 52 Social Studies teachers (%14.9).

Data Collection Tools

Computer Attitudes Scale-Marmara (BTO-M): The instrument was developed by Deniz (1994) and includes 42 items. This 5-point Likert scale instrument included five possible responses: 1= strongly disagree, 2= disagree, 3= undecided, 4= agree, and 5= strongly agree. The reliability of the instrument was measured and the coefficient alpha showed reliability as it was .92. When the items on the instrument were examined it was found that some of the items such as 6, 8, 9, 12, 14, 15, 20, 23, 24, 25, 32, 33, 34, 36, 37, 38, 40, 41, and 42 included reverse coding. Therefor the Likert scale for these items was treated accordingly. The validity of the instrument was measured using test-retest approaches. The instrument was used to investigate the computer attitudes of substitute teachers.

Survey of Factors Affecting Teachers Teaching with Technology (SFA-T): This instrument was used to measure self-confidence of substitute teachers towards ICT. The instrument was developed by Papanastasiou and Angeli (2008). The Turkish adaptation of the instrument was employed by Tezci (2010). The instrument included 9 items and was constructed as a 5-point Likert scale. It included five possible answers: 1= strongly disagree, 2= disagree, 3= undecided, 4= agree, and 5= strongly agree. The reliability of the instrument was measured and the Cronbach's alpha showed reliability as it was .76.

Attitude Scale Towards Internet Usage (ASTIU): The instrument was used to measure the attitudes of substitute teachers towards internet usage. It was developed by Tavsancıl and Keser (2005). This 5-point Likert scale instrument included 31 items and had five possible responses: 1= strongly disagree, 2= disagree, 3= undecided, 4= agree, and 5= strongly agree. The reliability of the instrument was measured and the coefficient alpha showed reliability as it was .89. The instrument was pilot tested with 132 participants for its validity and the Cronbach's alpha was found to be .84.

Data Analysis

This quantitative research included the examination of three instruments and their relationships. SPSS 20.0 was used for data analysis. After the data collection, the data were analyzed based on arithmetic means, standard deviations, independent samples t-test results, Anova test results, Pearson product-moment correlation coefficient, and regression analysis. Independent samples t-test was used to determine the differences on genders of substitute teachers on the basis of computer attitudes and internet attitudes, and self-confidence towards ICT. Anova tests were conducted to determine the differences on majors of substitute teachers on the basis of computer attitudes and internet attitudes, and self-confidence towards ICT. Pearson correlation was conducted to determine the relationships between the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards ICT. Lastly, regression analysis was conducted to determine whether self-confidence levels towards ICT explain the computer attitudes and internet attitudes of substitute teachers.

Results

Table In this part, the results are presented according to mean scores of substitute teachers on the basis computer attitudes, internet attitudes, and self-confidence towards ICT. The mean differences between genders and majors of substitute teachers were evaluated. In addition, the relationships among variables including computer attitudes, internet attitudes, and self-confidence towards ICT were investigated. Lastly, whether self-confidence towards ICT explained the computer attitudes and internet attitudes of substitute teachers was examined.

Table 2. *Summary of ranges, means, and standard deviations on variables*

Variables	**N**	**Min-Max**	**M**	**SD**
Computer attitudes	348	1.00 - 5.00	3.74	.89
Self-confidence towards ICT	348	2.00 - 5.00	3.82	.93
Internet attitudes	348	1.00 - 5.00	3.89	.92

The mean values on computer attitudes, internet attitudes, and self-confidence towards ICT were examined and the results showed that substitute teachers had the highest mean score on internet attitudes (M = 3.89, SD = .92) and the lowest score on computer attitudes (M =

3.74, SD = .89). Substitute teachers had higher mean scores on self-confidence towards ICT (M = 3.82, SD = .93) than computer attitudes (see Table 2).

Table 3. *Independent samples t-test results on variables between genders*

Variables	Group	N	M	SD	t	p
Computer attitudes	Male	93	4.05	.81	3.96	.00
	Female	255	3.63	.90		
Self-confidence towards ICT	Male	93	3.98	.86	1.99	.04
	Female	255	3.76	.95		
Internet attitudes	Male	93	4.03	.87	1.73	.08
	Female	255	3.83	.93		

The mean differences between genders of substitute teachers based on the computer attitudes, internet attitudes, and self-confidence towards ICT were evaluated and the results suggested that there were significant results on computer attitudes with conditions, $t(346) = 3.96$; $p = .00$ and on self-confidence towards ICT with conditions, $t(346) = 1.99$; $p = .04$. On the other hand, the findings indicated that there were no significant differences on internet attitudes with conditions, $t(346) = 1.73$; $p = .08$ (see Table 3).

Table 4. *Anova test results on variables among departments*

Variables	Groups	M	SD	N	F	p
Computer attitudes	Turkish Teachers	3.61	.87	184	3.48	.01
	Math Teachers	3.83	.89	61		
	Science Teachers	4.03	.93	51		
	Social Studies Teachers	3.80	.86	52		
Self-confidence towards ICT	Turkish Teachers	3.77	.92	184	1.80	.14
	Math Teachers	3.73	.96	61		
	Science Teachers	4.09	.92	51		
	Social Studies Teachers	3.82	.90	52		
Internet attitudes	Turkish Teachers	3.91	.93	184	1.98	.11
	Math Teachers	3.78	.95	61		
	Science Teachers	4.11	.90	51		
	Social Studies Teachers	3.71	.82	52		

Substitute teachers' majors based on the computer attitudes, internet attitudes, and self-confidence towards ICT were examined and the findings indicated that there were significant results on computer attitudes with conditions, $F(3,344) = 3.48$; $p = .01$. The findings also suggested that there were not any significant differences among the majors of substitute teachers on the basis of self-confidence towards ICT with conditions, $F(3,344) = 1.80$; $p = .14$ and internet attitudes with conditions, $F(3,344) = 1.98$; $p = .11$ (see Table 4).

Table 5. *Correlation matrix results among variables in the study*

Variables	Computer attitudes	Self-confidence towards ICT	Internet attitudes
Computer attitudes	1.00		
Self-confidence towards ICT	.26**	1.00	
Internet attitudes	.14**	.32**	1.00

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

The relationships among computer attitudes, internet attitudes, and self-confidence towards ICT of substitute teachers were analyzed using Pearson's correlation (see Table 5). The results of the analysis indicated that there was a positive and a meaningful relationship between computer attitudes and internet attitudes of substitute teachers (r = .14; p <.01). The findings also showed that there was a positive and a meaningful relationship between substitute teachers' computer attitudes and their self-confidence towards ICT (r = .26; p <.01). Lastly, the results indicated that there was a positive and a meaningful relationship between substitute teachers' internet attitudes and their self-confidence towards ICT (r = .32; p <.01).

Table 6. *Results of the regression analysis on the study variables*

Dependent Variable	**Independent Variables**	**β**	**t**	**p**	**F**	**Model (p)**	**R^2**
Self-confidence towards ICT	(Constant)	1.79	6.88	.00	31.66	.00	.15
	Computer attitudes	.23	4.57	.00			
	Internet attitudes	.29	5.80	.00			

Finally, regression analysis was conducted to determine whether self-confidence levels towards ICT explain the computer attitudes and internet attitudes of substitute teachers in pedagogical proficiency classrooms (see Table 6). According to this model, %15 of total variability in self-confidence towards ICT was explained by internet attitudes and computer attitudes of substitute teachers. The findings also showed that substitute teachers' self-confidence towards ICT positively affected their computer attitudes (β = .23) and internet attitudes (β = .29).

Discussion

In this study, the computer attitude levels, internet attitude levels, and self-confidence levels of substitute teachers towards ICT were examined. The perceptions of substitute teachers on these three factors were observed at an adequate level meaning that their attitudes were considered to be positive. These findings are similar to research conducted in parallel studies. In a study, Tans (1990) found that people tend to develop positive computer attitudes while using computers to obtain information. Küçükahmet (2001) suggested that teachers developed positive internet behaviors as they started to reinforce the use of more internet in their instructional approaches. In addition, such reinforcement helped both students and teachers to develop self-confidence in ICT (Sam et al., 2005; Shashaani and Khalili, 2001). These findings indicate that substitute teachers are familiar with computers and internet as they have adequate self-confidence towards ICT and tend to use these technologies to teach in their classrooms or to obtain information on a specific topic. The study findings also showed that the computer attitude levels, internet attitude levels, and self-confidence levels of substitute teachers towards ICT were different on the basis of their genders and majors. In parallel findings, gender of the participants found to be key indicators affecting computer attitudes (Tans, 1990), internet attitudes (Usta et al., 2007), and self-confidence levels towards ICT (Olgletree and Williams, 1990). Garland and Noyes (2004) and İşman and Çelikli (2009) claimed that teachers' experience with computers may affect such attitudes as well. According to the study results it is viable to suggest that males have more access to computer, internet, and ICT compared to females in Turkey.

The relationships among computer attitude, internet attitude, and self-confidence levels of substitute teachers towards ICT were examined and the findings showed that there was a meaningful and a positive relationship between computer attitudes and internet attitudes of substitute teachers. Similar research findings suggested that people, who have experience with computers in early stages of their life, would develop positive attitudes towards internet

(Anderson, 1987; Loyd and Gressard, 1984). Moving from this point, it may be suggested that substitute teachers who know how to use computers in real life would have no difficulties in using internet in the classroom for instructional purposes. The results also showed that the relationship between computer attitudes and self-confidence levels of substitute teachers towards ICT was meaningful and positive. Based on similar research findings, Ekici and Kutluca (2010) found that using computers frequently increased the self-confidence levels of teachers towards ICT. However, in another study, the researchers found that lack of training on computers decreased the self-confidence levels of teachers towards ICT (Acuner and İpek, 2011; Oral, 2008). At this point, it may be claimed that the experiences of substitute teachers with computers are the strong factors affecting their self-confidence towards ICT. In addition, study findings indicated that the relationship between the internet attitudes and self-confidence levels of substitute teachers towards ICT was meaningful and positive. In parallel study results, researchers found that the use technology such as internet became inevitable for educators as they started using more and more internet in their classrooms due to the fact that it was a fast and comfortable way of accessing new knowledge (Akkoyunlu et al., 2006; Gökçearslan and Seferoglu, 2005; Yalin, 2002). In this case, it may be concluded from the study findings that using more and more internet to access to new resources increased self-confidence levels of substitute teachers towards ICT.

In the last part of the study, whether self-confidence levels towards ICT explain the computer attitudes and internet attitudes of substitute teachers were examined. The results showed that self-confidence levels of substitute teachers towards ICT had positive impacts on their computer attitudes and internet attitudes. Researchers claimed that establishing self-confidence towards new technologies would increase frequency of computer and internet usage among teachers during their instructional times (Ertmer, 2006; Madge et al., 2009; Sam et al., 2005; Tezci, 2010). Based on research findings, it may be suggested that when substitute teachers develop self-confidence towards ICT, it will be likely that they would use more computers and internet as instructional tools to communicate with others in order to access educational resources for their students.

Implications and Suggestions

In conclusion, this study showed that there were meaningful and positive relationships between computer attitudes and internet attitudes of substitute teachers, and their self-confidence levels towards ICT. The widespread use of technologies such as computers and internet have been common in the classrooms as they save time and money and enable teachers to easily have access to new educational resources for their students. With information age, having beneficial outcomes from computer and internet usage require educators to successfully know how to adapt to ICT. As the academic success of students and teachers may be linked to the computer attitudes and internet attitudes of teachers and their self-confidence towards ICT, it is strongly advised that stakeholders in education should provide access to new technologies in their schools and encourage teachers to participate in informative trainings and seminars on such crucial topics. That way, teachers would be informed enough about the advantages of computers, internet, and ICT in order to enhance their students' academic achievement through technology driven teaching strategies. Lastly, it is important to note that the generalizability of the findings of the present study was limited by the small sample size and the use of self-reporting surveys. It is recommended that future studies may be built on the current one and include larger sample sizes in order to be able to generalize the findings and provide a more detailed understanding of the factors that underlay the computer attitudes and internet attitudes of substitute teachers and their self-confidence towards ICT.

References

Acuner, H. Y., & İpek, C. (2011). Sınıf öğretmeni adaylarının bilgisayar öz-yeterlik inançları ve eğitim teknolojilerine yönelik tutumları. *Ahi Evran Üniversitesi Eğitim Fakültesi Dergisi*, 12(2), 23-40.

Adıgüzel, A. (2010). İlköğretim okullarında öğretim teknolojilerinin durumu ve sınıf öğretmenlerinin bu teknolojileri kullanma düzeyleri. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi,* 15, 1-17.

Akkoyunlu, B., Atav, E., & Sağlam, N. (2006). Öğretmen Adaylarının İnternete Erişim Ve Kullanım Amaçları. *Hacettepe Eğitim Fakültesi Dergisi*, *30*.

Akkoyunlu, B., & Yılmaz, M. (2005). Öğretmen adaylarının bilgi okuryazarlık düzeyleri ile nternet kullanım amaçları. *Eğitim Araştırmaları, Sayı*, *19(1), 14*.

Altun, S. A., & Altun, A. (2000). Bir eğitim aracı olarak internet. *Milli Eğitim Dergisi*, *147*, 23 25.

Anderson, R. E. (1987). Females surpass males in computer problem solving: findings from the Minnesota Computer Literacy Assessment. *Journal of Educational Computing Research, 3*(1), 39-51.

Bakırcı, H., Eyduran, E., & Erdemir, N. (2009). Öğretmen adaylarının eğitimde teknoloji kullanabilme özgüvenlerinin tespiti. *Türk Fen Eğitimi Dergisi,* 6(3), 99-108.

Collis, B. A., & Williams, R. L. (1987). Cross-cultural comparison of gender differences in adolescents' attitudes toward computers and selected school subjects. *The Journal of Educational Research, 81*(1), 17-27.

Deniz, L. (2000). Öğretmen adaylarının bilgisayar yaşantıları ve bilgisayar tutumları. *M. Ü. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 12,* 135–166.

Deniz L. (1997). İngiliz okul sisteminde okullarda bilgisayarların yeri. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 9*, 183-189.

Deniz. L. (1995) Öğretmen adaylarının bilgisayar tutumları. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 7,* 51-60.

Dursun, F., & Çevik, V. (2005). Öğretmenlerin bilgisayar kullanım düzeyleri. *.XIV. Ulusal Eğitim Bilimleri Kongresi Pamukkale Üniversitesi Eğitim Fakültesi*, 28-30.

Ekici, G., & Kutluca, T. (2010). Öğretmen adaylarının bilgisayar destekli eğitime ilişkin tutum ve öz-yeterlik algılarının incelenmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 38, 177-188.

Eren, E. (1993). Yönetim Psikolojisi, 4. *Baskı, Beta Yayıncılık, İstanbul*.

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational technology research and development*, *53*(4), 25-39.

Garland, K. J., & Noyes, J. M. (2004). Computer experience: a poor predictor of computer attitudes. *Computers in Human Behavior*, *20*(6), 823-840.

Gökçearslan, Ş., & Seferoğlu, S. S. (2005). Öğrencilerin Evde Bilgisayar Kullanımına İlişkin Bir Çalışma. *XIV. Ulusal Eğitim Bilimleri Kongresi Pamukkale Üniversitesi Eğitim Fakültesi*, 28-30.

Gürcan, H. İ. (1999). Sanal üniversiteler ve sanal gazeteler. Kara Kuvvetleri EDOK *Birinci Uzaktan Eğitim Sempozyumu*, Ankara.

Isman, A., & Celikli, G. E. (2009). How Does Student Ability and Self-Efficacy Affect the Usage of Computer Technology? The Turkish Online Journal of Educational Technology,*8*(1), 33-38.

Küçükahmet, L. (2001). *Öğretim ilke ve yöntemleri*. Nobel Yayın Dağıtım.

Loyd, B. H., & Gressard, C. (1984). The effects of sex, age, and computer experience on computer attitudes. *AEDS journal*, *18*(2), 67-77.

Loyd, B. H., & Loyd, D. E. (1985). The reliability and validity of an instrument for the assessment of computer attitudes. *Educational and psychological measurement*, *45*(4), 903-908.

Ma, W. W. K., Andersson, R., & Streith, K. O. (2005). Examining user acceptance of computer technology: An empirical study of student teachers.*Journal of Computer Assisted Learning*, *21*(6), 387-395.

Madge, C., Meek, J., Wellens J., & Hooley, T. (2009). Facebook, social integration and informal learning at university: 'It is more for socialising and talking to friends about work than for actually doing work. *Learning, Media and Technology*, *34*(2), 141-155.

Marcoulides, G. A. (1989). Measuring computer anxiety: The computer anxiety scale. *Educational and Psychological Measurement*, *49*(3), 733-739.

Mathis, A., Smith, T., & Hansen, D. (1970). College students' attitudes toward computer-assisted instruction. *Journal of Educational Psychology*, *61*(1), 46.

Ogletree, S. M., & Williams, S. W. (1990). Sex and sex-typing effects on computer attitudes and aptitude. *Sex Roles*, *23*(11-12), 703-712.

Oral, B., (2008). The evaluation of the student teachers' attitudes toward Internet and democracy. *Computers & Education, 50,* 437–445.

Özgür, H. (2013). Analyzing the relationship between social networking addiction, interaction anxiousness and levels of loneliness of pre-service teachers. *International Journal of Human Sciences*, *10*(2), 667-690.

Roussos, P. (2007). The Greek computer attitudes scale: construction and assessment of psychometric properties. *Computers in Human Behavior*, *23*(1), 578-590.

Sam, H. K., Othman, A. E. A., & Nordin, Z. S. (2005). Computer self-efficacy, computer anxiety, and attitudes toward the Internet: A study among undergraduates in Unimas. *Journal of Educational Technology & Society*, *8*(4), 205-219.

Shashaani, L., & Khalili, A. (2001). Gender and computers: Similarities and differences in Iranian college students' attitudes toward computers. *Computers & Education*,*37*(3), 363-375.

Tans, N. B. (1990). The development and validation of an instrument to measure computer anxiety in adult learners in technical colleges. *Dissertation Abstracts International, 51*(4).

Tavşancıl, E., & Keser, H. (2002). İnternet kullanımına yönelik likert tipi bir tutum ölçeğinin geliştirilmesi. *Eğitim Bilimleri ve Uygulama*, *1*(1), 79-100.

Tezci, E. (2010). Sinif ögretmenlerinin egitiminde bit kullanimina iliskin özgüven düzeyleri. *NWSA: Education Sciences*, *5*(3), 981-992.

Usta, E., Bozdoğan, A. E., & Yıldırım, K. (2007). Sınıf öğretmeni adaylarının Internet kullanımına ilişkin tutumlarının değerlendirilmesi. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 8*(1), 209-222.

Ventura, P., & Ramamurthy, B. (2004, March). Wanted: CS1 students. No experience required. In *ACM SIGCSE Bulletin* (Vol. 36, No. 1, pp. 240-244). ACM.

Woodman, T., & Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of sports sciences*,*21*(6), 443-457.

Yalın, H. I. (2002). Ögretim Teknolojileri ve Materyal Gelistirme**.** Ankara: Nobel Yayınları.

Yucel, C., Acun, I., Tarman, B., & Mete, T. (2010). A model to explore Turkish teachers' ICT integration stages. *Turkish Online Journal of Educational Technology-TOJET*, *9*(4), 1-9.