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SOCIAL STUDIES PRE-SERVICE TEACHERS' COMPUTER SELF EFFICACY BELIEFS AND ATTITUDES ON COMPUTER-ASSISTED INSTRUCTION

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Abstract

As a result of the study, social science teacher candidates' perceptions on computer-assisted instruction are positive and their computer self-efficacy beliefs are at good levels. These indicate that social science teacher candidates have positive attitudes towards computer-assisted instruction, and they trust their selves to use computers. In present study, it was aimed to measure social science pre-service teachers' computer self efficacy beliefs and attitudes on computer-assisted instruction. The research group consists of 219 teacher candidates who study social science education during the 2012-2013 education year at the Kazım Karabekir College of Education in Atatürk University. This study was designed by quantitative research approach. Descriptive research method one of the correlational survey models was used. Survey research discovers characteristic attributions of a specific population. SPSS 17.0 package program, Pearson's product-moment correlation coefficient, one-way analysis of variance (ANOVA), independent groups t test, and Bonferroni post hoc technique are used in the direction of research problems. As a result of the study, social science teacher candidates' perceptions on computer-assisted instruction are positive and their computer self-efficacy beliefs are at good levels. These indicate that social science teacher candidates have positive attitudes towards computer-assisted instruction, and they trust their selves to use computers.

Keywords: Social Studies, Pre-service Teachers, Computer-assisted Instruction, COMPUTER Self Efficacy Beliefs.

INTRODUCTION

Rapid development of information technologies influences education as well as every other area. Change and development in education can be seen as are correlated with information technologies. Information technologies consist of tools that provide learning and teaching processes in a broader range with a function along with its personal use and communication of individuals at different places. Undoubtedly, computers are the most preferred ones among these tools for the education process. Computers are employed in the process of education for lots of purposes. One of these purposes is the computer-assisted instruction (CAI). CAI is the usage of computers to teach students a subject or a notion or to consolidate pre-earned behaviors through lessons programmed into the system or their employment as a helpful tool to enrich and increase the quality of education-teaching activities (Akkoyunlu, 1998).

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In order to contribute the success of activities performed, computers which have undeniable effect should be effectively used during the education and teaching process. Teachers and teacher candidates are initial individuals for Computer Assisted Instruction' effectiveness. Teachers computer self-efficacy(CSE) beliefs and feelings, thoughts and attitudes towards CAI(computer assisted instruction) of teachers are the initial factors for the success of CAI (Carlson and Grabowski,1992; Arslan, 2006; Jegede, 2007; Kutluca and Ekici, 2010). In order to be used effectively of information and communication technologies which are important for accessing the information, individuals who will use these technologies should feel adequate themselves at using of these. Teachers roles are inevitable in such a process (Kurbanoglu and Akkoyunlu, 2003).

Teachers are expected to integrate the technology with their lessons in order to train individuals who are appropriate for the information society. Especially, social studies' teachers should associate their lessons with technology. Because, social studies is a lesson which is conscious of its responsibilities, can produce appropriate purposes to the citizenship duties, adapts basic democratic values related to life in globalized world conditions and offers to art, literature and social sciences in an interdisciplinary approach with the aim of being acquired the individuals to citizenship competences (Barth and Demirtas, 1997; Doganay, 2002; NCSS, 1993). When the basic principles of elementary social studies curriculum are generally examined, it is seem to be aimed to train the individuals who know not only themselves, their country and nation but also the world, adopt the social norms in practice to provide the stability, can think, ask and being creative. So; it is aimed that individuals should be acquired their education on citizenship and democracy in a social studies course which is a citizenship education program (Karakus, 2006). According to Paykoç (1991), contemporary social science programs are formed according to current issues and its scope and method are produced according to developments and changes in environment. This requires the students to be acquired the skills which are necessary to contribute their environment, to self-realization and to live in harmony. As a result of all these, subject areas of social studies and education is a process achieving initially the aim of citizenship education.

Self sufficiency beliefs of teachers is an important factor in using of computers effectively in education process as much as factors such as accessing to computers, the content of the curriculum, having knowledge and skills in computer using, place and time, support of school management. Self sufficiency belief is a self-judgement about capacity to do successfully the activities in order to show a certain performance of individual (Bandura, 1995) or is a belief on issue that individual has skills to do a task. According to Kurbanoglu and Akkoyunlu (2003), teachers should have a knowledge about computer and should feel qualified themselves in this field in order to use the computer effectively and to be a model for their students. In addition, the success of application is closely related to attitudes, expectations, views and suggestions of teachers towards CAI who are the directors of applications. Seferoglu and Memmedova (2002) observed that teachers could be succesfull when they understood the basic principles of CAI and saw the its contributions to the education. In this context, it is necessary to be known both self sufficiency beliefs and attitudes towards CAI of teacher candidates who will be a teachers of future.

The Aim of Study

In this study, measurement of social science teacher candidates' attitudes on computer-assisted instruction (CAI) and their computer self-efficacy beliefs is aimed. Knowledge of teacher candidates' attitudes towards CAI and the thought that in what level computers using could be effective in education process reveals the importance of this study.

It is also known that individuals who have high self sufficiency belief effort to achieve a job, do not return easily when faced with negativity and are persistent and patient. So; the belief of self sufficiency is one of the important points need to focus in education (Aşkar and Umay, 2001; Akkoyunlu and Kurbanoglu, 2003). With this direction, answers to the questions below are sought;

- Do teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs become different according to their gender?
- Do teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs become different according to their ownership of a personal computer?
- Do teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs become different according to their classes in which they learn?
- Do teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs become different according to their frequency of computer use?
- Do teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs become different according to their computer experience?
- Do teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs become different according to the age variable?
- Is there a relation between teacher candidates' perceptions on computer-assisted instruction and their computer self-efficacy beliefs?

METHOD

The Pattern of Study

This study have been designed according to the quantitative research approach. Descriptive research method which is one of the relational scanning models have been used in this study. Scanning researchs presents the characteristical features belonging a certain universe (Fraenkel and Wallen, 2002). So; the using of descriptive research method has been found suitable in this study for the determining of attitudes against CAI and computer self-efficacy perceptions of teacher candidates. The research group consists of 219 teacher candidates who study social science education during the 2012-2013 education year at the Kazım Karabekir College of Education in Atatürk University. In this context, 219 people's views (124 male and 95 female) have been taken through data collection tools following.

Data collection Tools

Attitude scale related to Computer Assisted Instruction and computer self-efficacy scale have been used as research data tool.

Attitude scale related to Computer Assisted Instruction

In this study, Attitude scale related to Computer Assisted Instruction developed by Arslan (2006) has been used in order to determine the attitudes of teacher candidates about CAI. The Cronbach alpha value has been determined .93 for general of 10 positive and 10 negative scale in 5 likert-type containing 20 items in total and One-dimensional scale. In study, independent variable such as age, gender, the frequency of computer using, having computer or lack of it, levels of class and computer experiences have been used on relevant scale.

Computer self-efficacy Scale

The reliability of scale of self-efficacy perception about computer developed by Aşkar and Umay (2001) and consists of 18 items was calculated in its original as .71 (cronbach alpha). In study, independent variable such as age, gender, the frequency of computer using, having computer or lack of it, levels of class and computer experiences have been used on relevant scale.

Data analysis

In the process of study,67 teacher candidates have been excluded from the analysis due to incomplete or incorrect filling on measurement tools applied 286 people in total. Datas obtained by measurement tools belonging the 219 students remaining have been transferred to the computer environment in order to make statistical analysis. SPSS 17.0 package program has

been used in order to apply the necessary statistical techniques. Pearson's product-moment correlation coefficient, one-way analysis of variance (ANOVA), independent groups t test, and Bonferroni post hoc technique have been used in context of research problems.

FINDINGS

This section is included the following findings: In what level social studies teacher candidates' attitudes toward computer-based instruction (CAI) and computer self-efficacy beliefs (CSE) are, whether the differences attitude and self-efficacy are or not according to variables such as age, gender, the frequency of computer using, having computer or lack of it, levels of class and computer experiences and the relation between attitudes and self efficacy perceptions about CAI.

Table 1: The Differences According To Gender Between The Attitude Towards Cai And Cse Beliefs Of Teacher Candidates Of Social Studies

Variable	Group	N	X	SS	SD	t	p
CAI	Female	95	63.30	19.82	217	7.15	.000
	Male	124	80.61	15.97			
CSE	Female	95	56.52	20.20	217	7.15	.000
	Male	124	74.28	16.52			

When the table 1 has been analyzed, it has been determined that CAI levels of teacher candidates of social studies ($t(217)= 7.15, p< .001$) and CSE levels of them ($t(217)= 7.15, p< .001$) have diversified significantly by depending on gender. For CAI, that being in a high level the score average of male teacher candidates obtained the scale ($X = 80.61, Ss = 15.97$) from the score average of female teacher candidates ($X = 63.30, Ss = 19.82$) have been evaluated the reason of this difference. Similarly, that being in a high level the score average of male teacher candidates obtained the scale ($X = 74.28, Ss = 16.52$) from the score average of female teacher candidates ($X = 56.52, Ss = 20.20$) have been evaluated the reason of this difference on CSE.

Table 2: The Differences Between The Attitude Related Cai And Cse Beliefs Of Teacher Candidates Of Social Studies According To Presence Of Computer Or Lack Of It

Variable	Group	N	X	SS	SD	t	p
CAI	There is	137	80.77	16.02	217	8.61	.000
	There is not	82	60.29	18.60			
CSE	There is	137	74.31	16.38	217	8.41	.000
	There is not	82	53.65	19.40			

When the table 2 above have been examined, it has been determined that CAI levels of teacher candidates of social studies ($t(217)= 8.61, p< .001$) and CSE levels of them ($t(217)= 8.41, p< .001$) have diversified significantly by depending on the presence of computer or lack of it. For CAI, that being in a high level the score average of teacher candidates having computer obtained the scale ($X = 80.77, Ss = 16.02$), from the score average of teacher candidates having not computer ($X = 60.29, Ss = 18.60$) have been evaluated the reason of this difference. Similarly, the score average of teacher candidates having computer obtained the scale ($X = 74.31, Ss = 16.38$), from the score average of teacher candidates having not computer ($X = 53.65, Ss = 19.40$) have been evaluated the reason of this difference on CSE.

Table 3: The Diversity According To Different Class Level Of Attitude Related Cai And Cse Beliefs Of Teacher Candidates Of Social Studies

	Variance Source	KT	SD	KO	F	p
CAI	Intergroup	4083.51	3	1361.17	3.64	.014
	Within-Group	80375.07	215	373.83		
	Total	84458.58	218			
CSE	Intergroup	5106.22	3	1702.07	4.36	.005
	Within-Group	83811.12	215	389.81		
	Total	88917.35	218			

It has been determined that there are a significant differences between CAI scores of teacher candidates situated in a different grade level ($F(3,215)=3.64, p<.05$) and CSE scores of them ($F(3,215)=4.36, p<.05$).

As a result of Bonferoni analysis one of the Post hoc tests performed with the aim of direction of discrepancy, the differences determined for both dependent variables results from being high level the 4th grade teacher candidates' scores ($X_{BDE} = 80.20; X_{BÖY} = 74.20$) from 1st grade teacher candidates' scores ($X_{BDE} = 68.59; X_{BÖY} = 60.79$).

Table 4: The Differences Between The Attitude Related Caı And Cse Beliefs Of Teacher Candidates Of Social Studies According To Frequency Of Computer Using

	Variance Source	KT	SD	KO	F	p
CAI	Intergroup	52173.41	3	17391.13	115.81	.000
	Within-Group	32285.16	215	150.16		
	Total	84458.58	218			
CSE	Intergroup	55964.89	3	18654.96	121.71	.000
	Within-Group	32952.46	215	153.26		
	Total	88917.35	218			

It has been determined that there are a significant differences between CAI scores of teacher candidates ($F(3,215)=115.81, p<.001$) and CSE scores of them ($F(3,215)=121.71, p<.001$) according to variable of frequency of computer using.

As a result of Bonferoni analysis one of the Post hoc tests performed with the aim of direction of discrepancy, the differences determined for both dependent variables results from being high level of scores of those using the computer frequently ($X_{BDE} = 84.52; X_{BÖY} = 78.39$) from scores of others.

Table 5: The Differences Between The Attitude Related Caı And Cse Beliefs Of Teacher Candidates Of Social Studies According To Experience Of Computer Using

	Variance Source	KT	SD	KO	F	p
CAI	Intergroup	50395.94	3	16798.64	106.03	.000
	Within-Group	34062.64	215	158.43		
	Total	84458.58	218			
CSE	Intergroup	51938.44	3	17312.81	100.65	.000
	Within-Group	36978.90	215	171.99		
	Total	88917.35	218			

It has been determined that there are a significant differences between CAI scores of teacher candidates ($F(3,215)=106.03, p<.001$) and CSE scores of them ($F(3,215)=100.65, p<.001$) according to variable of experience of computer using. As a result of Bonferoni analysis one of the Post hoc tests performed with the aim of direction of discrepancy, the differences determined for both dependent variables results from being high level of scores of those using the computer very well ($X_{BDE} = 85.49, SS = 10.07; X_{BÖY} = 78.95, SS = 10.70$) from scores of other teacher candidates.

Table 6: The Differences Between The Attitude Related Caı And Cse Beliefs Of Teacher Candidates Of Social Studies According To Age Variable

	Variance Source	KT	SD	KO	F	p
CAI	Intergroup	2645.33	3	881.77	2.31	.077
	Within-Group	81813.24	215	380.52		
	Total	84458.58	218			
CSE	Intergroup	3878.36	3	1292.78	3.26	.022
	Within-Group	85038.98	215	395.53		
	Total	88917.35	218			

While a significant different have been not found among CAI scores of teacher candidates ($F(3,215)=2.31, p>.05$), it has been determined that there are a significant difference among the CSE scores of them ($F(3,215)=3.26, p<.05$). As a result of Bonferoni analysis one of the Post hoc tests performed with the aim of direction of discrepancy results from being in high level ($X_{BÖY} = 85.49, SS = 20.75$) the scores of teacher candidates who are 23 and over the diversity age determined for CSE from the scores of teachers candidates who are 17-18 years old ($X_{BÖY} = 73.14, SS = 18.43$).

Pearson product moment correlation coefficient results, averages and standard deviations performed with the aim of determining the relation between CSE and CAI attitudes are given in table 7.

Table 7: The Relation Between Cse (Computer Self-Efficacy) And Cai (Computer Assisted Instruction) Attitudes

Variables	1	2
1.CSE	1	
2.CAI	.98**	1
Avarage	66.57	73.10
Standard Deviations	20.19	19.68

**p<. 001 CSE: Computer Self Efficacy, CAI: Computer Assisted Instruction

According to Table 7, there are fairly strong positive significant relationship between CSE and CAI attitudes ($r = .98$, $p < .01$).

DISCUSSION AND CONCLUSION

In this study; the attitudes scores of social studies' teacher candidates relevant to CAI and CSE belief scores have been examined according to variables such as; age, gender, the frequency of computer using, having computer or lack of it, levels of class and computer experiences. Finally, the relation between the attitudes of social studies' teacher candidates relevant to CAI and CSE beliefs have been examined.

At the end of the study, there is a significant diversity supporting the study of Sadık (2006) in contrast the studies of Çobanoğlu (2008) and Birgin, Kutluca and Çatlıoğlu (2008) in terms of the gender variable of the attitude scores towards CAI and this diversity was identified to be in the direction of male teachers. The conclusion obtained from the attitude' scores towards CAI according to frequency of computer use was seen to be the same with conclusion that those using the computer frequently have positive attitude when compared those using the computer rarely or never as Çelik and Bindak (2005) pointed out in their study.

A diversity was found in favour of those using computer in terms of attitude' scores according to computer experience' variable. This study supported the studies of Namlu(1998) and Sexton, King, Aldridge and Goodstadt-Killoran (1999) on the contrary of studies Gerçek, Köseoğlu, Yılmaz and Soran (2006). Another result obtained at the end of the study is that teacher candidates' attitude scores who have a computer are significantly higher than those who have not a computer as Birgin, Kutluca and Çatlıoğlu (2008) were reached in their studies. When the results of study have been examined, it is not found a significant diversity between gender variable and attitude ' scores. But, it is found a significant diversit in favour of upper-class students among class levels of same department. Considering that age and school year are associated with each other, in that case; it can be thought that result obtained does not exactly give the expected. In this context, it is required related variables to be analyzed again in subsequent studies.

When the CSE beliefs' scores have been examined according to gender, it is found a significant diversity in favour of male students on the contrary to the studies of Orhan (2003) and Arslan (2008). The diversity among self-fficacy' scores according to have a computer or not is higher teacher candidates having a computer than those who have not a computer as Özçelik and Kurt (2007) pointed out in their studies. It is found a significant difference in favour of teacher candidates who have a high computer experience and who use computer frequently among the scores of self-fficacy according to frequency of computer using and experience of computer using variables as expected. This situation can be bond to the relation of self-fficacy with the past experiences and complete and accurate experiences as Bandura stated (1995). When the study have been examined, there is a correct proportion between increasing of age and grade level and self-fficacy' scores. The attitude' scores of applicants who are 23 and over years old and students studying in upper-class are higher than applicants who have 17-18 years old and students studying subclass and this difference is a significant level.

One of the important results of study is that there is a high correlation (.98) between attitudes towards CAI of teacher candidates and their CSE beliefs. This conclusion have supported the studies indicating that there is a positive correlation between attitude and self-fficacy' perception on issue of realizing of CAI(Arslan 2008; Çelik and Bindak, 2005).

As a result of the study, social science teacher candidates' perceptions on computer-assisted instruction are positive and their computer self-efficacy beliefs are at good levels. These indicate that social science teacher candidates have positive attitudes towards computer-assisted instruction, and they trust their selves to use computers.

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