FIRST YEAR PRESERVICE TEACHERS' ATTITUDES TOWARD COMPUTERS FROM COMPUTER EDUCATION AND INSTRUCTIONAL TECHNOLOGY DEPARTMENT

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ABSTRACT

The purpose of the study is to explore the attitudes of first year university students towards computers. The study focuses on preservice teachers (N=46) included 33 male and 12 female from Middle East Technical University, Computer Education and Instructional Technology (CEIT) department. The study is delimited to first grade preservice teachers of CEIT department because computers are indispensable not only for their academic program but also for their professional development as teachers. The questionnaire included twenty items and demographics of the participants. Four independent variables; gender, having a computer, years of computer experience and competencies of computer skills; and one dependent variable (item scores) compose the instrument. The results of questionnaire were carefully scrutinized by statistical methods. Recommendations were provided for further studies to yield more application concerning attitudes toward computers.

Keywords: Attitudes toward computers, preservice teachers, computer competency

INTRODUCTION

In today's global word, incorporation of information and communication technology into different sectors is inescapable; come out of the growth and widespread usage of computers. Peoples' attitudes toward computers are the one of the main determinative factors to see fit to accept and reject of the use of computers. In education, literature states a variety of researches have been conducted to understand attitudes toward computers among teachers about computer technology usage in the classroom environments. Because teachers' attitudes to computers form the clear factor for successful implementations and usage of activities based on computer technologies, preservice teachers' attitudes become as a part of achievement for integration of computers in educational environments. As Selwyn (1999) stated the successful integration depends on teachers' and students' attitudes toward them. Moreover, students from the environments, where computers are used intensively, are more likely to develop more refined attitudes to computers (Palaigeorgiou, Siozos, Konstantakis & Tsoukalas, 2005).

As Whitley (1997) stated, the computer attitude scales have been developed in different contents. Computers related to anxiety about using computers, self-confidence in dealing with computers, the acceptability of computers by professionals, positive and negative beliefs about computers and their effects on society and computer-related behaviors have been investigated as multifaced constructs. As for preservice teachers' attitudes toward computers, Kay (2006) reviewed strategies used to incorporate technology into preservice education. Ten key strategies were determined in a review of computer attitude, ability and use. Computer attitude has been considered as a one of the key dependent variable in the vast majority of technology in the review. In other study, Yildirim (2000) pointed out the importance of previous computer experience and preservice and inservice teachers' competency as determinative effects of their attitudes.

METHOD

Participants

The study included 46 first year preservice teachers, included 12 female and 33 male, from Middle East Technical University, Computer Education and Instructional Technology (CEIT) department. Demographics of participants are presented in Table 1 in detail.

Table 1: Demographics of Participants

		Gender		
		Female	Male	Total
Having a PC	Yes	10	29	39
	No	2	4	6
Years of Computer Use	1-3 years	2	5	7
	3-5 years	5	6	11
	More than 5 years	5	22	27

	Novice	0	0	0
Competency	Intermediate	4	10	14
	Competent	8	23	31

Instrumentation

The instrument which was translated from the study of Smith and Oosthuizen (2006) has been scrutinized and adapted slightly to suite the Turkish language and statistically analyzed. The questionnaire was developed to explore the attitudes of first year university students towards computers including twenty-item on a 5-Likert scale (from strongly agree to strongly disagree) and demographic questions. The survey included four independent variables (gender, having a computer, the years of computer experience, and the computer competency) and one dependent variable.

Computer competency, as one of the independent variable were determined via the scale, included the instrument. It has eight items on a 3-Likert type, indicating computer competencies from not familiar to proficient. For data analysis part, the first year preservice teachers were divided into three levels of competency; novice, intermediate and competent.

Factors, as dependent variable had been identified in a large scale of the research and literature by Smith and Oosthuizen (2006). The factors were identified as follows:

Factor1: This factor was labelled as ‘‘fear of computer power’’. It loaded high on variables with a negative connotation with respect to computer power over people and effect on society.

Factor2: This factor was labelled as ‘‘beneficial tool of man” and loads high on variables relating to positive impacts of the technology and benefits to the economy.

Factor3: Variables contained in this factor was labeled as ‘‘appreciation of computer power’’.

Factor4: This factor was also labelled as ‘‘negative sentiments towards computers’’.

Factor5: This factor is labelled as ‘‘awesome thinking machines, or naive concern’’. It loads high on variables that depict computers as something strange and astounding (p.357).

Overall Design And Procedure

Since the study aimed to obtain data to determine specific characteristics of a group, a none-experimental survey research design was employed. Data were obtained in first year preservice teachers on voluntarily basis.

RESULTS & DISCUSSION

Firstly, the differences in perspectives between gender in relation the factors were statistically checked by Mann-Whitney U Test, due to the small size of sample and groups. Analyses demonstrated that there were no significant differences among factors in associated to genders (Table 2).

Table 2: Differences between genders in relation to factors

Factors	Gender	n	Mean Rank	Sum of Ranks	U	p
Factor 1	Female	12	19.71	236.50	158.50	.32
	Male	33	24.20	798.50		
Factor 2	Female	12	21.50	258.00	180.00	.66
	Male	33	23.55	777.00		
Factor 3	Female	12	20.58	247.00	169.00	.47
	Male	33	23.88	788.00		
Factor 4	Female	12	22.08	265.00	187.00	.79
	Male	33	23.33	770.00		
Factor 5	Female	12	21.29	255.50	177.50	.60
	Male	33	23.62	779.50		

It can be seen from Table 2 that factors do not vary significantly with gender differences.

Secondly, the differences in perspectives between having a computer in relation the factors were statistically checked by

Mann-Whitney U Test. Analyses demonstrated that there was a significant difference among Factor3 in associated to having a computer (Table 3).

Table 3: Differences between having a PC or not in relation to factors

Factors	Having a computer	n	Mean Rank	Sum of Ranks	U	p
Factor 1	Yes	39	23.21	905.00	109.00	.79
	No	6	21.67	130.00		
Factor 2	Yes	39	22.37	872.50	92.50	.41
	No	6	27.08	162.50		
Factor 3	Yes	39	21.36	833.00	53.00	.03
	No	6	33.67	202.00		
Factor 4	Yes	39	22.85	891.00	111.00	.84
	No	6	24.00	144.00		
Factor 5	Yes	39	23.71	924.50	89.50	.37
	No	6	18.42	110.50		

From Table 3, it is interpreted that there was a difference in Factor 3, as labelled appreciation of computer power, across the having a computer. If sum of rank value is taken into consideration, preservice teachers who do not have a computer have lower score on the appreciation of computer power than those who have a computer.

For the analysis of the differences in perspectives between the years of computer experiences in relation the factors were checked by Kruskal-Wallis H-test, a rank test that may be applied samples that are unequal in size where the distribution does not obey the normal parametric distribution (Ferguson & Takane, 1999), was used. The ranks for each sample are summed and their means are checked for if there is any significant difference in Table 4. Analyses demonstrated that there were no significant differences among factors in associated to years of computer experiences.

Table 4: Differences between the years of computer use

Factors	Years of Computer Experience	n	Mean Rank	SD	χ^2	p
Factor 1	1-3 years	7	24.71	2	.19	.91
	3-5 years	11	23.41			
	More than 5 years	27	22.39			
Factor 2	1-3 years	7	12.93	2	5.54	.06
	3-5 years	11	22.41			
	More than 5 years	27	25.85			
Factor 3	1-3 years	7	14.93	2	3.27	.20
	3-5 years	11	25.36			
	More than 5 years	27	24.13			
Factor 4	1-3 years	7	24.36	2	1.69	.43
	3-5 years	11	18.68			
	More than 5 years	27	24.41			
Factor 5	1-3 years	7	18.71	2	.96	.62
	3-5 years	11	24.41			
	More than 5 years	27	23.54			

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factors do not vary significantly with years of computer experience.

Lastly, the differences in perspectives between computer competencies in relation the factors were statistically checked by Mann-Whitney U Test. Analyses demonstrated that there was a significant difference among Factor2 in associated to computer competency (Table 5).

Table 5: Differences between computer competencies

Factors	Computer Competency	n	Mean Rank	Sum of Ranks	U	p
Factor 1	Intermediate	14	22.32	312.5	207.5	.82

	Competent	31	23.31	722.5		
Factor 2	Intermediate	14	16.32	228.5	123.5	.02
	Competent	31	26.02	806.5		
Factor 3	Intermediate	14	19.68	275.5	170.5	.25
	Competent	31	24.50	759.5		
Factor 4	Intermediate	14	24.64	345.0	194.0	.56
	Competent	31	22.26	690.0		
Factor 5	Intermediate	14	23.00	322.0	217.0	1.0
	Competent	31	23.00	713.0		

As the Mann-Whitney U Test results in the Table 5 indicated there was a significant difference between Factor 2, as labeled beneficial tool of man, and computer competencies. If sum of ranks are taken into consideration, preservice teachers who are in competent level believed more positive impacts of the computers and its benefits of the economy than those who are in intermediate levels.

As a conclusion, there were no significantly differences between factors (fear of computer power, negative sentiments toward computers, appreciation of computers, impression of computers, and positive impacts of computers) and genders and year of computer experiences of the first grade preservice teachers. Moreover, preservice teachers who have a computer have higher score on the appreciation of computer power and find them extremely accurate and exact. Likewise, preservice teachers are differed in that competency levels are determinative for factor 2. Preservice teachers who are in intermediate level have less conviction of the impacts of computers. Competent preservice teachers give a more importance to computers' potential to bring about a better life for the average person and speed up scientific progress than intermediate levels.

RECOMMENDATION

1. Preservice teachers who are in intermediate level should be supported to reach to competent level so that the belief of positive impacts of the technology and its benefits to the economy and society can be sustained.
2. Supplementary instructional programs should be organized and applied to facilitate the progression among the competency levels.
3. The rate of preservice teachers who have a computer should be increased and technology related activities should be provided in their university education as to provide appreciation of computer power.

FURTHER STUDIES AND LIMITATION

In addition to attempt to explore the attitudes of first year preservice teachers towards computers presented in this study, additional researches would help further the understanding of the specific attitudes and its its related reasons. More investigations into specific determination of other factors might provide better understandings of preservice teachers' attitudes toward computer and technology. The results of this study are limited by the small number of participants and department which were selected and the factors we focused.

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