

# **A Discussion and Analysis of Preservice Teachers' Attitudes toward an Online Supported Teacher Credential Course**

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## **Abstract**

This study examined the changes in preservice teachers' attitudes toward computers following their participation in an online supported teacher credential course and explored the factors that contributed to their computer use. In this research, a quantitative method was used. The data were gathered throughout the spring semester of the 2001-2002 academic years. Forty preservice teachers participated in this study. Owing to the positive attitudes of the preservice teachers toward computers at the beginning of the semester, no significant changes were observed upon completion of the online supported course.

## **Introduction**

As a result of a technology explosion occurring in this century, society imposes a great demand on teachers to prepare children for the information era. This includes preparing individuals who can produce both new technology and new applications, and also utilize these technologies in real-world situations. Preservice teacher education programs have gradually taken on the task of preparing future educators to teach in technology classrooms. According to The Office of Technology Assessment (OTA, 1995) report; "The most direct and cost-effective way to educate teachers about technology is through the preservice education they receive in colleges of education or other institutions" (pp. 166-167).

Technology is often taught as a distinct subject for preservice teachers to learn basic use of computers (OTA, 1995; Tyler-Wood, Christensen, Arrowood, Allen, & Maldonado, 2000). However, taking only one computer literacy course is less likely to lead to a successful result (Yildirim, 2000a; Thompson, Bull, & Willis, 2001; Moursund & Bielefeldt, 1999). Researchers strongly suggest that technology should be integrated across the entire teacher education curriculum (Davis, 1999, Yildirim, 2000a; Thompson, Bull, & Willis, 2001). For preservice teachers to become effective integrators of technology, it is essential that they should see the models (Gibson, 2002) and they must be provided with opportunities to practice what they have learned (Thompson, Bull, & Willis, 2001; Tyler-wood et. al., 2000; Thomas & Cooper, 2000).

The Internet became a popular educational tool because it is comprised of multimedia features in addition to the power of the World Wide Web (web). Many faculty members have recognized the potential of using the Internet for instruction because the web holds promises for both distance education and conventional learning environments (Alessi & Trollip, 2001). Recently, there has been an increase in the number of instructors using online materials to support traditional instruction. This also holds true for

teacher education programs where it is commonly believed that the use of the Internet as a supplementary tool in preservice teacher training will provide new opportunities for students and instructors

Based on the fact that preservice teachers' attitudes toward computers and learning with computers may influence their technology usage in their professional life, this study looked at their attitudes before and after they completed a web-supported teaching credential course. Owing to the fact that attitude plays an important role in the future uses of technologies, many researchers have investigated this topic (Yildirim, 2000b). In other words, monitoring changes in students' attitudes during their education is still a critical issue in the field of teacher education.

## **Method**

This study explored the changes in preservice teachers' attitudes toward computers following the use of Online Learning Support System (OLSS) designed and developed to provide a platform for presenting utilities like content, news, and course assignments, and facilitating communication among students and instructor. The proposed study looked at the following questions:

1. What are the participants' attitudes toward computers and computer competency levels before using the OLSS?
2. Is there a relationship between preservice students' computer competency and their attitudes toward computers?
3. Is there a difference in attitudes of students toward computers before and after completing the course?

The subjects of this study were the students of a web-supported traditional course offered by the Department of Educational Sciences at the Middle East Technical University in Turkey. "Instructional Planning and Evaluation" is a 4-credit teacher credential course consisting of three hours for theory and two hours for practice. During the semester, the course was supported with online materials and activities without revising course schedule or its routines. Of 43 prospective teacher students enrolled in the course and only 40 students participated in this study

In this research, a quantitative method was used. The data were gathered throughout the spring semester of the 2001-2002 academic years. In order to measure their computer competency level, the Computer Competency Survey (CSS) was used. To identify students' attitudes towards the computer "Teachers' Attitudes toward Computers Questionnaire" (TAC, Christensen & Knezek, 1998), was administered. These two surveys addressed such issues as competency of pre-service teachers' computer use and attitudes toward the computer, and whether a relationship exists between certain demographic information and attitudes toward the computer.

## **Data Analysis**

The data obtained through the surveys were analyzed by the following statistical techniques: frequencies, percentages, means and standard deviations, correlation, and within-subject ANOVA. The demographics, attitude scores, competency scores were analyzed by using descriptive methods. Pearson Correlation coefficients were computed among the students' perceived competency score and their prior attitudes toward computers. A two-way within-subjects ANOVA test was used to evaluate whether there was a difference in the attitudes of students toward computers before and after completing the course.

## Results

### *Entry Characteristics of the Students*

Of 43 prospective teacher students from the department of the Foreign Language Education enrolled in the "Instructional Planning and Evaluation" course, 40 students participated in this study. Students' Cumulative Grade Points (GPA) ranges from 1.88 to 3.50. The participants in this study were predominantly female (82.5%, 33 of 40). Nearly all of the students (92.5 %, 37 of 40) had taken two or more computer related courses, three of them (7.5%, 3 of 40) had taken one computer related courses. The results of the data showed that there were a limited number of students who own a home computer (20%, 8 of 40). A descriptive summary of the respondents is presented in Table 1.

Table 1 Description of Sample (N=40)

Variables	N	%
Gender		
Male	7	17.5
Female	33	82.5
Age		
19 Years	7	17.5
20 Years	23	57.5
21 Years	10	25
Home Computer		
Yes	8	20
No	32	80
# of Computer Courses		
1	3	7.5
2	36	90
3 and more	1	2.5

As mentioned, all of the participants in this study had previously taken at least one computer related course. Students' self-perceived competency of using certain technology types showed that they were most competent in "Online communication tools", "Word processors", and "Web browsers". The participants were found to be less competent in "CAI applications", and "Learning management systems". The means and standard deviations of the students' self-perceived competency of certain technology types are presented in Table 2.

Table 2 Means\* and standard deviations for students' computer competency

Technologies	M	SD
Word processors	3.95	.71
Presentation programs	3.50	.99
Electronic spreadsheets	2.90	1.03
Web Editors	2.18	1.43
Web Browsers	3.55	1.36
Online Communication Tools	4.56	.71
Online Collaboration Tools	2.85	1.03
CAI applications	1.48	.79
Audio & Video materials	2.23	1.05
Learning Management Systems	1.64	.84
Distance Learning Materials	2.43	1.36

\* Ratings were made on a 5-point scale (1 = not competent, 5 = very competent)

#### *Attitudes and Competency*

To find out whether any correlation existed between the students perceived competency score and their prior attitudes toward computers, correlation coefficients were computed. The relationship between students' competency scores and attitudes score was found to be positive and statistically significant ( $r(38) = .55, p < .001$ ). The analysis of data revealed in general that students having high computer competency also had positive attitudes toward computer.

#### *Pre and Post Attitudes*

A two way within-subjects ANOVA was conducted to evaluate whether there was a difference in attitudes of students toward learning with computers before and after completing the course. The dependent variable was the attitudes subscale scores. The within-subjects factors were eight attitude subscales and time interval. The means and standard deviations associated with these data are presented in Table 3. The time and attitude effect together with the interaction effect were tested using the multivariate criterion of Wilks' lambda (?). An alpha level of .01 was used for the analyses. The main effect associated with time and the interaction effect were not significant,  $F(1, 34) = .009, p = .92$  and  $F(7, 28) = 3.11, p = .02$ , respectively. However, the main effect associated with the attitude subscale factor was significant,  $F(7, 28) = 32.75, p = .001$ .

Table 3 Means\* and standard deviations for students' pre and post attitudes subscales (N=35)

Attitude Scale	Pre		Post	
	M	SD	M	SD
Enthusiasm/Enjoyment	4.02	.50	4.14	.58
Anxiety**	3.50	.69	3.54	.76
Avoidance**	4.16	.43	3.94	.54
Productivity (teacher)	4.16	.37	4.11	.43
Negative Impact on Society**	3.12	.45	2.99	.65
Productivity (student)	4.08	.41	4.18	.48
Liking	3.28	.63	3.33	.66
Email	3.85	.51	3.98	.52

\* Ratings were made on a 5-point scale (1 = strongly disagree, 5 = strongly agree)

\*\* High score represents low level of perception on these items.

## Conclusion

At the beginning of the semester, students had a higher attitude toward computers and they also reported a higher level of competency in using the Internet, office applications and online communication tools, as well. However, it was observed that their competency for using computer technology in educational purposes was lower. Nearly all students had previously taken more than one computer literacy courses, which could have positively influenced their perceived level of computer competence. This study also revealed that students who have high computer competency scores also had positive attitudes toward computers in general and those students' attitudes toward computers did not change significantly after taking an online supplementary course. This result was not surprising for two reasons: the duration of the treatment was short, and students already had positive attitudes toward computers at the beginning of the semester. This result might also be due to the limited sample size and limited resources.

Although these results are only suggestive of the influence of utilizing online support tools in preservice education courses, the increased use of Internet-based resources warrants future research in this area for example, investigate the long-term impacts, gain in learning outcomes, retention of knowledge, and individual differences. Furthermore, it may also be interesting to observe how students' attitudes change over time after being exposed to the web-supported learning environment. Hence, longitudinal studies that observed the same students over time would prove most beneficial.

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