The Effect of Basic Webquest Course on Classroom Teacher Candidates' Attitudes towards Use of Computer Based Education

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Abstract
The purpose of this study is to determine the effect of preparing a sample WebQuest, which is a Computer Based Education material, on attitudes of prospective classroom teachers toward using Computer Based Education. This study employed the single group pretest-posttest design. The study group included 112 freshman students who had enrolled in the Classroom Teaching Undergraduate Program of a public university and received the "Computer II" course. Participation was on voluntary basis. The study group continued the Computer II course for 14 weeks.The study was carried out for 14 weeks within the scope of the Computer II course. Each week, prospective teachers received 2 hours of theory and 2 hours of practice. "The Personal Information Form" and "The Attitude Scale towards Computer Based Education" developed by Arslan in 2006 were used for data collection.

Based on findings, it can be said that basic WebQuest training had a positive effect on attitudes of prospective classroom teachers toward using Computer Based Education, gender had a positive and significant effect on attitudes of prospective classroom teachers toward using Computer Based Education, owning a personal computer did not have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education and academic average did not have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.

Keywords: basic webquest course, computer based education, classroom teacher candidates

Introduction

Computer Based Education is utilization of the computer as a tool that assists the teacher during teaching - education activities in order to enrich the educational process and increase its quality (Arslan, 2006). "Computer Based Education" is defined as applications involving the use of computers in teaching-learning activities such as presenting course contents directly, repeating previously taught contents, problem solving, and doing exercises (Akçay, Tüysüz, and Feyzioğlu, 2003).

When it comes to CBE, we should not consider a computer and a student only. CBE is an interconnected system involving the software, the hardware, and the teacher as well. We must consider these three elements in order to achieve CBE-related goals in a healthy manner (Arslan, 2003). Providing the highest benefit in Computer Based Education programs depends on the teacher. Because it is the teacher who decides how much time students will spend with Computer Based Education programs and how students will interact with computers, and guides them accordingly (Kızılırmak, 2008, p. 21).

Attitude may be defined as the individual's tendency to accept or reject a given event, idea, person, institution, etc. (Özgüven, 2004). In other words, it is possible to define

attitude as the individual's tendency to react positively or negatively to a stimulant (Oppenheim, 1992, as cited in Baykara, 2011). Attitude cannot be observed directly. It can only be predicted based on observable behaviors. It is suggested that attitude has three dimensions: cognitive (the individual's knowledge about the object of attitude), affective (the individual's observable emotional reactions to the object of attitude), and behavioral (the individual's observable behaviors toward the object of attitude) (Gagne, 1985, as cited in Baysarı, 2007). According to Tavşancıl (2006), characteristics of attitude may be listed as follows:

1. Attitude is not innate; it is gained through experience.
2. Attitude does not change quickly; it continues for a certain time.
3. Attitude causes individuals to act biased.
4. Attitude is a tendency to react.
5. Attitude may lead to positive or negative behavior.

The success of Computer Based Education programs is closely related with the training of teachers who carry out such applications, as well as their preparedness, attitudes, self-efficacies, expectations, opinions, and recommendations related to Computer Based Education. Teachers have a huge role in efficient use of computers in education (Kocasaray, 2003). Teachers to carry out Computer Based Education programs must be trained in Computer Based Education (Daldal, 2010, p. 18).

It is known that teachers gain most cognitive, affective, and psychomotor skills that they need in their professional lives through experience. It is important to know attitudes and concerns of prospective teachers, teachers of the future, related to computers as well as their self-efficacies so that efficient results are obtained from Computer Based Educationpractices in educational institutions and computers are used efficiently in learning-teaching processes (Baki, Kutluca, and Birgin, 2008).

University is one of the most critical periods when prospective teachers should receive training related to Computer Based Education and it is of great importance that attitudes and perceived self-efficacies of prospective teachers related to Computer Based Education are evaluated and prospective teachers are advised related to the subject (Kutluca and Ekici, 2010).

There are many systems being developed to allow students to study and carry out learning activities over the internet. Teachers who desire to have an internet-connected classroom or laboratory or use the internet in their course environment may take advantage of various internet projects. It does not matter whether the course in which the internet project is to be used is a computer-related course or not. Computer skills may be used as a tool within the course (Akçay, 2009, p. 14)

Given the benefits of the internet use in educational environments, it is necessary to use it efficiently. Developed by Bernie Dodge in 1995 for this purpose, WebQuest is a teaching model containing inquiry-based activities where all or most of the information is obtained from sources on the internet and the learner interacts with the computer (Çığrık, 2009, p. 7). WebQuest is described as "a web page prepared for the purpose of learning". WebQuest is an inquiry- and application-based educational activity where students work individually or in groups to complete interesting tasks and find sources necessary to achieve results on the internet (Şahin, 2010, p. 14).

WebQuests contain activities which require students to work individually or collaboratively on the internet. There are certain steps which students must follow while performing activities. WebQuests are web pages which contain the following steps (Çığrık, 2009, p. 8-9):
1. Introduction: The introduction is the step where students are prepared for inquiry and motivated for the solution of the basic problem.

2. Task: Expectations from students are defined at this step. What is expected from students is the product obtained as a result of their inquiry.
3. Process: Students are explained what to do to complete the task step by step. Roles of group members in the inquiry and how to organize the inquiry are explained at this step.
4. Resources: If resources are given in one of the previous steps, this step may be redundant. Otherwise, resources necessary for students to complete the task such as web pages, books, graphics, maps, diagrams, audio recordings, or video recordings are listed at this step.
5. Evaluation: At this step, a rubric which covers the entire process and shows how the process will be evaluated according to certain standards is developed.
6. Conclusion: This step contains an activity which summarizes what has been learned and generalizes learning subjects. At this step, students find the opportunity to share their results with their peers and others.

The Purpose of the Study
The purpose of this study is to determine the effect of preparing a sample WebQuest, which is a Computer Based Education material, on attitudes of prospective classroom teachers toward using Computer Based Education. For this purpose, answers for the following questions are sought:
1. Does basic WebQuest training have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education?
2. Do gain scores of prospective classroom teachers related to attitude toward using Computer Based Education differ by;
   a) gender,
   b) owning a personal computer, or
   c) academic average?

Method
Research Model
This study employed the single group pretest-posttest design. In this design, a measurement is performed for the study group prior to the implementation, then the implementation is carried out, and finally another measurement is performed after the implementation (Karasar, 2004).

Sample
The purposive sampling method was used in the study. In this sampling method, a situation which is available nearby and convenient is selected (Yıldırım and Şimşek, 2005). The study group included 112 freshman students who had enrolled in the Classroom Teaching Undergraduate Program of a public university and received the "Computer II" course. Participation was on voluntary basis. The study group continued the Computer II course for 14 weeks.
"The Attitude Scale towards Computer Based Education" was applied at the beginning and the end of the semester.

Implementation of the Study
The study was carried out for 14 weeks within the scope of the Computer II course. Each week, prospective teachers received 2 hours of theory and 2 hours of practice.

For the first 5 weeks, prospective teachers learned how to prepare effective MS PowerPoint presentations, how to prepare concept maps in Inspiration, how to prepare worksheets in MS Word and found the opportunity to put what they learned into practice. In the 6th week, prospective teachers received basic information about WebQuest. In the 7th, 8th, and 9th weeks, they learned how to prepare web pages using WebQuest and put what they learned into practice. In the last 5 weeks, prospective teachers prepared WebQuests for 3th and 4th grade curriculum outcomes of their choice.

WebQuest preparation criteria were as follows:

1. Please do not use Turkish characters in file names.
2. Please change the heading of the page to "your name and last name".
3. All links must be functional. Please check if there are broken links.
4. Please check if images/photos are viewed properly when connected to the internet. There must be at least 5 images/photos on your site.
5. The Table of Contents must include links to following pages:
   a) Main Page: This page must include a message that welcomes the student.
   b) Introduction: The environment must be introduced to the student including the place and the time.
   c) Process: This page must explain the student's role and what is expected from the student.
   d) References: Links to worksheets, notes, and other websites must be given on this page. (You must prepare the worksheets and notes yourself.)
   e) Task: This page must explain what is expected from the student clearly and give the student tasks. (Completing the worksheet, preparing a presentation, making a model, etc.)
   f) Evaluation: You must create your own table which shows how certain behaviors are evaluated.
   g) Conclusion: You must conclude the task and state that the student completed the task successfully.
   h) About: This page must include your photo, name, last name, university and department, grade, and e-mail as contact information.
6. Please make sure other websites such as the main page of H.Ü. and websites appropriate for the student's level open in new tab. Your site must include at least 3 links to other websites.
7. Please make sure your documents such as worksheets or concept maps open in new tab. Your site must include at least one worksheet (Word), one report (Word), one presentation (PowerPoint), and one concept map (prepared in Inspiration and transferred to Word)(Word).
8. Please pay attention to Turkish grammar rules in your texts.
9. If a given text does not belong to you, please indicate the source at the bottom of the page.
10. Please pay attention to coherence in your design.
11. Please pay attention to characteristics such as readability of texts or visibility of links.

Data Collection Tool

"The Personal Information Form" and "The Attitude Scale Towards Computer Based Education" developed by Arslan in 2006 were used for data collection.

The personal information form included questions related to gender, owning personal computer, and academic average.

"The Attitude Scale towards Computer Based Education" contains a total of 20 items, 10 positive and 10 negative. Scale items are scored from 1 to 5 as "strongly agree", "agree", "neutral", "disagree", and "strongly disagree". For items with positive statements, 1 was accepted as "strongly disagree", 2 as "disagree", 3 as "neutral", 4 as "agree", and 5 as "strongly agree". For items with negative statements, 1 was accepted as "strongly agree", 2 as "agree", 3 as "neutral", 4 as "disagree", and 5 as "strongly disagree". In Arslan's study, the Cronbach's Alpha reliability coefficient of the scale was found to be 0.93. In our study, the Cronbach's Alpha reliability coefficient of the scale was found to be 0.89.

Data Analysis

"The Attitude Scale towards Computer Based Education" is a 5-point Likert scale and the possible score from each item varies from 1 to 5. The following classification is obtained from the entire scale:

1.00 – 1.80: Strongly Disagree
1.81 – 2.60: Disagree
2.61 – 3.40: Neutral
3.41 – 4.20: Agree
4.21 – 5.00: Strongly Agree

Median, arithmetic average, skewness, and kurtosis values were determined and the Shapiro Wilks test was applied in order to reveal whether the Attitude Scale Towards Computer Based Education pretest and posttest scores of prospective teachers showed normal distribution.

T test was used to reveal whether there was a significant difference between the Attitude Scale towards Computer Based Education pretest and posttest scores of prospective teachers. Independent samples t test was used to determine whether gain scores of prospective teachers from the Attitude Scale Towards Computer Based Education differed by gender and owning a personal computer, and one-way independent samples ANOVA was used to determine whether gain scores of prospective teachers differed by academic average. SPSS 11.5 and Microsoft Office Excel were used for analysis. The significance level was accepted to be 0.05.

Findings

It was firstly necessary to determine whether the data obtained from the Attitude Scale towards Computer Based Education showed normal distribution. Various descriptive statistics such as skewness coefficient, arithmetic average, median, and mod may be used to determine whether the data obtained from a continuous variable shows normal distribution or not. Tests of normality may also be used to this end (Büyüköztürk, 2009). Median, arithmetic average, skewness, and kurtosis values were thus calculated for the data obtained from pretest and posttest applications of the Attitude Scale Towards Computer Based Education. If the p value is calculated to be over 0.05, it is considered that the data does not show a significant deviation from normal distribution (Büyüköztürk, 2009). Table 1 shows examinations performed to determine whether the data showed normal distribution.

Table 1. Examining Whether the Data Related to Attitudes of Prospective Classroom Teachers toward Using Computer Based Education Showed Normal Distribution

	Arithmetic mean	Median	Skewness	Kurtosis	Shapiro Wilks test
Pretest	3.71	3.74	– 0.41	0.43	0.51
Posttest	4.35	4.41	– 0.54	– 0.52	0.16

As shown in Table 1, it was found that the data obtained from pretest and posttest applications of the Attitude Scale Towards Computer Based Education did not show a significant deviation from normal distribution since median and arithmetic average values were close, skewness and kurtosis coefficients were in the ± 1 range, and the results of the Shapiro Wilks test were significant on a α=0.05 significance level. For this reason, it was appropriate to use parametric tests to determine whether there was a significant difference between the Attitude Scale towards Computer Based Education pretest and posttest scores of prospective teachers.

Table 2. Comparing Average Scores Obtained by Prospective Classroom Teachers from Attitude Scale toward Using Computer Based Education

	N	$\overline{X}$	ss	sd	t	p
pretest	112	3.71	.26	111	3.56	.00*
posttest	112	4.35	.31			

Table 2 shows that the average pretest score obtained by prospective teachers from the Attitude Scale towards Computer Based Education was in the "agree" range, whereas the average posttest score was in the "strongly agree" range. T test was performed to determine whether this change in the average score was significant or not. According to the results of the t test, the increase in the average score obtained by prospective teachers from the Attitude Scale Toward Using Computer Based Education was significant (p<0,05). **Given this finding, it can be said that basic WebQuest training had a positive effect on attitudes of prospective classroom teachers toward using Computer Based Education.**

Table 3. Comparing Gain Scores of Prospective Classroom Teachers Related to Attitude toward Using Computer Based Education by Gender

	N	$\overline{X}$	ss	sd	t	p
Female	73	0.63	.26	111	3.56	.00*
Male	39	0.27	.31			

Table 3 shows a comparison between gain scores of prospective classroom teachers related to attitude toward using Computer Based Education by gender. As shown in Table 3, gain scores obtained by both female and male participants in posttest increased compared to pretest. According to the results of independent samples t test, the increase in gain scores of female prospective teachers was significantly higher compared to the increase in gain scores of male prospective teachers (p<0.05). Based on this finding, it can be said that gender had a positive and significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.

Table 4. Comparing Gain Scores of Prospective Classroom Teachers Related to Attitude toward Using Computer Based Education by Owning a Personal Computer

	N	$\overline{X}$	ss	sd	t	p
Owns a personal computer	81	0.45	.26	111	3.56	.12
Does not own a personal computer	31	0.36	.31			

Table 4 shows a comparison between gain scores of prospective classroom teachers related to attitude toward using Computer Based Education by owning a personal computer. As shown in Table 4, gain scores obtained in posttest by both those who owned a personal computer and those who did not own a personal computer increased compared to pretest. According to the results of the independent samples t test, there was no significant difference between gain scores of those who owned a personal computer and those who did not own a personal computer (p<0.05). Based on this finding, it can be said that owning a personal computer did not have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.

Table 5. Descriptive Statistics Regarding Gain Scores of Prospective Classroom Teachers Related to Attitude toward Using Computer Based Education by Academic Average

Academic Average	n	$\overline{X}$	sd
2.51 – 3.00	58	0.49	0.59
3.01 – 3.50	32	0.46	0.55
3.51 – 4.00	22	0.54	1.08

Table 5 shows descriptive statistics regarding gain scores of prospective classroom teachers related to attitude toward using Computer Based Education by academic average. As shown in Table 5, gain scores obtained in posttest by prospective teachers in all three of the academic average categories increased compared to pretest.
One-way independent samples ANOVA was considered to be appropriate to determine whether this change in gain scores was significant.

Table 6. Comparing Gain Scores of Prospective Classroom Teachers Related to Attitude toward Using Computer Based Education by Academic Average

	Sum of squares	sd	Average of squares	F	p
Between the groups	0.07	2	0.04		
Within the groups	11.26	110	0.36	0.10	0.91
Total	11.33	112			

Table 6 shows a comparison between gain scores of prospective classroom teachers related to attitude toward usingComputer Based Education by academic average. As shown in Table 6, gain scores of prospective teachers did not change depending on academic average. Based on this finding, it can be said that academic average did not have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.

Conclusion
Based on findings, it can be said that
- Basic WebQuest training had a positive effect on attitudes of prospective classroom teachers toward using Computer Based Education.
- Gender had a positive and significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.
- Owning a personal computer did not have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.
- Academic average did not have a significant effect on attitudes of prospective classroom teachers toward using Computer Based Education.

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