GENDER AND WEBQUESTS DESIGN IN THE PRE-SERVICE SOCIAL STUDIES TEACHER EDUCATION

Hizmet Öncesi Sosyal Bilgiler Öğretmenliği Eğitiminde Cinsiyet ve WebQuests Tasarımı

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Abstract

The purpose of this study was to investigate whether gender was a great factor with regard to the motivational level of pre-service social studies teachers who designed webQuest-based applications in an instructional technologies and material design course. There were a total of 68 pre-service social studies teachers, 29 males and 39 females, involved in this study. The researchers used a likert-type questionnaire including of 34 negative and positive statements. This questionnaire designed to evaluate a situational measure of ones' motivation was used as Pre-and-Posttests in the study that took place in 7 weeks. It was administered to the participants by the researchers before and after the instruction during a single class period. In the analysis of the quantitative data, the independent-samples t-test, the paired-samples t-test and ANCOVA with $\alpha = .05$ were employed. The study reported that there was no statistically significant difference found in regard to motivational level between male and female pre-service social studies teachers who designed webQuest- based applications.

Keywords: *gender; web Quests; technology; internet; motivation*

Özet

Bu çalışmanın amacı, materyal geliştirme dersinde bir öğretim teknolojisi olan webQuest-tabanlı uygulamalarla çalışan sosyal bilgiler öğretmeni adaylarının motivasyon seviyeleri üzerinde cinsiyetin bir etkiye sahip olup olmadığını belirlemektir. Bu amaçla 29 erkek ve 39 bayan olmak üzere toplam 68 sosyal bilgiler öğretmeni adayı çalışmanın örneklemini oluşturmaktadır. Araştımada veriler negative ve pozitif ifadelerden oluşan 34 soruluk bir motivasyon ölçeği ile toplanmıştır. 7 hafta süren çalışmada motivasyon ölçeği ön-son test olarak bir ders saati süresince çalışmadan once ve çalışma sonrasında öğretmen adaylarına uygulanmıştır. Nicel verilerin analizinde bağımsız iki örnek t-testi, bağımlı iki örnek t-testi ve $\alpha = .05$ için ANCOVA analizleri yapılmıştır. Elde edilen sonuçlar webQuest temelli uygulamalar yapan bayan ve erkek sosyal bilgiler öğretmen adaylarının motivasyon seviyeleri arasında istatistiksel olarak anlamlı bir farklılığın olmadığını göstermektedir.

Anahtar kelimeler: *cinsiyet, web Quests, teknoloji, internet, motivasyon*

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Introduction

Recently, research has shown that the use of technology has become widespread in all areas of education (e.i., Schofield, 1995; Dodge, 2001; Wei & Chen, 2006; Halat & Peker, 2011). The educators, researchers and students in some areas of social sciences do not utilize the technology effectively in their teaching and learning as much as the others in different disciplines such as mathematics and science education (e.i., Martorella, 1997; Bennett, 2001; Koehler & Mishra, 2005; Bates, 2008). Especially in social studies education, the teachers are not comfortable with the implementation of the computer – based instructional strategies in their teaching (Açıkalın & Duru, 2005). Moreover, Whitworth & Berson (2003) and Açıkalın & Duru (2005) stated that there needs to be given enough attention to the integration of technology into social studies classrooms because there is a great benefit in applying computer technology in the social studies classroom. The National Council for the Social Studies (NCSS) (2002) urged the integration of technology into the social studies teacher preparation programs; this promoted the use of technology in the social studies method courses.

Although both NCSS (2002) and the research studies (e.g., Mason et al., 2000; Heafner, 2004; Wright & Wilson, 2009) recommended the integration of the technology into social studies education, the in-service teachers and teacher educators do not give enough attention to the use of technology in their teaching. There might be several reasons behind this problem. One of them could be the lack of technology knowledge, or deficiency of finding appropriate use of technology in social studies topics. The other one might be the teachers' belief about the use of computer-based technology in the classrooms. The teachers might believe that students do not get more learning outcomes with the use of technology in the classrooms than with traditional teaching method (Martorella, 1997; Rice &Wilson, 1999; Doolittle & Hicks, 2003).

Therefore, the use of computer-based instructional technology plays crucial roles in social studies teacher preparation programs (National Council for Accreditation of Teachers Education (NCATE), 2008). The in-service teachers would easily use the computer based technology in their future teaching if they are well-educated with the use of technology during their undergraduate years. This might solve the biggest part of the problem questioning why the social studies teachers do not use technology sufficiently in the classes.

The researchers believed that doing webQuest based projects in the courses would be useful for pre-service social studies teachers to get oriented with technology use and open a window for them to integrate technology into their future teaching. This supports the claim of Abbitt & Ophus (2008) who expressed that some factors, enhancing learning such as increased motivation and integration of technology into teaching and learning, can be positively affected by using WebQuests.

WebQuest is a computer-based learning and teaching approach in which students are actively involved in an activity or situation, and use the Internet as a resource (e.i., Dodge, 2001; Halat & Jakubowski, 2001; Halat, 2008b). Likewise, Lamb & Teclehaimanot (2005) claimed that WebQuests are a student-centered and project-based approach to teaching and learning, which is supported by a variety of theories including the following educational approaches: constructivist philosophy, critical and creative thinking, situated learning environments, cooperative learning, and engaged learning.

Dodge (2001) and March (2000) stated that well-designed WebQuests contain six critical attributes; introduction, task, process, resources, evaluation and conclusion. More information about these attributes can be found elsewhere (e.g., Halat, 2008a).

Research Studies Regarding Gender Issue and Use of Technology

There have been considerable investigations carried out on the gender issue regarding the use of computer technology. The findings of these studies are varied. According to Watson (1997), although the pre-service teachers are supposed to be confident and competent users of information technology, they have been insufficiently prepared by their pre-service education programs. Watson (1997) reported that majority of the pre-service teachers had low computer self-efficacy and expressed negative feelings regarding information technology. These views were related to gender and age.

The role of gender differences in using technology for learning has been extensively studied in many disciplines such as mathematics education, science education and foreign language education (e.g., Crocco, 2008; Cheung an& Lee, 2011; Hu & Hui, 2011; Yau & Cheng, 2012). In these studies, they reported that males are more dominant and have more tendencies in the use of technology than females. They also claimed that males have higher motivational attitudes toward the use of technology than females. Though it has been perceived that male students are more confident in using technology and less anxious to use it for learning than female students, nowadays there has been an increase in the use of technology by female students (Dhindsa & Shahrizal-Emran, 2011). Moreover, Yau & Cheng (2012) added that using technology has positive impacts on both male and female undergraduate students' attitudes and motivation.

However, Yau & Cheng (2012) claimed that male undergraduate students are more confident in using technology (e.g., AutoCAD, SPSS, and some programming language such as C, java, visual basic, etc.) for learning than female undergraduate students in Hong Kong. They explained this result with the use of technology by parents, teachers, and peers for learning. In other words, the social environment in which parents, teachers and peers use technology for teaching and learning seems to play important roles on the confidence of male undergraduate students. Moreover, Yau & Cheng (2012) added that using technology has positive impacts on both male and female undergraduate students' attitudes and motivation.

Kay (2006) reviewing so many studies on gender issue and computer- related behaviors claimed that there were gender related differences with reference to computer attitude, ability, and use between males and females favoring males. In other words, Kay (2006) stated that males had more positive computer-related attitudes, higher ability, and they used computers more than females. Kay added that the mentioned variables are important for pre-service teachers because they have prominent effects on future students. According to several research studies (i.e., Yuen & Ma, 2002; Shapka & Ferrari, 2003; Aust et al., 2005), there has been limited research done on the gender-related differences in computer-related behaviors of pre-service teachers. For instance, Aust et al. (2005) found that there was a gender difference with reference to the basic skills and presentation software between male and female pre-service teachers in favor of male pre-service teachers, and that there was no gender difference detected regarding ability in online skills, word processing spreadsheet and database software. Similarly, Shapka & Ferrari (2003) claimed that there were no gender differences in computer attitudes, computer use, and completion of a computer task. Furthermore, Yuen & Ma (2002) reported no gender differences in perceived usefulness of computers, ease of use, or intention to use computers.

However, several research findings have documented that the gender difference between males and females has continued to exist in regard to computer-related behaviors. Females had lower computer self-efficacy, less positive image of computers, and less sex-roles stereotyping of computers than males (i.e., Whitley, 1997). Seger & Verhoeven (2009) conducted a research study regarding the implementation of WebQuests with sixth grade students, they found that male students learn more in a sheltered learning environment (WebQuest condition) than in a less sheltered free-search environment (Google condition), and that female students had equal learning gains in both types of the sheltered environment. Similarly, Yılmaz & Şahin (2011) examined the pre-service teachers' perceptions about teaching and the relation of those perceptions to epistemological beliefs, gender, and subject areas. They found that pre-service male teachers preferred constructivist teaching views significantly more than pre-service female teachers did.

Pre-service Teachers and Internet Usage

According to Jones (2002), college students have the largest share among others in the society in using internet that becomes part of their life because of the fact that they have grown up with computers. Today, using Internet becomes as ordinary as the telephone or television for everybody. These findings are not in contrast with the findings of Madden & Jones (2002) stating that new generation; in particular, college students are highly active internet users. According to their report, college students- believed that the Internet had a positive influence on their academic experience (79%); -used the Internet more than the library for research (73%), -checked their email

every day (72%), -thought the Internet enhanced their relationships with classmates (60%). Cheung & Lee (2011) claim that males have been the dominants of the Internet population for a long time.

Furthermore, Cheung & Lee (2011) point out that there has been an increase in the study of gender issue on the internet-based teaching and learning. For instance, according to Odell (2000) and Weiser (2000), males use internet for entertainment and leisure such as playing online-games, listening to the music more than females. However, females are eager regarding using e-mail and other technologies to communicate with others than males (Debrand & Johnson, 2008). In addition, Cuhadar (2012) conducted a research study regarding the relationship between problematic Internet use and social interaction anxiety among pre-service teachers. He stated that pre-service male teachers' use of the Internet was more problematic as in comparison to that of female pre-service teachers. There was a positive linear relationship between the time spent on the Internet and the level of problematic Internet use. He added that there was a significant correlation between the level of problematic Internet use and social interaction anxiety.

In short, there has been a great number of research studies with reference to gender differences in using technology conducted in other educational areas such as, math education, science education, foreign language education and so forth, but there has been a limited research studies regarding gender issues and integration of technology into social studies (i.e., Crocco, 2008; Crocco, Cramer & Meier, 2008). Besides, the recommendations of NCSS (2002) and NETS (2000) suggested that new pedagogical ideas and technologies should be integrated into the social studies classrooms to help students overcome their difficulties and improve their knowledge. The research findings and these suggestions encouraged and motivated the researchers to conduct this current study.

Purpose of the Study

The objective of this study was to compare the motivational levels of the pre-service social studies teachers required to develop webQuest based activities appropriate for the level of middle school students in an instructional technologies and material design course. In particular, the researchers investigated the answer of the following question:

- *Is there a difference in terms of motivational levels between male and female pre-service social studies teachers who designed webQuest-based applications in a material design course?*

Method

Participants

In this current study, the researchers followed the "convenience" sampling procedure defined by McMillan (2000), where a group of subjects is selected because of availability. Participants in the study were pre-service social science teachers enrolled to an instructional technologies and material design course at a university placed in the central part of Turkey. The study

took place in fall semester, 2012. The study included a total of 68 pre-service social studies teachers, 29 males and 39 females. The participants from the department of Social Studies Education were juniors.

Data Sources

In this study, the data collection processes started with giving the participants a questionnaire, the course interest survey (CIS) used as pre-test and post-test. The questionnaire *Course Interest Survey (CIS)* includes 34 statements classified into four parts, Attention, Relevance, Confidence and Satisfaction. Using a likert-type rating scale containing statements, some positive and some negative, relating to the attitude being measured, this questionnaire was administered to the participants for 20 minutes. The aim of CIS is to evaluate a situational measure of students' motivation in a specific classroom setting. The goal with this instrument is to investigate how students are motivated, or expected to be, by a particular setting. The reliability estimate of CIS obtained by using Cronbach's alpha measure was .89 for the total scale. In the study, both male and female pre-service social studies teachers met four –hour instruction in a week and the study was completed in seven weeks.

Instructional Procedures

The study was conducted in an instructional technologies and material design course in which the pre-service social studies teachers were required to design educational teaching and learning materials based on the Talim Terbiye Kurulu Başkanlığı (TTKB) (2009) curriculum standards for each grade level of middle school students. The aim of designing educational materials was to help students understand the topics easily or comprehend the concepts in difficult topics. This would give pre-service social studies teachers opportunities to refine their knowledge, gain new knowledge, discover students' difficulties or misconceptions in a topic, try to use technology in the learning of social studies, and so on. The researchers chose to employ the webQuest as an opportunity for the pre-service social studies teachers not only to learn how to design a website but, more importantly, to develop engaging, appropriate pedagogical strategies for the use of internet in social studies education. In addition, they had a chance to practice their pedagogical and content knowledge in a virtual environment with WebQuests before going into the classes. These were the main objectives of the course offered to the pre-service teachers in the study.

WebQuests Designing Procedure

None of the participants in the study was familiar with webQuest and comfortable with the use web-page editors. At the beginning of the study, the researchers introduced a web-page editor, Microsoft FrontPage, explained the components of good WebQuests, and showed the pre-service social studies teachers how to design one. After becoming familiar with the structure and

preparation of a webQuest, two students in each group worked together and chose one of the topics in social studies such as, culture and tourism, the Lydian, regions and agricultural products, climate and vegetation, trade and the silk road, sultans, technology from past to present, revolutions of Ataturk, earthquake zones in Turkey, natural disasters, cities and population distributions, and so forth. Each group wrote their stories or scenarios adapted from cartoon movies, such as Harry Potter, Smurfs, Keloglan, Tsubasa, Popeye, and so on to a social study topic that they chose.

The pre-service social studies teachers designed their teaching or learning materials that were appropriate for middle school students' levels. Then, all group members searched on the Internet to find reliable websites to fulfill their needs. After the collection of all necessary resources and materials, each group designed their WebQuests on which students were supposed to follow the given instructions and complete the assigned tasks to learn the topic. All group members contributed to the groups' WebQuests. Each member of a group chose a different task in their project. After the process of designing WebQuests in seven weeks, each group presented their WebQuests in the classrooms and shared their perspectives about them.

Test Scoring Guide

The Course Interest Survey (CIS) Scoring Guide: The response scale ranges from 1 to 5. According to this scale, the minimum score is 34 on the 34-item survey, and the maximum is 170 with the midpoint of 102. The minimums, maximums, and midpoints vary for each subscale because the numbers of item distributions are not the same as shown below. Keller (1999) also uses an alternative scoring technique to find the average score for each subscale and the total scale instead of using sums. For each respondent, divide the total score on a given scale by the number of items in that scale. This converts the totals into a score ranging from 1 to 5 and makes it easier to compare performance on each of the subscales. He noted, "Scores are determined by summing the responses for each subscale and the total scale. Please note that the items marked reverse are stated in a negative manner. The responses have to be reversed before they can be added into the response total" (p. A-41).

The Analysis of Data

In the analysis of the data, the researchers first used the independent-samples t-test statistical procedure with $\alpha = .05$ on the participants' pretest scores from Course Interest Survey to find out any differences with regard to motivational levels between male and female pre-service teachers. This t-test procedure showed means score differences in terms of motivational level between the two groups favoring the males. Then, scores from the CIS were compared using one-way analysis of covariance (ANCOVA) with $\alpha = .05$, which is a variation of ANOVA. It was to adjust for pretest differences that existed between control and treatment groups. In other words, because of the

initial differences about the students' motivational levels between the groups, ANCOVA was used to analyze the quantitative data in the study.

In the analysis of the data, the pretest scores from the Course Interest Survey served as the covariates in the analysis of students' motivation by Gender. The statistical procedure, one-way analysis of covariance, enabled the researchers to compare the motivation level of each group. Moreover, the researchers employed the paired-samples t-test with $\alpha = .05$ to determine the mean score differences between pre-test and post-test scores of male and female pre-service social studies teachers based on the CIS. The paired-samples t- test procedure compares the means of two variables for a single group. It computes the differences between values of the two variables for each case. This also helped the researchers see the impacts of instruction on participants' motivation for each group.

Results

Table 1 demonstrates the descriptive statistics and the paired-samples t-test for the pre-service social studies teachers' motivational performance based on the CIS scores, and indicates that there is a change in the motivational levels of male and female participants between pre- and posttest scores. Besides, according to the results of the independent-samples t-test, although the mean scores of males were numerically higher than those of female pre-service teachers on the pretest and posttest scores, these numerical differences were not statistically significant.

Table 1: Descriptive Statistics and the Paired-Samples T-Test for Students' Motivation Based on the CIS Scores by Gender

Gender	N	Pretest		Posttest		Posttest*	
		M	SD	M	SD	M	SE
Male	29	129.90	17.6	135.17	11.1	134.61[a]	2.0
Female	39	127.62	15.9	132.97	17.6	133.57[a]	2.3
Total	68						

Note. a: Evaluated at covariates appeared in the model: Pre-motivation =128.59,

*: Estimated Marginal Means, CIS: Course Interest Survey.

Likewise, table 2 shows the analysis of covariance (ANCOVA) for both groups regarding the pre-service social studies teachers' motivational levels, which is based on the Course Interest Survey. It indicates that there was no statistically significant difference between male and female participants [$F_{(1, 68)} = .105$; $p = .74 > \alpha = .05$]. Moreover, table 1 indicates that both male and female participants had similar motivational levels in the study, [the mean score of the males is 134.61[a], and the mean score of the females is 133.57[a]]. In

other words, the study found that there was no gender difference exits in regard to motivational level among the pre-service social studies teachers who were exposed to an instruction using webQuest based applications. However, according to the results of paired sample t-test, there was a statistically significant difference found between pre- and post-test scores for each group. The instruction including webQuest-based activities in a material design course had positive effects on the motivational levels of both male and female pre-service social studies teachers.

Table 2: Summary of ANCOVA for Students' Motivation Based on the CIS Scores by Gender

Sources	Sum of Squares	df	Mean Square	F-statistic	p
Pretest	5098.2	1	5098.2	32.62	.00
Gender	16.44	1	16.44	.105	.74
Error	10158.8	65	156.2		
Total	1234738	68			

Note. α = .05, CIS: Course Interest Survey.

Discussion & Conclusion

The current study denoted that designing webQuest based applications in an instructional technologies and material design course positively influenced the motivational levels of the pre-service social studies teachers. Besides, this study indicated that there was no statistically significant gender difference with regard to motivational levels between pre-service male and female social studies teachers who designed webQuest based applications in their learning. These findings support the prior research findings (e.g., Volman & van Eck, 2001; McSporran & Young, 2001; Yau & Cheng, 2012). For instance, Yau & Cheng (2012) expressed that using technology has positive impacts on both male and female undergraduate students' attitudes and motivation. Volman & van Eck (2001) found that there was no gender related differences in attitudes towards computers. Moreover, according to McSporran &Young (2001), female students were more disciplined and thus might learn more efficiently in technology supported learning environments than male students.

In addition, several research findings (Yuen & Ma, 2002; Shapka & Ferrari, 2003; Aust et al., 2005) have documented that there were no gender differences found with reference to the variables such as, online skills, attitude, and the use of computer between male and female pre-service teachers. For example, according to Aust et al. (2005), there was no gender difference detected regarding the ability in online skills, word processing spreadsheet and database software. Likewise, Shapka & Ferrari (2003) claimed that there were no gender differences in computer attitudes, computer use, and completion of a computer task. Moreover, Yuen & Ma (2002) reported no gender differences

in perceived usefulness of computers, ease of use, or intention to use computers. These results are line up with the finding of this research study.

The finding of this current study is in contrast with the results of prior research studies (c.f., Whitley, 1997; Forcier & Descy, 2005; Kay, 2006; Cheung & Lee, 2011). They claimed that the gender bias has discouraged the female students from getting involved computer related learning and teaching because of the fact that there is a general perception about it. Females somehow feel that math, science and technology are under the dominance of males. This perception negatively influences female students' use of computer in learning and teaching (i.e., Forcier & Descy, 2005; Cheung & Lee, 2011). Similarly, Kay (2006) stated that male students had more positive computer-related attitudes and higher ability, and used computers more than female students.

Our participants, pre-service social studies teachers, used internet daily in for the purposes of surfing on the net, checking e-mails and playing online games, but they were not able to integrate technology in their teaching and learning. This supports the claims of Jones (2002) and the findings of Madden & Jones (2002) mentioned before.

As a conclusion, the study showed that doing webQuest based projects had positive impacts on the motivation of pre-service social studies teachers, but that there were no gender differences regarding the motivational levels between male and female pre-service teachers.

Implications and Limitations

Several research findings (i.e., Hu & Hui, 2011) demonstrated that while male students generally performed better than female students in subjects related to mathematics and science, female students inclined to show greater performance than male students in subjects related to language or social sciences.

The finding of this study implies that WebQuests helped the pre-service social study teachers to get oriented with the use of technology in their field of area and they have learned how to integrate computer-based technology in their teaching and learning. Also they have learned how to use the Internet for the educational purposes in social studies classrooms. These outputs are lined up with the suggestions of the National Council for the Social Studies (NCSS) (2002) and National Educational Technology Standards (NETS) (2000) recommending that new ideas, strategies, and technologies be utilized in teaching social studies classrooms to help students enhance their productivity and creativity.

Furthermore, this study implies that doing webQuest based activities in college level courses played vital roles on the female students' use of technology and enhanced their motivational performance in social studies classrooms.

The first limitation of the study was that the participants had difficulties with findings of professional websites designed in Turkish; mostly

they found websites including advertisements that may distract the learners' attentions from their assigned tasks. The second limitation was that the participants had lack of experience with doing this kind of technology based activities in their courses.

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