Gender Differences in Middle School Students' Attitudes towards the Educational Uses of the Internet and the Internet Usage

Ozgul Yilmaz
Hakan Tuzun
Indiana University

Abstract

One of the most recent technological revolutions is Internet, which provides an opportunity for teachers and students to explore information and to learn at school, at home, or in the community. Since vast amount of information is available on Internet, it will be an inevitable resource for teachers and students in developing countries as in developed countries. In this study, gender differences in middle school students' attitudes toward educational uses of Internet and the Internet usage in Turkey were investigated.

Introduction

The Internet is an international network of computer networks that allows its users to share information and to communicate interactively (Gunderson & Anderson, 1999). Acceptance of the Internet as a potential educational tool has provided rich teaching and learning environments for students and teachers. For example, teachers have used the Internet as a communication tool (Wells & Anderson, 1995), as an information seeking environment (Wei He & Jacobson, 1996), for gathering content information (Sunal, Smith, Sunal, & Britt, 1998), for delivering instruction (Sunal et al., 1998), for linking students to their peers worldwide (Gersh, 2001), and for posting student work on the Web (Branzburg, 2001).

Research that has been done for college students indicated that students who keep track of valuable educational sites on the Internet, share information with their friends, and use the Internet very often for educational and general reasons, had more favorable attitudes toward educational use of the Internet (Duggan, Hess, Morgan, Kim, & Wilson, 1999). Experience with using the Internet can vary for college students. Wei He & Jacobson (1996) indicated that social science undergraduates had less Internet experience than those in other programs. However, all of the participants in this study thought that Internet was very useful tool in education. The general attitude of the undergraduate students reflected that the use of Internet was for seeking information and not for entertainment. Research carried out for 8th to 10th grade students indicated that student attitudes toward computers became significantly less positive during their junior high school careers. However, it was argued that the use of the Internet to access very exciting ideas and rich resources and materials were attractive characteristics of the Internet in order to increase positive attitudes toward the use of the Internet for educational purposes. With the help of the Internet, students' attitudes towards the use of computers in their classes could also be increased (McKinnon, Patrick Nolan, & Sinclair, 2000).

Since the availability of the computers and the Internet access in primary, middle and high schools has increased most recently, the research studies in grades 1 to 12 are not as many as in college and university level. Studies investigating the gender issues indicated that male students have more positive attitudes toward use of computer and high self confidence in use of technology than females (Brosnan, 1998; Chua, Chen, & Wong, 1999; Shashaani, 1997). Study of Nachmias, Mioduser, & Shemla (2000) in grades 7 to 12 revealed that there was a significant difference between males and females in terms of time spent on the Internet, preferred location for use, resources downloading, Web site creation, and participation in discussion groups. Similar to previous researchers Nachmias, Mioduser, & Shemla (2000) also argued that extensive use of the Internet in schools and communities will eliminate acceptance of the common idea of the Internet usage is a type of males' activity.

A review of the literature reveals that in Turkey, similar to other countries, there is little information about middle school male and female students' attitudes towards the use of the Internet and computers as an educational tool in their courses. There are a number of reasons why so little is known about students' attitudes towards use of technology in their classes. Technological support, especially for costly technologies such as computers and Internet accessibility, is not provided equally for all schools due to economical constraints in Turkey. In general, students are familiar with the use of video, overhead projector, television, microscopes, and etc. as part of instructional materials in their courses. Since very few of the schools have computer laboratories, the use of computers in courses as an instructional tool is not a common teaching strategy in regular classrooms, especially in public schools. Students are normally allowed to use computers for their computer classes, projects or to seek information in their free times. Yildir (2001) found that access to computers in schools was the most important parameter in having positive attitude towards computers. In addition, it is indicated that gender and age also significantly affected the elementary school

students' attitudes towards computers. Clearly, further and more extensive studies are needed to evaluate the middle school students' attitudes towards the educational use of the Internet in Turkey.

Recently the Internet use has experienced a dramatic growth in Turkey (Wolcott & Cagiltay, 2001). Most of the students access to the Internet at out of school places, instead of their schools. For example, they are using the Internet at the Internet cafes, at their homes, or from their friends' computers. In parallel with the huge number of resources available outside the schools, it is clear that students have attitudes towards potential educational use of the Internet.

The purpose of this study was to present the results of attitudinal data from Turkish students with respect to the educational uses of the Internet and the Internet usage. Main focus will be on gender differences.

Methodology
Participants and Data Collection
This study reported data from a sample of Turkish students. All of the students were enrolled in the sixth, seventh, and eighth grades of middle schools and were taught by the same curriculum. All schools were public schools. The schools are located in rural, urban, and suburban areas near and in Ankara, Turkey. For this study, 6 schools were selected randomly among the public schools. For each grade, one classroom was selected randomly in each school. Data were collected from 708 students in 18 classrooms. The age range of the students was 10 to 14.

Instruments
The Attitude Toward Educational Uses of the Internet (ATEUI) scale developed by Duggan, Hess, Morgan, Kim, & Wilson, (1999) was used in this study. The ATEUI scale constituted 18 items on Likert format. Since our participants were middle schools students, we modified some of the items according to level of our participants. Since students' access to the Internet was expected to vary with regard to their school characteristics and students out of school opportunities, we had to determine those parameters to make sound interpretation about the findings. For this reason, we used the Behavioral Correlates Questionnaire (BCQ) developed by Duggan et al. (1994). This questionnaire included 11 items.

Results
Descriptive Analysis of Male and Female Students' Responses to BCQ Items
Table 1 summarizes the percentage of male and female students' responses to BCQ items. The general use of the Internet increased during last two years for males and females. For example, only one girl indicated that she has been using the Internet for more than 4 years while 4.1% of the males indicated so. Similarly 3.3% of males and 1.2% of females said that they have been using the Internet for 3-4 years. However, 19% of males and 16% of females said that they were using the Internet for less than a year. This data revealed that the Internet has become more popular for both males and females most recently.

Among the students 23.3% of males and 14.2% of females indicated that they learnt to use the Internet by themselves and 18.2% of males and 9.1% of females indicated that they learnt it from their friends. Magazines, books, school, and library were not preferred as a way to learn the use of the Internet.

The students (34.5%) prefer to connect to the Internet from their homes and Internet cafés. Even though nearly equal percentage of males (14.6%) and females (9.4%) connect to the Internet from their homes, the analysis also revealed that more males (26.3%) prefer to use Internet cafés than females (8.8%).

Among different features of the Internet, males mostly preferred to use the chat (27.1%), WWW (24.1%), e-mail (14.6%), download (7.6%), newsgroups (6%), and ICQ (5.4%). Females also stated similar usage patterns except for newsgroups: chat (16.2%), WWW (13.9%), e-mail (9.4%), download (4.7%), and ICQ (3.5%). This data revealed that both males and females are using the Internet for communication and search.

Table 1. Descriptive Analysis and Chi Square Analysis for Male and Female Students' Responses to BCQ items

Behavioral Correlates	Male		Female		
	N	%	N	%	Chi Square
How long have you been using the Internet?					
Less than one year	71	19.2	57	16.8	35.45**

1-2 years	32	8.7	15	4.4	35.45**
2-3 years	24	6.5	7	2.1	35.45**
3-4 years	12	3.3	4	1.2	35.45**
More than 4 years	15	4.1	1	0.3	35.45**
How did you learn to use the Internet?					
Myself	86	23.3	48	14.2	9.63**
Books	9	2.4	5	1.5	0.85
Magazines	18	4.9	6	1.8	5.21*
Friends	67	18.2	31	9.1	12.03**
School	5	1.4	7	2.1	0.53
Library	2	0.5	1	.03	.026
Where do you connect to the Internet?					
Home	55	14.9	40	11.8	1.47
School	6	1.6	2	0.6	1.69
Internet café	97	26.3	30	8.8	36.50**
Friend	26	7	15	4.4	2.23
What of the following features for using the Internet apply to you?					
E-mail	54	14.6	32	9.4	4.47*
WWW	89	24.1	47	13.9	11.97**
E-mail list	40	10.8	22	6.5	4.20*
Ftp	8	2.2	1	0.3	4.94*
Newsgroups	22	6	5	1.5	9.70**
Download	28	7.6	16	4.7	2.50
Telnet	6	1.6	2	0.6	1.70
Chat	100	27.1	55	16.2	12.22**
ICQ	20	5.4	12	3.5	1.45
Which of the educational purposes do you use the Internet for?					
Homework	56	15.2	37	10.9	2.81
Term paper	87	23.6	71	20.9	0.70
Consult with instructor	10	2.7	1	0.3	6.74*
Consult with classmates	24	6.5	10	2.9	4.88
Retrieving class notes	61	16.5	45	13.3	1.47
Follow educational sites	33	8.9	21	6.2	1.89

** $p < .01$, * $p < .05$

Even though 66% (465) of the students indicated that they did not connect to the Internet at all, the analysis revealed that 87% (616) of the students used the Internet for educational purposes. The students mostly used the Internet for preparing term papers (males 23.6%, females 20.9%), doing homework (males 15.2%, females 10.9%), following educational sites (males 8.9%, females 6.2%), and doing other educational activities (males 15%, females 7%). These findings suggest that students give importance to get information from the Internet for their courses.

Females' and Males' Attitudes

The t-test analysis (t =-.657, p>.05) suggested that both females and males have favorable attitudes toward the educational uses of the Internet.

Chi Square Analysis

Male and female students' responses to behavioral correlates were analyzed by using chi square test to find out differences between their Internet literacy. Table 1 summarizes results of all of the chi square analysis. Analysis revealed that male students had significantly more experience in using the Internet than female students. Even though there is still significant difference between male and female students' number in using the Internet during last two years, a great deal of increase in number of female students was easily observed.

Myself, magazines, and friends were found as favorite sources for both male and female students to learn how to use the Internet. However, when we compare the number of the students, significantly more male students used these three sources to get information about the Internet usage.

Both male and female students were connected the Internet from their houses, friends, and s chools. However, significantly more male students preferred to use Internet Cafés to connect to the Internet.

Among the different features of the Internet, e-mail, www, e-mail list, ftp, news groups, chat were used significantly more by male students than female students.

Using the Internet for educational purposes was similar for both male and female students. Only significant difference was obtained for consulting instructor. More male students preferred to use the Internet to communicate with instructor through the Internet than female students.

Discussion

Descriptive analysis and t-test analysis revealed that during last two years both males and females have had an interest in using the Internet for different purposes. Our results and other research results show that gender did not create differences in attitudes toward educational uses of the Internet (Duggan et al., 1994). Since most recently both females and males are spending nearly equal time on the Internet (Internet users, 2001; Jackson, Ervin, and Garden, 2001), they have favorable attitudes toward the Internet.

Even though both male and female students had generally positive attitudes toward educational uses of the Internet, significant differences were obtained in terms of their Internet literacy. Similar to Nachimas et al., (2000) findings, this study supported that more male students used the Internet than females for different purposes. Moreover, significant differences were obtained between genders regarding with age of starting to use the Internet, sources to learn the Internet, places to connect to the Internet, activities done by using the Internet, and obtaining the information and communicating with teachers and friends for different educational purposes.

Interestingly, our data suggested that even though only 33.6% of the students indicated that they were actively using the Internet, 87% of the students indicated that they were using the Internet for educational purposes. This finding revealed that even though students had very little opportunity to access the Internet through their school resources, they found different ways (such as Internet cafes, friends computers etc.) to access the information through Internet for their homework and term papers. It is clear that students already involved in using the Internet for educational purposes as a reliable source. Teachers also supported their students to use the Internet for their homework, term papers, and other educational activities. Otherwise students would not use the Internet. This result strongly suggests that school administrators should provide more opportunities for students to easily access the Internet in their schools to increase the effectiveness of teaching and learning. Earlier studies suggest that instruction effectiveness can be increased by using the Internet (Berge, 1997; Follansbee, 1997). This high demand to use the Internet for educational purposes might rapidly increase the Internet access at schools.

Another finding of this study revealed that communication through chat, e-mail, newsgroups and web browsing were other reasons for using the Internet for middle school students. This result indicated that students also use the Internet for entertainment purpose. This finding supports the Nachimas et al., (2000) study.

This study will add to the literature and also will help those actively involved in educational uses of the Internet research and those participating in the improvement of education in developing countries like Turkey. This study suggests that s tudents are using the Internet to obtain information for their courses. School administrators and teachers should be informed about the ways of their students' using the Internet. In this way they can provide more opportunities to the students according to their interests and increase the effectiveness of the instruction and students' success.

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