

Full Length Research Paper

A relative investigation on purposes of computer and internet use of prospective geography teachers in Turkey and China

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Received 18 February, 2014; Accepted 27 March, 2015

This study investigated Chinese and Turkish prospective geography teachers' use of computer and internet applications as indispensable instruments in and out of education. 292 prospective geography teachers students from Shanghai, China, and Izmir, Turkey, participated in this study. The aim of this study was to examine the use of computers and internet by prospective teachers in both Turkey and China. Hence, this study aimed to propound the similarities and disparities between Turkish and Chinese geography students in computer and internet use. The results of this research show that there are meaningful differences between prospective geography teachers in Turkey and China in terms of purpose of computer and internet usage. Although both Turkish and Chinese prospective geography teachers have used most "education aimed media" Turkish female prospective teachers in Turkey have been using the internet and the computer less than those of its Chinese counterparts. In addition, this research showed with the use of observation, interview and literature review that while internet use of prospective geography teachers in Turkey is largely affected by social-economic and cultural factors, the use of the internet of those in China is decided by political decisions taken by the Chinese government.

Key words: Prospective geography teacher, computer and internet, gender.

INTRODUCTION

Computer and internet usage in China and Turkey

With approximately 1.3 billion citizens, China is one of the world's most densely populated countries, and the third largest in the world in terms of territory. China has undergone rapid, profound economic, and social change and development recently. Naturally, these developments and changes have reverberated into education. With the

developments of computer technology together with computer assisted instructions, in particular, it has begun to become widespread in China in regard to education. Moreover, Geography Information Systems (GIS) have increased the importance of computers in geography lessons. Computers are used not only used in education, but also in everyday life in variety of activities in China (Turan, 2010). There is a long history of research on the

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basic theory and application technology of computer information networks in China. The policy of reform and an open door policy brought forward a good developmental opportunity for the construction of information infrastructure such as the telephone, cable television, and optic-fiber television systems, etc. (Wu, 2006). The development of the internet infrastructure in China is prevalent in academic and scientific circles, as is in most other countries. The first computer network was the China Academic Network (CANET). It was set up in 1987 in order to provide support for academic and scientific research in the computer sciences (Du, 1999; Tsui, 2001; Tai, 2013). It established the first TCP/IP-capable academic network, the National Computing and Networking Facility of China (NCFC), in April 1994, and opened the first public internet service, the ChinaNet, in January of 1995 (Qiu, 2003).

The first efforts in using computers in the Turkish school system started at the beginning of the 1980s, though the introduction of computers to universities started before this period in the 1960s, and computer assisted education became a national educational policy after the acceptance of the sixth Five Year Development Plan. From the 1980s to the present day, many schools have been equipped with computers, and computer assisted education has since branched out into all levels of education (DPT, 1990; Deniz, 2007). The first computer network connection in Turkey was established on 12th April, 1993. During the first six years, several universities were the dominant users of this tool. Since 1996, the internet in Turkey has penetrated into almost all sectors, including banking, education, and health (Usun, 2003).

Currently, of the netizens in Turkey, the female population (34%) is lower than that of the male (66%) population (Webrazzi, 2008). In China, the difference is: female, 42.8%; male, 57.2%. Thus, the internet usage of females is also lower than that of males (CINIC, 2008). About 83% of the students at university in China have surfed the internet (Asia Times, 2010). This rate in Turkey is 87.2 %. (Bilişim '08, 2008). Some statistical knowledge is given for the Top 20 Countries with the Highest Number of Internet Users in Table 1.

Purpose of the study

The aim of this study was to compare the purpose of computer and internet use of prospective geography teachers in Turkey and China. In addition, this study also examined possible differences in computers and internet use in terms of gender. The sub- problems of the study were determined as follows:

1. To determine the relationship between geography interest and the use of geographic software.
2. To determine the density of computer usage per week of the two countries geography students.

3. To propound the similarities and disparities between Turkish and Chinese geography education students in computer and internet use.

4. To assess the students' use of the computer and internet for educational purposes.

5. To determine the effects in the usage of the internet and computer in social and cultural structures in the two countries (observation and interview).

LITERATURE REVIEW

Computers can make a real contribution to almost every type of teaching method, and most higher education subject areas such as geography. As technology advances, its impact on people's lives has become more visible. Therefore, the dependency on technology has increased over time. Computers are of the most outstanding ones of the technological devices which have become a part of people's daily routines. To be able to make use of such a facility, recognizing the potential role of computers, and being technologically literate are essential (Güçlü, 2010). The internet is a global technology, but students work in local/national contexts, and have differences in other aspects of their identities. Today, one of the most important communication technologies is the internet. In addition to using it in daily life, the internet is becoming more important for use in educational activities and academic environments. At the same time, trainee teachers need the internet to realize instructional activities, personnel knowledge systems, and keeping abreast of global world developments, etc. (Isman et al., 2008). Internet use is a positive social experience. People who use the internet extensively use it for a wide range of activities, both instrumental and recreational. Rather than turning away from their friends and relatives, they combine their internet usage with face-to-face and telephone contact, and they have a greater sense of an online community (Chen et al., 2002; Zhao and McConnell, 2008; Qiu, 2003). According to the IES Statistical Analysis Report (2006), students' computer and internet activities and rates of use are interesting for several reasons. The use of computers and the internet has been associated with improvements in people's education, labor market prospects, and their everyday lives. Since these technologies have the potential to improve access to information, to help get tasks done better or more quickly, and to facilitate communication, according to the National Research Council, computer and internet usage rates are indicators of a person's standard of living. Since the use of computers helps students acquire computer literacy, usage rates may indicate how well prepared the current generation of students will be to enter a workforce where computer literacy is in demand.

National cultures have an effect on people's attitudes and usage in terms of ICTs. Li and Kirkup (2007)

Table 1. Top 20 countries with the highest number of internet users (IWS, 2009).

	Country	User latest data	% population (penetration)	% of world users
1.	China	360.000.000	26.9	20.8
2.	United states	227.719.000	74.1	13.1
3.	Japan	95.979.000	75.5	5.5
4.	India	81.000.000	7.0	4.7
5.	Brasil	67.510.400	39.0	3.9
6.	Germany	54.229.325	65.9	3.1
7.	United Kingdom	46.683.900	33.3	2.6
8.	Russia	45.250.000	32.3	2.6
9.	France	43.100.134	69.3	2.5
10.	Korea, South	37.475.800	77.3	2.2
11.	Iran	32.200.000	48.5	1.9
12.	Italy	30.026.400	51.7	1.7
13.	Indonesia	30.000.000	12.5	1.7
14.	Spain	29.093.984	71.8	1.7
15.	Mexico	27.600.000	24.8	1.6
16.	Turkey	26.500.000	34.5	1.5
17.	Canada	25.086.000	74.9	1.4
18.	Philippines	24.000.000	24.5	1.4
19.	Vietnam	21.963.117	24.8	1.3
20.	Poland	20.020.362	52.0	1.2
	Top 20 Countries	1.325.437.422	30.3	76.4
	Rest of World	2.480.556.319	17.1	23.6
	Total World-Users	1.733.993.741	25.6	100.0

explained in their article called *“Gender and cultural differences in Internet use: A study of China and the UK”* that Chinese and British students would have different experiences of the internet, hold different attitudes towards it, have different opinions on how the internet will affect society and their own lives, and use it differently. The students in these two countries have been educated in different educational systems, live in different political systems, speak different languages, and have different views on the value of ICTs. However, how national cultures influence students’ use of the internet needs to be explained theoretically and investigated systematically. It can also be argued that there are two global cultures with respect to the internet which are organized by gender. The question remains whether these two cultures exist across all national cultures, or whether there is a different interplay of gender and the Internet in different national contexts. Other research of interest is regarding *“Conceptions of computers among students in China and Sweden”*. Allwood and Wang (1990) stated in this article that Chinese students were somewhat more optimistic about the effect of computers on society than were the Swedish ones. However, this result was not consistent for all relevant items in the questionnaire. Other results show that people and computers appeared

to be more similar for the Chinese students than for the Swedish ones. Studies comparing other cultures generally support the view that culture influences attitudes toward the use of computers (Brosnan and Lee, 1998; Krekel, 2009; Jackson et al., 2008).

When we compare other developed countries, the educational uses of the internet in Turkey are still in the infancy period. The mandatory primary education in Turkey has been extended from five years to eight years. Some problems encountered in the process are expansion, schools, hardware, and manpower. Distance education and the internet as a supporting tool and technology are very important alternatives to solve these problems (Usun, 2003). This circumstance necessitated growth of the internet in the education environment of Turkey.

The internet and computers in geography education have improved students’ thinking and decision making skills and geographical knowledge. The computer and internet use in geography education is required for a variety of tasks, such as drawing, homework and projects, word processing, the 2 spreadsheets, the 3 database program, and the 4 Graphic and drawing programs. Recently, Geography Information Systems (GIS) have increased the importance of computers and

the internet in a geography courses.

METHOD

Instruments

The scanning model was used in this study. The study was conducted in 2009 in the Geography Education Section of the Buca Education Faculty, Nine September University, Izmir, and the Geography Education Section for Trainee Teachers in the Department of Geography, the East China University and Shanghai.

Cross-cultural comparisons are needed to give a better understanding of students' use of the internet in different national cultural backgrounds (Li, 2007). With this aim, the necessary literature was scanned by the researcher. Afterwards a questionnaire was developed by the researcher, together with Chinese geography education academicians. The questionnaire was written in English as a requirement of Chinese university officials, and was checked and corrected by two bilingual (English and Chinese) experts. It was then scrutinized by Chinese computer education academicians for its validity.

The first section of the questionnaire was a collection of the students' demographic variables; namely gender, grade, the educations of the student's parents, and the students' computer ownership. In addition, the two questions regarding the students' interest in geography courses, and their computer use frequencies per week, were replaced in the first section of the questionnaires.

The second section of the questionnaire consisted of the Computer and Internet Use. The questionnaire used the Likert scale that comprised five points ranging from "very low" (1) to "very high" (5). The first section was demographic qualities and the second section in this part of the questionnaire was divided into two categories: 1. Using the computer and the internet for education 2. Using the computer and internet out of education. There were 17 items on this instrument.

The questionnaires were given to 40 geography students as a pilot application at the China Normal University (ECNU). Then the re-corrections were made and distributed to the Chinese prospect geography teachers by the researcher in Shanghai, China. When the Chinese students did not understand, the English questions were translated into Chinese by a teacher proficient enough in English in the period of the application of questionnaires. However, on the other hand the questionnaire was translated from English into Turkish by the researcher, who was fluent in the two languages. Moreover, the Turkish translations were checked by two bilingual English teachers (Turkish and English). In a similar way, after the pilot application, the Turkish questionnaire was given to the Turkish students during regular class time by the researcher's Turkish colleagues at the Nine September University in Turkey.

There should, of course, be similarities and differences in computer and internet usage among students, taking into consideration cultural diversity. In this study, the effects of cultural diversity were researched via interviews and observations. The interviews and observations conducted in both countries, provided ease for data analysis, and the effects of cultural diversity was revealed in terms of internet and computer usage. The interviews were done with 12 students (7 females, and 5 males) from China, and 13 students (8 females, and 5 males) from Turkey by the researcher. The researcher who was at East China Normal University for research on geography teaching as a scholarship student in China made the observations throughout his nine months in China. The interviews with the Turkish students were conducted upon the researchers' return to Turkey. The findings were interpreted in light of the interviews and observations which took place in Turkey and China.

The students were asked three questions in the interviews. These were:

1. For which purposes are you using the computer and the internet - for educational activities or for non-education activities?
2. Under which category do you alter your internet and computer usage frequencies in one year?
3. Where do you and your friends connect to the internet?

Validity and reliability

The results of the questionnaire scalere's validities were KMO.851 (Category 1), KMO.761 (Category 2) for the Turkish version and KMO.758 (Category 1), KMO.778 (Category 2) for the English version. The commonalities (Extraction Method: Principal Component Analysis) are also given in Table 2. These points were significant in the research validity because the KMO values must be from .60 to 1, and the extraction must also be higher than .30 for the few ill-timed scales in survey factorability (Büyüköztürk, 2010). In addition to this, the Chinese and Turkish geography specialist's opinions were sought for the validity of scope.

The scale's coefficients for the Cronbach's alpha were 0.812 (Category 1), 0.846 (Category 2) for The Turkish version and 0.815 (Category 1); 0.80 (Category 2) for the English version, which were found to be sufficient for the level of reliability.

Data analysis

Geography education, undergraduate students' computer and internet use in both Turkey and China were analyzed through the prepared questionnaire. The responses to the questionnaire were coded and analyzed through the use of the SPSS 17.0. The statistical operations were the applied frequency, percent, and t Test.

After applying the questionnaire, interviews were conducted with 12 students (7 females, and 5 males) from China, and 13 students (8 females, and 5 males) from Turkey by the researcher. In addition, the researcher who was at the East China Normal University for research on geography teaching as a scholarship in China did the observations throughout his nine months spent in China. Interviews with Turkish students were carried out after returning to Turkey. The findings were interpreted in light of the interviews and observations conducted in both Turkey and China.

The qualities of participants

The participants in this questionnaire consisted of a total of two hundred and ninety two students registered on courses during the 2008-2009 academic year on a section of the geography department of education at Nine September University, Izmir, Turkey, and East China Normal University, Shanghai, China, who were undergraduate geography students. There were totally 200 prospective teachers at the Department of Geography Education of Nine September University. The questionnaire was applied to 121 of these. There were totally 200 prospective teachers on geography courses at the East China Normal University. Here it was also applied to 171 prospective teachers. The demographic characteristics of the geography students are presented in Table 3. The Chinese participants were 171 volunteer students enrolled in the Geography Department, at East China University, in Shanghai, China. They consisted of 29.8% (51) males and 70.2% (120) females. The Turkish participants were 121 volunteer students from the Geography Section, Education Faculty, Nine September University, in Izmir. Of the 121 Turkish participants in the study, 54

Table 2. Communalities (Extraction Method: Principal Component Analysis).

Category		Turkish version for turkish students		English version for Chinese students	
		Initial	Extraction	Initial	Extraction
Category 1	Item 1	1	.659	1	.728
	Item 2	1	.653	1	.650
	Item 3	1	.558	1	.648
	Item 4	1	.645	1	.617
	Item 5	1	.568	1	.586
	Item 6	1	.664	1	.585
	Item 7	1	.591	1	.489
	Item 8	1	.564	1	.568
Category 2	Item 1	1	.650	1	.552
	Item 2	1	.667	1	.643
	Item 3	1	.509	1	.712
	Item 4	1	.401	1	.641
	Item 5	1	.406	1	.483
	Item 6	1	.539	1	.665
	Item 7	1	.631	1	.702
	Item 8	1	.668	1	.592
	Item 9	1	.565	1	.743

(44.6%) were females and 67 (55.4%) were males (Table 3). According to the data analyses, there were similarities between the Turkish students and the Chinese students in terms of having a computer at home or in the dormitory (Not Having a computer: Turkey, 14%; and China, 21%, Having a computer or being able to access a computer: Turkey, 86%; and China, 78.9%).

RESEARCH RESULTS

To determine the relationship between geography interest and the use of geographic software

The Chinese students interest in geography courses was lower than the Turkish ones ($t=-8.100$, $df=290$, $p<0.001$) (Table 4). However, the prospective Chinese students' interest in geographical software was higher than the Turkish ones ($t=.360$, $df=290$, $p<0.01$) (Table 5). Taking these findings into consideration, it can be stated that there was no relationship between geography interest and the density of computer usage per week between the two countries' geography students.

Densities of computer usage in one week between the two countries' geography students

There was a significant difference in the opportunity to access a computer for the sample when grouped by country. For example, the Chinese students had overall used the computer for a longer period of time than the Turkish students ($t=4.527$, $df=290$, $p<0.01$; Table 6). However, both in the Turkish students and the Chinese

students, there was no significant difference in the opportunity to access computer in one week for the sample when grouped by gender (Turkish male students: $M=3.71$; Turkish female students: ($M=3.3704$, $t=1.867$, $p>0.05$; Chinese male students ($M=4.12$; Turkish female students ($M=4.05$ $t=-.395$, $p>0.05$; Table 7). According to these findings, the imbalance in computer usage for female students for each country did reduce.

The use of the computer and internet for education

Computer and internet usage for education gave both different and similar results for the two countries. In this context, the computer and the internet were used the most for doing homework (Turkey, 3.7851; China, 3.8129, and presentation programs (Turkey, 3.3554; China 3.5380). However, the use of graphic and drawing programs was at a lower level in both countries (Turkey, 2.1157; China, 2.7661). As can be seen in Table 8, in both computer and internet usage, there were meaningful differences in China: word processing: Turkey, 2.7107; China, 3.6199, $t=6.765$, $p<0.01$; spreadsheets: Turkey, 2.2338; China, 3.0508, $t=5.508$, $p<0.01$; database programs: Turkey, 1.8264; China, 2.3158, $t=4.117$, $p<0.01$; graphic and drawing programs: Turkey, 2.1157; China, 2.7611 $t=4.827$, $p<0.01$. However, there was no meaningful difference in desktop publishing, presentation programs such as PowerPoint, and internet research for education and homework between the two countries (Table 8).

Table 3. Qualities of participants.

	Turkey		China	
	<i>f</i>	%	<i>F</i>	%
A. Gender				
1. Male	67	55.4	51	29.8
2. Female	54	44.6	120	70.2
TOTAL	121	100.0	171	100.0
B. Grade				
1. Freshmen	--	--	--	--
2. Sophomore	35	28.9	--	--
3. Junior	28	23.1	58	33.9
4. Senior	32	26.4	113	66.1
5. Upper Senior	26	21.6	--	--
TOTAL	121	100.0	171	100.0
C. Education level of students' father				
1. Primary school	71	58.7	8	4.7
2. Secondary school	18	14.9	31	18.1
3. High school	24	19.8	62	36.3
4. Undergraduate level	8	6.6	55	32.2
5. Postgraduate level	--	--	15	8.8
TOTAL	121	100.0	171	100.0
D. Education level of student's mother				
1. Primary school	92	76.0	16	9.4
2. Secondary school	7	5.8	62	36.3
3. High school	17	14.0	48	28.1
4. Undergraduate level	4	3.3	39	22.8
5. Postgraduate level	1	0.8	6	3.5
TOTAL	121	100.0	171	100.0
E. Having a computer at home or dormitory				
1. Not Having a computer	17	14.0	36	21.1
2. Having a computer or being able to arrive a computer	104	86.0	135	78.9
TOTAL	121	100.0	171	100.0

Table 4. Interest in geography course for geography students in the two countries.

Country	N	Mean	SD	t	df	Sig.
Turkey	121	3.9587	1.01157	-8.100	290	.000
China	171	3.0468	0.89976			

Table 6. Frequencies of computer use in one week of Geography students from the two countries.

Country	N	Mean	SD	t	df	Sig.
Turkey	121	3.5620	1.02382	4.527	290	.000
China	171	4.1053	1.00031			

Table 5. Interest in geographical software for Geography students in two countries.

Country	N	Mean	SD	t	df	Sig.
Turkey	121	2.5455	1.02470	.360	290	.000
China	171	2.9708	.97273			

The significant difference between the students from the two countries was also clearly examined in terms of

gender in computer and internet usage (Table 9). It was determined from the t-test analysis that there were meaningful differences in favor of female Chinese students in word processing; Male, 3.3137; female, 3.7500 $t = -2.260, p < 0.05$, and in favor of male Chinese students in database programs; Male, 2.2582; and female, 2.2000 $t = 2.390, p < 0.05$, and graphic and drawing programs; Male, 3.0392; female, 2.6500 $t = 2.134, p < 0.05$. However, there was no meaningful difference between the Turkish students in terms of gender on the use of the computer and internet for education.

Table 7. Frequencies of computer use in one week of Geography students in the two countries according to gender.

Turkish students			Chinese students				
Male (Mean)	Female (Mean)	T	sig	Male (Mean)	Female (Mean)	t	Sig.
3.7164	3.3704	1.867	0.064	4.1250	4.0588	-.395	.693

Table 8. The purposes of the two countries geography students in the usage of the computer and internet.

	Country	N	Mean	SD	t	df	Sig.																																																																																																																																																																																												
1. Word processing	Turkey	121	2.7107	1.07578	6.765	290	.000																																																																																																																																																																																												
	China	171	3.6199	1.16894				2. Spreadsheets	Turkey	121	2.3884	1.08299	5.508	290	.000	China	171	3.0508	.98044	3. Database programs	Turkey	121	1.8264	1.02207	4.117	290	.000	China	171	2.3158	.98503	4. Graphic and drawing programs	Turkey	121	2.1157	1.17750	4.827	290	.000	China	171	2.7661	1.1252	5. Desktop publishing	Turkey	121	2.4793	1.26556	1.392	290	.165	China	171	2.6725	1.09453	6. Presentation programs such as Powerpoint	Turkey	121	3.3554	1.31567	1.315	290	.189	China	171	3.5380	1.05302	7. Internet research for education	Turkey	121	3.3223	1.05842	-292	290	.770	China	171	3.2865	1.00867	8. Homework	Turkey	121	3.7851	1.01822	.230	290	.818	China	171	3.8921	1.06170	9. Chatting	Turkey	121	3.1488	1.26606	6.332	290	.000	China	171	4.0000	1.03469	10. Downloading	Turkey	121	3.4545	1.22474	4.433	290	.000	China	171	4.0585	1.08848	11. Online shopping	Turkey	121	1.9008	1.25436	7.964	290	.000	China	171	3.0885	1.21516	12. Looking up news and reading magazines	Turkey	121	2.8760	1.16598	6.507	290	.000	China	171	3.7310	1.06170	13. Games	Turkey	121	2.5455	1.36626	3.885	290	.000	China	171	3.1579	1.29873	14. Homework	Turkey	121	3.4215	1.15291	3.980	290	.000	China	171	3.9240	.99414	15. Listening to music	Turkey	121	3.9587	1.09085	.610	290	.542	China	171	4.0351	1.02839	16. Watching films and looking at photos	Turkey	121	4.1228	.96534	3.047	290	.003	China	171	3.7355	1.20256	17. Others	Turkey	121	2.7438	1.20781	1.213	290	.226
2. Spreadsheets	Turkey	121	2.3884	1.08299	5.508	290	.000																																																																																																																																																																																												
	China	171	3.0508	.98044				3. Database programs	Turkey	121	1.8264	1.02207	4.117	290	.000	China	171	2.3158	.98503	4. Graphic and drawing programs	Turkey	121	2.1157	1.17750	4.827	290	.000	China	171	2.7661	1.1252	5. Desktop publishing	Turkey	121	2.4793	1.26556	1.392	290	.165	China	171	2.6725	1.09453	6. Presentation programs such as Powerpoint	Turkey	121	3.3554	1.31567	1.315	290	.189	China	171	3.5380	1.05302	7. Internet research for education	Turkey	121	3.3223	1.05842	-292	290	.770	China	171	3.2865	1.00867	8. Homework	Turkey	121	3.7851	1.01822	.230	290	.818	China	171	3.8921	1.06170	9. Chatting	Turkey	121	3.1488	1.26606	6.332	290	.000	China	171	4.0000	1.03469	10. Downloading	Turkey	121	3.4545	1.22474	4.433	290	.000	China	171	4.0585	1.08848	11. Online shopping	Turkey	121	1.9008	1.25436	7.964	290	.000	China	171	3.0885	1.21516	12. Looking up news and reading magazines	Turkey	121	2.8760	1.16598	6.507	290	.000	China	171	3.7310	1.06170	13. Games	Turkey	121	2.5455	1.36626	3.885	290	.000	China	171	3.1579	1.29873	14. Homework	Turkey	121	3.4215	1.15291	3.980	290	.000	China	171	3.9240	.99414	15. Listening to music	Turkey	121	3.9587	1.09085	.610	290	.542	China	171	4.0351	1.02839	16. Watching films and looking at photos	Turkey	121	4.1228	.96534	3.047	290	.003	China	171	3.7355	1.20256	17. Others	Turkey	121	2.7438	1.20781	1.213	290	.226	China	171	2.9064	1.06964								
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	China	171	2.3158	.98503				4. Graphic and drawing programs	Turkey	121	2.1157	1.17750	4.827	290	.000	China	171	2.7661	1.1252	5. Desktop publishing	Turkey	121	2.4793	1.26556	1.392	290	.165	China	171	2.6725	1.09453	6. Presentation programs such as Powerpoint	Turkey	121	3.3554	1.31567	1.315	290	.189	China	171	3.5380	1.05302	7. Internet research for education	Turkey	121	3.3223	1.05842	-292	290	.770	China	171	3.2865	1.00867	8. Homework	Turkey	121	3.7851	1.01822	.230	290	.818	China	171	3.8921	1.06170	9. Chatting	Turkey	121	3.1488	1.26606	6.332	290	.000	China	171	4.0000	1.03469	10. Downloading	Turkey	121	3.4545	1.22474	4.433	290	.000	China	171	4.0585	1.08848	11. Online shopping	Turkey	121	1.9008	1.25436	7.964	290	.000	China	171	3.0885	1.21516	12. Looking up news and reading magazines	Turkey	121	2.8760	1.16598	6.507	290	.000	China	171	3.7310	1.06170	13. Games	Turkey	121	2.5455	1.36626	3.885	290	.000	China	171	3.1579	1.29873	14. Homework	Turkey	121	3.4215	1.15291	3.980	290	.000	China	171	3.9240	.99414	15. Listening to music	Turkey	121	3.9587	1.09085	.610	290	.542	China	171	4.0351	1.02839	16. Watching films and looking at photos	Turkey	121	4.1228	.96534	3.047	290	.003	China	171	3.7355	1.20256	17. Others	Turkey	121	2.7438	1.20781	1.213	290	.226	China	171	2.9064	1.06964																				
4. Graphic and drawing programs	Turkey	121	2.1157	1.17750	4.827	290	.000																																																																																																																																																																																												
	China	171	2.7661	1.1252				5. Desktop publishing	Turkey	121	2.4793	1.26556	1.392	290	.165	China	171	2.6725	1.09453	6. Presentation programs such as Powerpoint	Turkey	121	3.3554	1.31567	1.315	290	.189	China	171	3.5380	1.05302	7. Internet research for education	Turkey	121	3.3223	1.05842	-292	290	.770	China	171	3.2865	1.00867	8. Homework	Turkey	121	3.7851	1.01822	.230	290	.818	China	171	3.8921	1.06170	9. Chatting	Turkey	121	3.1488	1.26606	6.332	290	.000	China	171	4.0000	1.03469	10. Downloading	Turkey	121	3.4545	1.22474	4.433	290	.000	China	171	4.0585	1.08848	11. Online shopping	Turkey	121	1.9008	1.25436	7.964	290	.000	China	171	3.0885	1.21516	12. Looking up news and reading magazines	Turkey	121	2.8760	1.16598	6.507	290	.000	China	171	3.7310	1.06170	13. Games	Turkey	121	2.5455	1.36626	3.885	290	.000	China	171	3.1579	1.29873	14. Homework	Turkey	121	3.4215	1.15291	3.980	290	.000	China	171	3.9240	.99414	15. Listening to music	Turkey	121	3.9587	1.09085	.610	290	.542	China	171	4.0351	1.02839	16. Watching films and looking at photos	Turkey	121	4.1228	.96534	3.047	290	.003	China	171	3.7355	1.20256	17. Others	Turkey	121	2.7438	1.20781	1.213	290	.226	China	171	2.9064	1.06964																																
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The use of the computer and internet for non-education

The were significant differences in computer and internet usage out of education between the two countries regarding the Chinese students: E-mail; Turkey, 3.4215;

China, 3.9240 t=3.980, p < 0.01; Chatting: Turkey, 3.1488; China, 4.0000 t = 6.332, p<0.01; making downloads: Turkey, 3.4545; China, 4.0585 t = 4.433, p<0.01; online shopping: Turkey, 1.9008; China, 3.0885 t = 7.964, p< 0.01; looking up news and reading magazines: Turkey, 2,8760; China, 3.7310 t=6.507, p <

Table 9. The purposes of the two countries geography students in usage of the computer and the internet according to gender.

	Turkish students				Chinese students			
	Male (Mean)	Female (Mean)	t	Sig	Male (Mean)	Female (Mean)	t	Sig
1. Word processing	2.6812	2.7358	-0.278	0.782	3.3137	3.7500	-2.260	0.025
2. Spreadsheets	2.74783	2.3396	0.686	0.494	3.0196	3.0750	-3.370	0.736
3. Database programs	1.9565	1.7170	1.272	0.206	2.5882	2.2000	2.390	0.018
4. Graphic and drawing programs	2.1884	2.0000	0.876	0.383	3.0392	2.6500	2.134	0.034
5. Desktop publishing	2.5797	2.3774	0.864	0.389	2.6863	2.6667	0.107	0.915
6. To present programs such as PowerPoint	3.4928	3.2264	1.117	0.266	3.3725	3.6083	-1.343	0.181
7. Internet research for education	3.1884	3.5472	-1.889	0.061	3.1569	3.3417	-1.097	0.274
8. Homework	3.7826	3.3793	-0.053	0.958	3.7451	3.8417	-0.570	0.570
9. Chatting	3.2174	3.0566	0.699	0.486	3.6863	4.1333	-2.629	0.009
10. Downloading	3.5942	3.3019	1.315	0.191	4.0196	4.0750	-0.304	0.762
11. Online shopping	2.029	1.6792	1.557	0.122	2.8824	3.1333	-1.252	0.212
12. Looking up news and reading magazines	3.1449	2.4717	3.299	0.001	3.6667	3.7585	-0.515	0.607
13. Games	2.8551	2.1698	2.809	0.006	3.3137	3.0917	1.023	0.308
14. E-mails	3.3768	3.4528	-0.359	0.720	3.7843	3.9833	-1.199	0.232
15. Listening to music	3.8696	4.0566	-0.936	0.350	3.8235	4.1250	-1.765	0.079
16. Watching films and looking at photos	3.8116	3.6465	0.766	0.439	3.9216	4.2083	-1.789	0.075
17. Others	2.8116	2.6981	0.516	0.607	2.9020	2.9083	-0.036	0.972

0.01; games: Turkey, 2.5455; China, 3.1579 $t = 3.885$, $p < 0.01$; watching films and looking at photos: Turkey, 4.1228; China, 3.7355 $t = 3.047$, $p < 0.05$. However, there was no meaningful difference in regard to listening to music.

On computer and internet usage out of education, there were some meaningful differences among the Turkish students regarding online shopping (Male, 2.029; female, 1.6792 $t = 1.557$, $p < 0.05$) in terms of gender (Table 9). However, Turkish male geography students produced higher means than the female ones in some items. These items included: downloading (Male, 3.5942; female, 3.3019 $t = 1.315$, $p > 0.5$), looking up news and magazines: Male, 3.1449; female, 2.4717 $t = 1.557$, $p > 0.5$, and games: Male, 2.8551; female, 2.1698 $t = 2.809$, $p > 0.05$. However, significant differences were also not seen among the Chinese students, except in one item which was in terms of gender. Only chatting gave a meaningful result. Using an alpha level of .05, a computed t value of -2.260 indicates that the female geography students (4.1333) produced higher means than male ones (3.6863).

To determine the effects of the usage of the computer on social and cultural structures in the two countries (observations and interviews)

For which purposes are you using the computer and

internet more: for educational activities or non-education activities?

1. Replies to this question from students from both countries were similar to those in the questionnaires. The geography students both in Turkey and China said that they generally used the computer and the internet more for educational activities.

2. It was seen from the interview analysis that the usage of computer and internet in daily life showed a parallel with the questionnaire answers of the students from the other country. They thought that usage of the computer and the internet and computer were a necessary part of daily life

3. The Chinese geography students interviewed determined that computer and internet usage frequencies ($n=9$) per week changed according to homework and the type of project. A Chinese student explained that:

"I am a prospective geography teacher. For this reason, I know how to use a computer. For example, I have to prepare PowerPoint presentations. It is very time-consuming due to having to attain various resources. Sometimes, I need to use animation and drawing programs. I can tell you that I nearly always use the computer and internet for education."

The interview results of the Turkish geography students

(n=9) put forward nearly the same thoughts. Consequently, a Turkish student also said similar things,

“I will be a geography teacher in the future. I must know about use a computer to keep abreast of this century. For this reason, I must know how to use a computer“.

The computer and internet are used for education before anything else. If they have extra time they use them for fun. However, computers usage out of education has become widespread because of e-mail, chatting, listening to music and watching films.

Which conditions are changing your internet and computer usage most in one week?

Interviews conducted by Turkish geography students (n=13) showed that computer and internet usage frequencies in one week almost always depended on education research. The non-education computer and internet usage of these students was mostly concerned with having their own computer and internet. Because of the inadequacy of computers in universities, many Turkish students went to internet cafes outside of their university. These internet cafes were more expensive. For this reason, the interviews conducted with the Turkish students revealed that out of education usage of the internet and computer was based considerably on their financial situation.

However, the interviews both in China (n=8) and in Turkey (n=9) show that the weather conditions also affected the students' usage of the computer and internet, especially in usage outside of education. The students from the two countries China=7, Turkey=6) preferred to play sport and indulge in leisure activities instead of using the computer and internet.

It was seen from the interview analysis that the usage of the computer and internet in daily life showed a parallelism between the two countries' students. 8 students from China and 9 students from Turkey said that nowadays life is impossible without computer and internet access because of technological development.

Geography students, who have knowledge about the whole world as a part of their jobs, always have to be at a computer and on the internet. To explain its usefulness, it should be remembered that there are no satellite television channels in China. For this reason, they cannot watch foreign channels. In this context, for prospective geography teachers, the use of the computer and internet have vital importance in terms of communication with the rest of the world. Moreover, to know a foreign language is very necessary for them. For this reason, they use computers and the internet to learn foreign languages. In China, university students are forced or stimulated to stay at the public dormitory instead of houses outside of the university. Thus, many opportunities for computer and internet usage are given to students staying in the cam-

pus dormitories. Besides, it has allowed Messenger, and Tencent QQ (generally referred to as QQ, which is the most popular free instant messaging computer program on mainland China) messaging computer programs to students. There is no Facebook in China, but all the messaging computer programs are freely available in Turkey.

Where are you and your friends connecting to the internet?

Chinese students (n=12) use computers at the library or dormitory. However, Turkish students (n=13) use (the internet cafe (n=8) the library or dormitory (n=5). Internet cafes in Turkey have played an important role in computer and internet usage among university students. Turkish students have relied heavily upon these places for computer and internet access as part of educational tools.

In addition to the above, the interviews bring out into the open that students having their own computer and internet access is very important to them in both countries. Some students from both countries complained about not having their own computer and internet access; meaning that they could not use the computer and internet enough.

DISCUSSION AND CONCLUSION

Improving geography teaching skills by computer aided instruction in secondary schools (Üçişik and Tuna, 2004) found that university students seem generally positive about the internet and its impact on the educational experience. However, the usage of the internet for academic purposes is very limited compared to the usage for social activity. This implies that students either do not have enough training on how to use the internet, or the courses might not interrelate with the internet (Asfaw and Bo, 2003). This study revealed that both Turkish and prospective geography teachers have used mostly “education aimed”. Similar findings in Turkey have been found by Ozdemir and Usta (2003), Ruzgar (2004) and Tunga (2013).

The rate of internet usage has been increasing globally, as well as in Turkey. However, the internet is not used adequately for purposes other than communication and access to information (Erdem, 2008; Inal and Çağıltay, 2006). Mean scores put forward that male prospective elementary teachers have a more positive attitude towards using the internet when compared to female students. This might be due to less possibility for female students to access a computer when compared to males. In particular, male prospective geography students had more opportunity to use internet cafes. Turan (2006) also compared the gender variability with internet usage and found there was a meaningful difference on behalf of

male students in Turkey. This feature was also seen in this study by means of an interview with the male prospective geography teachers who had positive internet usage. This is because male geography students can go into internet cafés more often in comparison with females because of cultural restraints imposed on women in Turkey (Birişçi et al., 2009; Bayrak and Yurdugül, 2013).

Moreover, geography students who have world knowledge as a part of their jobs have become reliant on computers and the internet. To explain, it is useful to remember that there are no satellite television channels except for public ones in China. For this reason they cannot watch foreign channels. In this context, for prospective geography teachers, the use of the computer and the internet is of vital importance in terms of international communication; to know a foreign language is necessary for them. For this reason, they use computers and the internet to learn foreign languages. In communication-aimed internet usage, most said that email was used (Okay, 2010; Yılmaz, 2012).

It is clear that both Chinese students and Turkish students use the internet and computer more for non-education activities than in-education activities. Most of the current teachers in Turkey began their teaching careers prior to the computer era. Recently trained teachers are therefore more likely to have a higher comfort level with this technology. According to findings in the research, Chinese students have spent more time than Turkish ones on the computer and internet. The use of computers and the internet to improve teaching and learning on geography course is obligatory. Their use for educational resources has remained at a low level.

The Chinese government has encouraged students to stay in dormitories at their own universities. For this reason, many computers for student usage are in the dormitory and library.

As stated above, satellite dishes which broadcast all world television channels are still forbidden in China. In addition, cinemas are very expensive. However, universities have attached importance to English learning. However, Chinese students are excessively devoted to American films and Chinese films. For this reason, to watch films by means of a computer is rather prevalent among students (Committee on International Relations House of Representatives, 2006).

According to the results of observations, interviews and literature reviews (Chen, 2009; Toprakçı, 2007; Committee on International Relations House of Representatives, 2006) while internet use of prospective geography teachers in Turkey is largely affected by social-economic and cultural factors, the use of the internet for those in China is under the effects of political decisions derived from the Chinese government.

Compared with international data, internet usage in China has increased contact between people who share the same professions, hobbies, or political interests more

so than in other countries. However, the Chinese users have fewer contacts with family members or friends than users in other countries (CAS, 2005, Liu and Fu, 2009; Yang 2013).

It was determined that gender caused great differences in students' preferences for computer use (Ilban et al., 2006). There is an inequality between female and male geography students in Turkey and China in computer and internet usage. This inequality in Turkish prospective geography teachers is more than those in China. This situation results from the cultural diversities between the two countries. In the information age, to keep women away from technology means to give up on a liberal, participatory, democratic and human rights-based society at the same time (Yıldız and Bölükbaş 2005). Here, being subject prospective female geography teacher, the situation is also worse in terms of Turkey.

The educational aimed utilizing trends for female students from the computer and internet are higher than for male students (Akın and Baştuğ 2005). It was obvious that the males who were avid computer users, exercised more than those who just used computers to play games (Bebetsos & Antoniou 2009).

The researchers suggested that these differences may reflect national level differences in the integration of technology, as well as differences in the educational styles in the two countries. Gender differences were also observed in this research. Males were more likely to play games and to use email and chat than the females, Chinese males were the most avid game players. Males in both countries were more self-confident about their computer skills, and more likely to say that they used computers.

Regarding computer and internet usage, cultural diversity of gender in the Turkish students is more obvious than in the Chinese students. Female students in particular go to internet cafés far less than male students. For this reason, female students use the internet and the computer less. Toprakçı, (2007) stressed that "the student's economic level is very important in terms of computer and the internet usage" If the student cannot afford to visit an Internet café, this will diminish or destroy his relationship with the internet.

This study revealed that prospective geography students in Turkey and China use the computer and internet more for "education aims" than "fun aims". However, some research conducted on university students in Turkey revealed the opposite results (Ozdemir and Usta, 2003; Okay, 2010; Akın and Baştuğ, 2005; Acikalin and Duru, 2005). Asfaw and Bo (2003) revealed that Chinese university students use computers more for educational activities. However, our study puts forth that nowadays, the internet is used not only for educational aims, but also for other aims. Moreover, interview results showed that among Turkish and Chinese geography students there has been an increase in the internet usage for out of education. The findings showed that the respondents re-

discovered the outside world through the internet, a "world" which is different from the one portrayed by the traditional media and the school textbooks, and this "world" also contradicted their existing mental pictures of the world. Then, they re-evaluated and better understood the rest of the world in comparison with China (Chen, 2009; Bourgerie, 2003).

Within the framework of the findings and discussion, this study brought to light that computer and internet use in China and Turkey indicated differences amongst geography students in terms of the purpose of its usage. In addition, it was also shown that cultural differences between the two countries played an important role on computer and internet use.

Various computer and the internet use research has been conducted over the years, in which comparative analyses have been made at international levels. This researches provides useful knowledge that could be analyzed to comparing and recognizing different countries. However, this research puts forward the technological knowledge acquisitions of university students.

Conflict of Interests

The author has not declared any conflict of interests.

ACKNOWLEDGEMENTS

A section of this research was presented as a lecture in the 10th International Educational Technology Conference in Istanbul, Turkey, 2010.

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