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Overview of Digital Divide and Democracy Awareness: Primary School Students' Opinions

Sayısal Uçurum ve Demokrasi Bilincine Bakış: İlköğretim Öğrencilerinin Görüşleri

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Abstract

In this study, opinions of students were collected for the sake of determining relationship between ICT access, ICT literacy, and the democratic consciousness. In the framework of the descriptive and relational study method, the working group consisted of 979 students from 28 cities who attend 7th and 8th grades of elementary school during the year of 2010-2011. In order to collect the data, three instruments were used. For the analysis of the data, frequency, percentages chi-square and Kruskal Wallis tests were used. According to the results of the survey it was confirmed that 34.8 percent of the participants neither have access to internet nor computer at home. Participants'democratic consciousness level doesn't vary according to ICT access and ICT literacy.

Keywords: Democracy awareness, Digital divide, ICT, ICT access, ICT literacy, Primary school students.

Öz

Bu çalışmada öğrencilerin BİT'e erişim ve okuryazarlık durumları ile demokrasi bilinci arasındaki ilişkiyi saptamak için öğrenci görüşleri alınmıştır. İlişkisel tarama yöntemi kullanılan araştırmanın çalışma grubunu 2010-2011 eğitim-öğretim yılında ilköğretim 7. ve 8. sınıfa devam eden, 28 farklı ilden, toplam 979 öğrenci oluşturmaktadır. Çalışmada veriler üç tane veri toplama aracı aracılığıyla toplanmıştır. Verilerin analizinde frekans, yüzde, ki-kare ve Kruskal Wallis testi kullanılmıştır. Araştırmanın sonuçlarına göre öğrencilerin üçte birinin bilgisayara ve internete erişimi bulunmamaktadır. Buna göre erişimi bulunmayan grup ile bulunan grup arasında sayısal uçurum bulunduğu söylenebilir. Öte yandan BİT okuryazarlığı orta düzeyde olan katılımcıların demokrasi bilincinin, evde BİT'e erişim durumlarına ve BİT okuryazarlığına göre anlamlı bir farklılık göstermediği belirlenmiştir.

Anahtar Sözcükler: Demokrasi bilinci, sayısal uçurum, BİT, BİT'e erişim, BİT okuryazarlığı

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Introduction

It is necessary for individuals to adopt democratic principles, values and practices- in other words to have democracy awareness- in order that democracy can be built on solid foundations and individuals can use their rights in an effective manner (Akan, 2011). Schools are of primary importance for raising democratic awareness and developing democratic values. Therefore, it is essential that such educational institutions should internalize democracy and teaching democracy and consider these as their goals. In addition to including democratic development among their goals, schools should raise social and individual awareness. Thus, school curricula today focus, even if restrictedly, on what democracy is and in what ways it can be practiced (Tezci, 2003).

Use of the Internet and ICT tools in schools, play an active role in increasing awareness of democracy. Although the Internet and ICT devices provide society with instruments of political participation, obstacles in the way of accessing to these instruments are regarded as one of the greatest problems of democracy. The primary obstacle is that the Internet and ICT devices, to which not everybody has equal access, may actually lead to an inequality between societies (Ersöz, 2006).

The digital divide is a multi-dimensional concept involving inequalities in access to information and communication technologies experienced by individuals, institutions and global benchmarks in different geographical areas with various socio-economic and socio-cultural conditions. The digital divide may vary not only from one country to another but also from one part of the country to another (Küçükçınar, Zontul, Tüfekçi, Geray, Aşkar, & Özcivelek, 2000; Oruç & Arslan, 2002; Uçkan, 2008). It refers to inequalities between individuals in ICT access and ICT literacy with regard to such demographic variables as gender, educational status of parents, monthly income, location and geography. There are many inequalities in societies, especially in areas marked by economic differences, resulting from a series of shortcomings linked with accessibility (Seferoglu & Ilgaz, 2010).

The digital divide is described and defined in different ways in reference to different dimensions and indicators. In some studies, it is defined with a consideration into the distribution of several indicators related to information technologies by demographic profiles (Öztürk, 2005). These indicators include the number of computers (alternative access methods like TVs, mobile phones and other technologies), access to computers and the Internet, broadband Internet access, household Internet access, Internet use frequency, ICT use, and purposes of ICT use (Oruç & Arslan, 2002; DPT, 2010). On the other hand, variables in demographic profile include gender, age, educational status, educational status of parents, monthly income, race, language and location (Aytun, 2005; Küçükçınar, Zontul, Tüfekçi, Geray, Aşkar & Özcivelek, 2000; Oruç & Arslan, 2002).

Recently there are high-level discussions about the digital divide, a threat brought about by advancing technologies, and how to prevent it. Similarly, there are conflicting views as to why it is important to prevent the digital divide. For instance, ICFA-SCIC (2004) classified these views under the headings “Economic Equality, Social Variability, Democracy and Economic Growth”. Nations attach great importance to preventing the digital divide and education plays a key role in minimizing it. It can be argued that education and democracy are closely intertwined and form the parts of the same vision. The objective of democracy training, which is provided basically to help raise democracy awareness, is to establish a democratic educational environment in which individuals are able to make decisions, share their opinions and allow others to share their own opinions. Even so, it may be alleged that the efficiency of democracy training depends on the extent to which it can teach democratic values (Gürbüz, 2006).

Contribution of information technology to democracy awareness in schools is very important. It can be argued here that an inequality resulting from problems with accessibility might arise in the process of information technologies contributing to democracy awareness. The purpose of the present study is to identify the current state of ICT access and ICT literacy, two indicators of the digital divide, and to analyze democracy awareness of seventh and eighth grade students in accordance with these indicators. It provides an analysis of their democracy awareness on the basis of their own opinions about the indicators of the digital divide.

The Importance of the Study

As a result of the advances in modern information technologies, it is now easier for individuals to participate in democratic activities and they have been provided with new opportunities to carry out democracy in a more functional way. Even so, individuals need to have democracy awareness so as to be able to utilize these opportunities. The present study is an analysis of democracy awareness in reference to access to information technologies and literacy, which is important in that it will shed light on the process of raising and developing democracy awareness.

The Purpose of the Study

The purpose of this study is to identify the current state of ICT access and ICT literacy, two indicators of the digital divide, and to assess democracy awareness of seventh and eighth grade students in reference to these indicators. Students' democracy awareness was evaluated in accordance with th eir own opinions toward the indicators.

Problem Statement

The study sought an answer to the following main question: "What is the current state of seventh and eighth grade students' ICT access and ICT literacy, two indicators of the digital divide, and what kind of a correlation exists between their democracy awareness and these dimensions of the digital divide?" and elaborated on the following sub-problems:

Sub-Problems

1. What is the extent to which seventh and eighth grade students can access ICT?

2. What is the extent to which seventh and eighth grade students are ICT literate?

3. Does seventh and eighth grade students' democracy awareness significantly differ depending on ICT access, ICT literacy, and two dimensions of the digital divide?

a. Does democracy awareness significantly differ depending on ICT access?

b. Does democracy awareness significantly differ depending on ICT literacy?

Methodology

Study Method

The study was based on the correlative survey model. Survey models attempt to describe a past or present state as it was or is. Within survey models, an attempt is made to define the subject matter, an individual or object, within its own conditions and as it is. Correspondingly, no effort is made to change or affect them (Büyüköztürk, 2009; Fraenkel & Wallen, 2006). Correlative models attempt to identify the existence and/or degree of covariance between two or more variables (Büyüköztürk, 2009). The present study was based on the survey model, since it attempted to identify demographics and democracy awareness, and on the correlative model, since it was an attempt to assess the correlation between democracy awareness and demographics as well as the indicators of the digital divide.

Population and Characteristics

The population of the study was comprised of a total of 979 seventh and eighth grade students who studied in 28 different cities in Turkey during the educational year 2010-2011. The reason for choosing seventh and eighth grade students were that they had taken the courses in information technologies and democracy. The schools were subject to the Ministry of National Education (MNE). Table 1 presents descriptive data on the population.

Table 1.
The Distribution of the Participants by Demographics (N=979)

Variables	*Options*	*f*	*%*
Gender	Female	478	48.8
	Male	501	51.2
Educational Status	Seventh Grade	448	45.8
	Eighth Grade	531	54.2
Educational Status of Mother	Illiterate	94	9.6
	Primary	440	44.9
	Secondary	232	23.7
	High School	169	17.3
	Graduate	34	3.5
	Postgraduate	10	1.0
Educational Status of Father	Illiterate	28	2.9
	Primary	328	33.5
	Secondary	247	25.2
	High School	272	27.8
	Graduate	83	8.5
	Postgraduate	21	2.1
Monthly Income	Less than TL 750	261	26.7
	TL 751-1200	358	36.6
	TL 1201-2000	197	20.1
	TL 2001-2500	65	6.6
	TL 2501-3000	45	4.6
	TL 3001 and more	35	3.6
	Other	18	1.8
Location	Village	194	19.8
	Town	164	16.8
	District	353	36.1
	City	268	27.4

Whereas 48.8% of the students were female, the remaining 51.2% were male. The students' access to computers and the Internet were 64.6% and 49.2% respectively. The study yielded interesting findings on the educational status of parents. While 9.6% of the mothers were illiterate, only 2.9% of the fathers were illiterate. According to a report entitled "Population by Literacy, Educational status and Gender (6+)", released by the Turkish Statistical Institute, 9.6% of women in Turkey (5732525 women in total) are illiterate. This is quite similar to the percentage revealed by the present study. On the other hand, 3.1% of men in Turkey (1857132 men) are illiterate (TUİK, 2009). The percentage is similar to the one disclosed by the present study. The data for the study were collected mostly from districts and then cities, villages and towns respectively.

Data Collection Instruments

The data were collected via "The Personal Information Form" and "The ICT Use Survey" to determine the general profile of the population and "The Democracy Awareness Scale" to identify their democracy awareness. The data collection instruments were implemented on the participants online.

The Personal Information Form: Designed by the authors themselves, the form attempted to collect data on such demographics as gender, educational status of parents, monthly income, location, foreign language level, taking or not taking the courses in information technologies and democracy and human rights education, access to and use of computers and the Internet, and activities on computer.

The ICT Use Survey: Developed by the authors themselves, the survey, which contains eight items, was implemented on the participants so that their purposes of using computers and the Internet could be revealed. The participants were asked to choose one of the following options for each item: "never, rarely, sometimes, often and always".

The Democracy Awareness Scale: Designed by Gürbüz (2006), the scale was implemented on the participants in order that the extent to which they had democracy awareness could be identified in accordance with their own opinions about democracy. The scale consisted of nine sub-dimensions, namely "equality, citizenship, participation, democracy training, freedom, tolerance, sense of democracy, democratic state and human rights", and 35 items. It was based on the 5-point Likert type grading, including the options "strongly disagree, disagree, neither agree nor disagree, agree and strongly agree". When the participants failed to choose any of the options for some of the items, lost data were obtained. Such lost data were accepted to be worth 3, the mean value concerning the five-point Likert options. An exploratory factor analysis was conducted for validity purposes. The KMO measure was considered and Bartlett's test was conducted to decide whether a factor analysis could be done on the items. The KMO value was found to be 0.97 and Barlett's test yielded a significant result, which suggested that the sample size was large enough to conduct a factor analysis on the scale.

Considering the total amount of variance accounted for, there were 2 factors whose eigenvalues were higher than 1. The first and second factors accounted for 38.48% and 27.33% of the variance respectively. The items came under two factors. These factors accounted for 65.81% of the total variance. Two of the items included in the Democracy Awareness Scale were revised in accordance with learned opinion received from testing and evaluation experts. Cronbach's alpha was taken into account to measure the reliability of the revised scale. The internal consistency coefficient was 0.98 for all the items in the scale. The internal consistency coefficients were calculated also for the sub-dimensions. The coefficients were 0.92, 0.89, 0.85, 0.88, 0.89, 0.90, 0.84, 0.91 and 0.87 for equality, citizenship, participation, democracy education, freedom, tolerance, sense of democracy, democratic state and human rights respectively. Thus, it is clear that the sub-dimensions were highly reliable.

Implementation

The data collection instruments were implemented online. The participants were asked to fill in the survey forms in the information technologies laboratories of the schools. With informed consent from the administrators, the implementation was face-to-face in the schools which the authors could visit in person. In the other schools, the teachers who used the information technologies laboratories were asked to implement the survey with informed consent from the administrators. With this purpose in mind, the authors contacted the IT teachers who they already knew and chose those schools whose IT teachers promised support for the study. The implementation was conducted during IT classes in schools which had an IT course. As for the schools which did not have an IT course, the implementation was carried out, generally by IT teachers, during other classes that involved laboratory practices. The teachers were informed about the process of implementation. In addition, attempts were made to overcome the problems instantly through computer conferences, various chat programs and mobile phones.

Data Collection and Analysis

The data were analyzed with such statistical techniques as frequency, percentage, the Chi square and Kruskal Wallis tests. Some of the participants did not choose any of the options for some of the items. Therefore, there were some lost data in some analyses, which led to differences in the "Total" rows of the tables. The level of significance was accepted as 0.05 for data analysis.

Internal and External Validity of the Study

The authors attached important to some factors related to the internal validity of the study. For instance, those who were responsible for the data collection were informed about the process. The data were collected in environments where answers could not be influenced (IT labs of the schools subject to the NME), which can be argued to have positive effects not only on internal validity but also reliability. However, the schools were restricted to the ones where the teachers the authors already knew worked and there were little participation from some of the geographical areas, two facts reducing internal validity.

Great care was taken to make a great number of observations in the study. Increasing the number of subjects leads to a corresponding increase in the extent to which the sample represents the population, thus increasing the external validity. Detailed explanations were provided about the data collection instruments, how the data were analyzed and how the results were obtained in order to make the study findings generalizable to similar studies and environments under certain conditions.

Findings and Discussion

The findings were presented in a way that study problems would be answered pespectively.

The extent to which Seventh and Eighth Grade Students can Access ICT

The first study question is as to the extent to which seventh and eighth grade students can access ICT. To provide an answer to this question, frequencies and percentages were calculated concerning household access to computers and the Internet. Table 2 presents the findings.

Whereas 48.6% of the participants owned a computer and had access to the Internet, 15.9% of them owned a computer but lacked access to the Internet. Despite lacking a computer, 0.6% of the participants had access to the Internet (via mobile phones or similar devices). Nearly one-third of the students (34.8%) had neither a computer nor the Internet (Table 2). Therefore, it can be argued that there is a digital divide between this group of students and others in ICT access.

Table 2.
The Distribution of the Values Concerning the Extent to Which the Participants can Access Computers and the Internet

Options	***F***	***%***
Computers and the Internet accessible	476	48.6
Computers accessible. the Internet inaccessible	156	15.9
Computers inaccessible. the Internet accessible	6	0.7
Computers and the Internet inaccessible	341	34.8
Total	979	100

The Extent to Which Seventh and Eighth Grade Students are ICT Literacy

The second study question is as to the extent to which seventh and eighth grade students are ICT literate. To provide an answer to this question, frequencies and percentages were calculated concerning the opinions of the participants as to the extent to which they used ICT. Table 3 presents the findings.

Table 3.
The Opinions of the Participants as to the Extent to Which They Used ICT

The Use of Computers and the Internet	*The Extent*	*f*	*%*
The Extent to which computers are used	I use computers at a beginner level.	194	22.7
	I use computers at an intermediate level.	457	53.4
	I use computers at an advanced level.	205	23.9
	Total	856	100
The Extent to which the Internet is used	I use it at a beginner level.	164	20
	I use it at an intermediate level.	425	51.7
	I use it at an advanced level.	233	28.3
	Total	822	100

The participants considered their use of computers as at a beginner level (low), intermediate level (medium) and advanced level (high) by 22.7%, 53.4% and 23.9% respectively. On the other hand, they regarded their Internet use at a beginner level (low), intermediate level (medium) and advanced level (high) by 20%, 51.7% and 28.3% respectively. More than half the students reported using computers at an intermediate level, which was also the case for their Internet use.

Whether Seventh and Eighth Grade Students' Democracy Awareness Significantly Differs Depending on ICT Access And ICT Literacy, Two Dimensions Of The Digital Divide

The third study question is as to whether seventh and eighth grade students' democracy awareness significantly differs depending on ICT access and ICT literacy, two dimensions of the digital divide.

a. Whether democracy awareness significantly differs depending on ICT access

The Kruskal Wallis test was used to decide whether the students' democracy awareness significantly differed depending on ICT access. Table 4 presents the findings.

The findings suggest that the students' scores in democracy awareness did not significantly differ depending on household ICT access ($p>0.05$). This finding contradicts with that of Şendağ (2010), who studied pre-service teachers' perceptions of e-democracy and concluded that the extent to which computers and the Internet can be accessed is important for democracy awareness and full participation in e-democracy activities. Moreover, it contrasts with the findings obtained by the International IDEA (2001), a forum that deals with the correlation between ICT and democracy at international level. The forum found that the most important thing for ICT and democracy is accessibility. As can be concluded from Table 3, the highest score in democracy awareness was observed for the sub-dimension "democracy education" and obtained by the students who owned a computer but did not have access to the Internet whereas the students who had neither a computer nor access to the Internet obtained the highest score in democracy awareness for all the other sub-dimensions. The students without access to computers or the Internet got the highest score in democracy awareness and there was no difference in the scores in democracy awareness between the students with and without access, which suggests are problems with the quality of the sources the students were in interaction with.

Table 4.
The Results of the Kruskal Wallis Test on the Students' Democracy Awareness in Reference to ICT Access

Sub-dimensions of Democracy Awareness	***Household ICT Access***	***f***	***Mean Rank***	***df***	***x 2***	***p***
Equality	Computers and the Internet accessible	476	474.15	2	3.41	.182
	Computers accessible, the Internet inaccessible	156	477.93			
	Computers and the Internet inaccessible	341	509.09			
Citizenship	Computers and the Internet accessible	476	478.93	2	.80	.67
	Computers accessible, the Internet inaccessible	156	491.90			
	Computers and the Internet inaccessible	341	496.03			
Participation	Computers and the Internet accessible	476	476.87	2	3.05	.22
	Computers accessible, the Internet inaccessible	156	471.76			
	Computers and the Internet inaccessible	341	508.11			
Democracy Education	Computers and the Internet accessible	476	483.13	2	.73	.69
	Computers accessible, the Internet inaccessible	156	504.43			
	Computers and the Internet inaccessible	341	484.42			
Freedom	Computers and the Internet accessible	476	478.23	2	2.82	.32
	Computers accessible, the Internet inaccessible	156	474.15			
	Computers and the Internet inaccessible	341	505.12			
Tolerance	Computers and the Internet accessible	476	478.15	2	2.13	.34
	Computers accessible, the Internet inaccessible	156	475.35			
	Computers and the Internet inaccessible	341	504.68			
Sense of Democracy	Computers and the Internet accessible	476	476.96	2	3.55	.17
	Computers accessible, the Internet inaccessible	156	468.38			
	Computers and the Internet inaccessible	341	509.53			
Democratic State	Computers and the Internet accessible	476	476.39	2	2.61	.27
	Computers accessible, the Internet inaccessible	156	476.40			
	Computers and the Internet inaccessible	341	506.65			
Human Rights	Computers and the Internet accessible	476	486.21	2	.13	.94
	Computers accessible, the Internet inaccessible	156	481.19			
	Computers and the Internet inaccessible	341	490.76			

b. Whether democracy awareness significantly differs depending on ICT literacy

The Kruskal Wallis test was used to determine whether the students' democracy awareness significantly differed depending on ICT literacy. The findings are presented in Tables 5 and 6.

The findings suggest that the students' scores in democracy awareness did not significantly differ depending on the extent to which they used computers, except for the sub-dimension "participation" ($p>0.05$). The highest score in democracy awareness for all the sub-dimensions was obtained by the students who used computers at a low level. In his study on high school students, Akan (2011) found that the type of school and levels of academic accomplishment are effective in students' democracy awareness. Therefore, the fact that the students who used computers at a low level had higher democracy awareness might have been caused by such variables as the type of school and academic accomplishment. In other words, their high democracy awareness might have been influenced by other variables.

Table 5.

The Results of the Kruskal Wallis test on the Students' Democracy Awareness in Reference to ICT Literacy (the Use of Computers)

Sub-dimensions of Democracy Awareness	***Household ICT Access***	***f***	***Mean Rank***	***Df***	***X 2***	***p***
	Low	194	441.76			
Equality	Intermediate	453	424.58	2	1.34	.51
	High	204	414.17			
	Low	194	460.75			
Citizenship	Intermediate	453	416.92	2	5.09	.08
	High	204	413.13			
	Low	194	462.22			
Participation	Intermediate	453	409.35	2	6.42	.04
	High	204	428.53			
	Low	194	445.24			
Democracy Education	Intermediate	453	410.50	2	3.93	.14
	High	204	442.13			
	Low	194	459.77			
Freedom	Intermediate	453	413.24	2	5.10	.08
	High	204	422.21			
	Low	194	461.29			
Tolerance	Intermediate	453	416.60	2	5.32	.07
	High	204	413.30			
	Low	194	451.79			
Sense of Democracy	Intermediate	453	417.19	2	2.86	.24
	High	204	421.03			
	Low	194	448.06			
Democratic State	Intermediate	453	418.82	2	2.07	.36
	High	204	420.96			
	Low	194	442.05			
Human Rights	Intermediate	453	412.14	2	3.13	.21
	High	204	441.52			

Table 6.
The Results of the Kruskal Wallis test on the Students' Democracy Awareness in Reference to ICT Literacy (Internet Use)

Sub-dimensions of democracy Awareness	***Household ICT Access***	***f***	***Mean Rank***	***df***	***X 2***	***p***
	Low	164	435.42			
Equality	Intermediate	422	412.66	2	5.07	.08
	High	231	383.57			
	Low	164	441.88			
Citizenship	Intermediate	422	407.55	2	5.02	.08
	High	231	388.30			
	Low	164	445.01			
Participation	Intermediate	422	397.32	2	5.02	.08
	High	231	404.77			
	Low	164	429.85			
Democracy Education	Intermediate	422	395.56	2	3.09	.21
	High	231	418.75			
	Low	164	443.66			
Freedom	Intermediate	422	400.92	2	4.60	.10
	High	231	399.16			
	Low	164	448.14			
Tolerance	Intermediate	422	404.66	2	6.43	.04
	High	231	389.14			
	Low	164	436.41			
Sense of Democracy	Intermediate	422	403.02	2	2.85	.24
	High	231	400.46			
	Low	164	437.94			
Democratic State	Intermediate	422	402.20	2	3.15	.21
	High	231	400.87			
	Low	164	433.72			
Human Rights	Intermediate	422	399.71	2	2.50	.29
	High	231	408.42			

The findings suggest that the students' scores in democracy awareness did not significantly differ depending on the extent to which they used the Internet, except for the sub-dimension "tolerance" ($p>0.05$). This finding contradicts with that of Şendağ (2010), who studied pre-service teachers' perceptions of e-democracy and concluded that the extent of ICT literacy is important for democracy awareness and full participation in e-democracy activities. The highest score in democracy awareness for all the sub-dimensions was obtained by the students who used the Internet at a low level. In his study on high school students, Akan (2011) found that the type of school and levels of academic accomplishment are effective in students' democracy awareness. Therefore, the fact that the students who used the Internet at a low level had higher democracy awareness might have been caused by such variables as the type of school and academic accomplishment

Conclusion and Recommendations

Conclusion

The purpose of this study was to identify the current state of seventh and eighth grade students' ICT access and ICT literacy, two indicators of the digital divide, in reference to their demographics and to determine the correlation between their democracy awareness and these indicators of the digital divide. To reach this aim, the opinions of primary school students were received. The analyses yielded the following results:

According to the data on the sub-problem "What is the extent to which seventh and eighth grade students can access ICT and are ICT literate", 35% of students had neither a computer nor access to the Internet, which suggests a digital divide between this group of students and others in ICT access. In addition, the participants were ICT literate at an intermediate level.

According to the data on the sub-problem "Does seventh and eighth grade students' democracy awareness significantly differ depending on ICT access and ICT literacy, two dimensions of the digital divide?", students' democracy awareness did not significantly differ depending on household ICT access. In other words, there was no significant difference between the students with and without household ICT access

The students' scores in democracy awareness did not significantly differ depending on the extent to which they used computers, except for the sub-dimension "participation". Furthermore, the highest score in democracy awareness for all the sub-dimensions was obtained by the students who used computers at a low level.

The students' scores in democracy awareness did not significantly differ depending on the extent to which they used the Internet, except for the sub-dimension "tolerance". Moreover, the highest score in democracy awareness for all the sub-dimensions was obtained by the students who used the Internet at a low level.

Recommendations

The population was comprised of only seventh and eighth grade students, which might be considered as a limitation. Further studies could focus on all the grades included in K-12 and enable one to observe the digital divide and associated problems in a more clear way. The study was marked by regional differences in participation owing to contextual limitations such as lack of time, having to find practitioners and to get permission, and expenses. These limitations could be overcome by studies designed in a way that will be provided with financial backing.

The data collection instruments had some deficiencies, which could be regarded as another limitation. The data on the participants' levels of ICT literacy were assessed on the basis of the premise that "participants' responses reflect their actual conditions, views and ideas". Although their responses could reflect their actual levels to some extent, it was still a subjective assessment, for their skills in using computers and the Internet were not evaluated with objective criteria. Besides, it proved to be rather difficult to administer a test on ICT literacy since the schools granted only one hour. In order to overcome the deficiencies of the data collection instrument, further studies could identify participants' actual ICT skills through test questions. In addition to having a limitation in terms of time, the study also requires a broader population.

The present study concluded that students with a lower level of ICT literacy have higher scores in democracy awareness. A study might be conducted on the reasons for this. One of the more significant findings to emerge from this study is that that ICT access does not have an influence on scores in democracy awareness. Besides, there is no apparent difference in the scores regarding democracy awareness between the students with and without ICT access, which suggests that there are problems with the quality of the sources students expose to. Therefore, further studies might be carried out on the quality of the environments and sources students are in interaction with in order to have ICT access. School administrators, teachers and other stakeholders should undertake cooperative studies to identify and perform their roles so that students can be aware of the sources and the quality of the sources they access to use ICT.

References

Akan, Y. (2011). *Ortaöğretimde okuyan öğrencilerin demokrasi bilinci (Sakarya ili örneği) [Democracy awareness of high school students (The case of Sakarya)]*. Unpublished masters thesis. Sakarya University Institute of Educational Sciences, Sakarya.

Aşıcı, T. B. (2009). *Sayısal uçurumun üniversite öğrencilerinin demografik özellikleri göre incelenmesi [A study of the digital divide by the demographics of university students].* Unpublished masters thesis. Hacettepe University Institute of Graduate Studies in Science, Ankara.

Aytun, C. (2005). *Dijital bölünme olgusu ve Türkiye üzerine bir uygulama [The digital divide and an application in Turkey].* Unpublished masters thesis. Cukurova University Institute of Social Sciences, Adana.

Bozinis, A. (2007). Internet politics and digital divide issues: The rising of a new electronic aristocrats and electronic meticians. *Journal of Social Sciences, 3*(1), 24-26. [Available online at: http://www.scipub.org/fulltext/jss/jss3124-26.pdf], Retrieved on 18.01.2011.

Büyüköztürk, Ş. (2009). *Sosyal bilimler için veri analizi el kitabı. İstatistik, araştırma deseni SPSS uygulamaları ve yorum {Data analysis nanual].* Ankara: Pegem Akademi Publishing.

The Undersecreteriat for the State Planning Organization (2010). *Information Society Statistics 2010.* [Available online at: http://www.bilgitoplumu.gov.tr/Documents/1/Yayinlar/BilgiToplumuIstatistikleri_2010.pdf], Retrieved on 12.01.2011.

Dijk, V. J. (2006). Digital divide research, achievements and shortcomings, *Poetics. Computers & Education,* 34, 221–235.

Ersöz, S. (2006). *The future of the Internet and democracy*. [Avalable online at: http://m.friendfeed-media.com/d43b76036964715473298 7014a9c837308b2bf23], Retrieved on 10.01.2011.

Falch, M. (2006). ICT and the future conditions for democratic governance. *Telematics and Informatics, 23*(2), 134-156.

Fraenkel, J.,R., & Wallen, N.,E. (2006). *How to design and evaluate research in education (6. Edition)*. New York: McGraw-Hill Book Company.

Gürbüz, G. (2006). *İlköğretim 7. ve 8. sınıflarda vatandaşlık bilgisi dersinde demokrasi eğitimi [Democracy education of the elementary school at 7th and 8th classes at citizenship lesson].* Unpublished masters thesis. Abant Izzet Baysal University Institute of Social Sciences, Bolu.

ICFA-SCIC (International Committee for Future Accelerators-Standing Committee on Inter-Regional Connectivity) (2004). *Digital divide and measures taken by government of Pakistan*. [Available online at: http://icfa-scic.web.cern.ch/ICFASCIC/docs/WorkDocs/PakistanReport_ArshadAli010603.doc], Retrieved on 10.10.2010.

Ilgaz, H., & Seferoğlu, S. S. (2010). Sayısal uçurumun boyutları ve teknoloji politikaları [Dimensions of the digital divide and technology policies]. *Proceedings of 10th International Educational Technology Conference (IETC-2010),* Volume III, 1302-1306. Boğaziçi University, İstanbul-TURKEY.

International Institute for Democracy and Electoral Assistance (International IDEA) (2001). *Democracy and the information revolution: Values, opportunities and threats.* Democracy Forum. [Available online at: http://www.idea.int/2001_forum/policy/Initial_Policy_Points.pdf], Retrieved on 15.01.2011.

Juniu, S. (2005). *Digital democracy in higher education: Bridging the digital divide*. [Available online at: http://innovateonline.info/pdf/vol2_issue1/Digital_Democracy_in_Higher_Education-__Bridging_the_Digital_Divide.pdf], Retrieved on 05.01.2011.

Küçükçınar, A., Zontul, H., Tüfekçi, T., Geray, H., Aşkar, M., & Özcivelek, R. (2000). The *igital divide: The current state in the World and Turkey.* The Sixth Conference on the Internet in Turkey, October 9-11, 2000, Istanbul. [Available online at: http://www.baskent.edu.tr/~omadran/eskiweb/eskiweb/donem0405/ilf301/makaleler/sayisal_ucurum.pdf], Retrieved on 10.01.2011.

OECD (Organisation for Economic Co-operation and Development) (2000). *Learning to bridge the digital divide.* [Available online at: http://www.oecd.org/dataoecd/24/10/41284538.pdf], Retrieved on 12.01.2011.

Oruç, E., & Arslan, S. (2002). *The prevention of the digital divide: Strategic plan*. Telecommunications Authority. [Available online at: http://www.tk.gov.tr/yayin/raporlar/pdf/sayisal_ucurumun_onlenmesi.pdf], Retrieved on 12.01.2011.

Öztürk, L. (2005). Türkiye'de dijital eşitsizlik:TÜBİTAK-BİLTEN anketleri üzerine bir değerlendirme [Digital inequality in Turkey: An evaluation of TUBITAK-BILTEN surveys]. *Erciyes University Journal of Faculty of Economics and Administrative Sciences*, 24, 111-131.

Shirazi, F., Ngwenyama, O., & Morawczynski, O. (2010). ICT expansion and the digital divide in democratic freedoms: An analysis of the impact of ICT expansion, education and ICT filtering on democracy. *Telematics and Informatics, 27*(1), 21-31.

Şendağ, S. (2010). Pre-service teachers' perceptions about e-democracy: A case in Turkey. *Computers & Education, 55*(4), 1684–1693.

Şener, G. (2006). *A critical approach to the correlation between the Internet and democracy.* The Eleventh Conference on the Internet in Turkey, December 21-23, 2006, TOBB University of Economics, Ankara.

Tezci, E. (2003). The effect of web-based education on the development of democracy awareness. *The Turkish Online Journal of Educational Technology – TOJET, 2*(3), article 19. [Available online at: http://www.tojet.net/articles/2319.pdf], Retrieved on 15.01.2011.

Turkish Statistical Institute (2009). *Address-based population registration system (ABPRS). Results of the 2008-2009 census*. [Available online at: http://www.tuik.gov.tr/VeriBilgi.do?tb_id=39&ust_id=11], Retrieved on 01.05.2011.

Turkish Statistical Institute (2010). Results of the study on household use of information technologies. [Available online at: http://www.tuik.gov.tr/VeriBilgi.do?tb_id=60&ust_id=2], Retrieved on 01.11.2010.

Uçkan, O. (2008). *Dijital bölünme ve bilgi uçurumu [The digital divide and knowledge gap].* The National Conference on E-Government, November 4-5, 2008, Ankara. [Available online: http://www.slideshare.net/requin/dijital-blnme-dr-zgr-ukan?type=powerpoint], Retrieved on 15.04.2011.