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EXPLORING THE DIGITAL DIVIDE: A CASE OF RUSSIA AND TURKEY

Introduction

ICTs have dramatically transformed the societies and the economies around the world over the past few decades. With advanced ICTs, especially the Internet, today, the world has become a global village. Although developed countries enjoy the benefits of ICTs in almost all areas of life, developing countries do not benefit enough from these technologies. As a result of advances in information technology, the knowledge gaps between the information-rich and the information-poor have deepened over time and that has caused excluding certain parts of the world from enjoying the fruits of the global village [Iskandarani, 2008]. Then the world has begun to notice the phenomenon named the digital divide.

Today information technology is more accessible and affordable than even before. While the telecommunications infrastructure has grown and ICT has become less expensive and more accessible, today more than ever, the invisible line that separates rich from poor, men from women and the educated from the illiterate also separates the connected from the disconnected [Zaidi, 2003]. The unequal access to and utilization of ICTs has accepted as one of the prevalent issues of our times [Sciadas, 2005]. Almost every indicator shows that there is a significant difference between developed and developing countries in terms of accessing and using ICTs. For example, according to the International Telecommunication Union (ITU), while approximately 72% of the population is Internet users in developed countries, this ratio is 21% in developing countries. The number of fixed telephone lines per 100 inhabitants in developed countries is estimated about 41, but it is 12 in developing countries [ITU, 2010]. It can be challenging to access up-to-date knowledge and information in developing countries [Suchak, Eisengrein, 2008]. There is a marked difference between developed and developing countries in terms of their take up and ability to use the ICTs [Genus, Nor, 2007].

The main aim of this paper is to explore the digital divide within and between Russia and Turkey. For this reason the authors examine the differences within and between these countries in terms of ICT usage basing on different statistic data.

Digital divide

The digital divide can be defined as «the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access ICTs and to their use of the Internet for a wide variety of activities» [OECD, 2001, p. 5]. The term «digital divide» was introduced by Larry Irving, Jr., the former US Assistant Secretary of Commerce for Telecommunication and Communication in the mid-1990s in order to focus public attention on the existing gap in access to information services between those who can afford to purchase the computer hardware and software necessary to participate in the global information network, and low income families and communities who cannot [Boje, Dragulanescu, 2003]. The global digital divide refers to differences between countries in terms of the access to ICTs.

The digital divide within and between Russia and Turkey

Gender divide

UNESCO accepts the gender divide as «one of the most significant inequalities to be amplified by the digital revolution» [Primo, 2003]. Bimber (2000) found that there is a significant gap between genders in terms of accessing and using the Internet. According to Bimber (2000), the gender gap in Internet may exist because of differences between men and women in socioeconomic status which affects Internet access and use. Chen & Wellman (2004) found that gender is one of the important factors affecting access to and use of the Internet; males are more likely than females both to access and to use the Internet. Carveth & Kretchmer (2002) found that gender is one of the significant predictors of the digital divide in Western Europe. According to Ono & Zavodny (2003), the gender gap in being online disappeared by 2000, however, they found that there is a gender gap in frequency and intensity of Internet use. Broos & Roe (2006) found also gender is one of the major factors structuring the digital divide.

Computer and Internet use are more common among males than females in Russia and Turkey. There is a gender divide in both countries. However, the gender divide

in Turkey is higher than in Russia. The rates of computer and Internet use for males and females are closer in Russia than in Turkey.

Table 1. Computer and Internet users by gender in Russia, %

Year	Computer		Internet	
	Male	Female	Male	Female
2004	34,2	30,3	12,5	8,6
2005	37,4	32,9	14,6	10,3
2006	41,4	37,0	18,2	14,0
2007	43,7	39,5	20,9	17,4
2008	48,1	43,9	26,7	23,7
2009	53,4	47,5	33,5	30,3

Source: The Russian Longitudinal Monitoring Survey, 2009.

Table 2. Computer and Internet users by gender in Turkey, %

Year	Computer		Internet	
	Male	Female	Male	Female
2004	15,4	8,2	12,7	6,1
2005	14,9	8,0	11,9	5,6
2006	–	–	–	–
2007	42,7	23,7	39,2	20,7
2008	47,8	28,5	45,4	26,6
2009	50,5	30,0	48,6	28,0
2010	53,4	33,2	51,8	31,7

Source: TurkStat, ICT usage survey on households and individuals, 2010.

According to the Russian Longitudinal Monitoring Survey, 2009 while the rates of computer and Internet use among male residents are 53,4% and 33,5% respectively, these rates among females are 47,5% and 30,3% in Russia (Table 1). According to TurkStat ICT Usage Survey in Households and Individuals, while the rates of computer and Internet use among male residents are 53,4% and 51,8% respectively, these rates among females are 33,2% and 31,7% in Turkey in 2010 (Table 2). The gender gap exists for all age groups in Turkey. Percentage of males that use computer

and Internet is higher than percentage of females that use these technologies for all age groups (Table 4). However, in Russia except 65–74 age group, computer use is more common among females than among males. Similar result exist for Internet use, except 55–64 and 65–74 age groups Internet use is also more common among females than among male residents in Russia (Table 3).

The gender digital divide has begun to shrink in Russia from 2004 to 2009. But it is hard to say so for Turkey.

Age divide

Age is one of the major demographic factors affecting ICT use. It is found that the Internet penetration rate among younger residents is substantially higher than that among elders in both developed and developing countries [Friedman, 2001]. There are various studies explored age factor in digital divide literature. For example, Loges & Jung (2001) investigated the digital divide between old and young Americans and they reported significant differences between old and young Americans in Internet access. Vicente & López (2008) analyzed Internet adoption in the new member states and candidate countries of the European Union and concluded that younger individuals are the most likely to use the Internet in all the countries. Even though Internet and e-mail use has greatly increased between 1995 and 2002, Enoch & Soker (2006) found that there remains a steady and significant gap between the different age groups, especially between the youngest and the oldest university students. Many observers believe that the digital divide is basically a generational phenomenon and it will disappear in time as younger computer literate cohorts replace older non-users [Broos, Roe, 2006]. However, since ICT is always evolving, new advanced ICTs may cause new digital divides between younger and elder residents.

Table 3. Individuals using the computer and Internet in the last 12 months by age groups and gender in Russia, %

Age	Computer			Internet		
	Total	Male	Female	Total	Male	Female
16–24	82,8	82,3	83,3	67,4	67,2	67,5
25–34	70,1	69,9	70,2	52,0	51,3	52,7
35–44	57,4	54,9	59,4	39,6	38,0	40,8
45–54	37,1	33,0	40,3	23,4	21,8	24,6
55–64	21,8	21,5	21,9	12,4	14,8	10,9
65–74	5,8	9,0	4,3	3,0	5,2	2,0

Source: The Russian Longitudinal Monitoring Survey, 2009.

Table 4. Individuals using the computer and Internet in the last 3 months by age groups and gender in Turkey, %

Age	Computer			Internet		
	Total	Male	Female	Total	Male	Female
16–24	65,2	78,5	52,7	62,9	76,6	49,9
25–34	52,0	62,4	41,6	50,6	60,9	40,2
35–44	36,9	46,9	26,9	34,7	43,5	25,7
45–54	23,2	33,6	12,7	22,4	31,9	12,9
55–64	8,3	13,5	3,4	7,8	12,6	3,2
65–74	2,7	4,1	1,6	2,7	4,2	1,6

Source: TurkStat, ICT usage survey on households and individuals, 2010.

The rates of computer and Internet use are higher in Russia than in Turkey for all age groups. While the rates of computer and Internet use are 82,8% and 67,4% in 16–24 years old in Russia, these rates are 65,2% and 62,9% for same age group in Turkey (Table 3 and Table 4). In both countries, computer and Internet use are more common among younger residents than elders. According to the Russian Longitudinal Monitoring Survey in 2009, 16–24 age group has the highest rate of computer and Internet use and 65–74 age group has the lowest rate of computer and Internet use, while the rates of computer and Internet user are 82,8% and 67,4% respectively for 16–24 age group, these rates are 5,8% and 3,0% for 65–74 age group (Table 3). Same age divide is valid in Turkey. According to the results of TurkStat ICT Usage Survey in Households and Individuals in 2010, while the rates of computer and Internet user are 65,2% and 62,9% respectively for 16–24 age group, these rates are 2,7% for 65,74 age group (Table 3). There is a significant gap between younger and elder individuals in terms of computer and Internet use. Table 3 and Table 4 present the distribution of computer and Internet use by age groups and gender in Russia and Turkey.

Rural-urban digital divide

Geographic location is one of the affecting factors for individuals to access ICTs. Even though ICTs provide distinct advantages to geographically isolated rural residents, rural citizens are expected to lag behind urban residents, because of limited telecommunication infrastructure and culture, etc. [Hindman, 2000]. Chen & Wellman (2004) found that geographic location is one of the significant factors affecting people's access to and use of the Internet with more prosperous regions having higher Internet penetration rates than poorer regions [Chen, Wellman, 2004]. Hindman (2000) found that a larger percentage of urban residents have adopted and used various information technologies than have rural residents. Even developed nations face the digital

divide because of geographic disparity, but not much as developing countries. Carveth & Kretchmer (2002) found Southern Europe countries have less computer and Internet penetration than Northern Europe countries. Demoussis & Giannakopoulos (2006) found similar result; differences in Internet use between Southern and Northern European states exist; people in the south of Europe show lower probabilities of Internet use than those living in the north of Europe.

The use of computer and the Internet is increasing among both rural and urban residents from 2004 in Russia and Turkey. However, there is a significant and consistent gap between rural and urban citizens in terms of computer and Internet use in both countries. According to the Russian Longitudinal Monitoring Survey, while the rates of computer and Internet use among rural residents in 2009 are 35,7% and 17,4% respectively, these rates among urban residents are 57,2% and 38,8% in Russia (Table 5). According to the TurkStat survey, while the rates of computer and Internet use among rural residents in 2010 are 25,6% and 23,7% respectively, these rates among urban residents are 50,6% and 49,2% in Turkey (Table 6).

Table 5. Computer and Internet users by rural-urban in Russia, %

Year	Computer		Internet	
	Rural	Urban	Rural	Urban
2004	19,2	38,2	3,1	13,8
2005	19,9	42,4	3,8	16,5
2006	24,0	46,1	6,2	20,5
2007	27,3	48,1	8,2	24,2
2008	31,7	52,6	13,2	30,8
2009	35,7	57,2	17,4	38,8

Source: The Russian Longitudinal Monitoring Survey, 2009.

Table 6. Computer and Internet users by rural-urban in Turkey, %

Year	Computer		Internet	
	Rural	Urban	Rural	Urban
2004	–	–	–	–
2005	11,7	29,6	8,2	23,07
2006	–	–	–	–
2007	17,8	40,1	15,2	36,6
2008	20,6	45,2	18,3	43,1
2009	22,2	47,7	20,7	45,5
2010	25,6	50,6	23,7	49,2

Source: TurkStat, ICT usage survey on households and individuals, 2010.

Education level

Vicente & López (2008) found that educational attainment is one of the main determinants of Internet use; education positively affects the likelihood of an individual using the Internet. According to the results of their study, university education has a stronger effect than high school education in terms of Internet usage. Goldfarb & Prince (2008) found that high-income, educated people were more likely to have adopted the Internet by December 2001 in the US.

Table 7. Individuals using the computer and Internet in the last 3 months by education level in Russia, %

	Computer	Internet
Literate without a diploma	2,5	1,7
Primary school	38,1	26,5
Secondary and vocational secondary school	35,8	20,8
High and vocational high school	55,8	41,1
Higher education	74,3	61,4

Source: The Russian Longitudinal Monitoring Survey, 2009.

Table 8. Individuals using the computer and Internet in the last 3 months by education level in Turkey, %

	Computer	Internet
Literate without a diploma	3,4	2,8
Primary school	15,3	14,0
Secondary and vocational secondary school	56,6	54,0
High and vocational high school	71,8	69,9
Higher education	90,4	89,6

Source: TurkStat, ICT usage survey on households and individuals, 2010.

According to the Russian Longitudinal Monitoring Survey, 2009 as education level increases, the rate of computer and Internet use also increases. The rates of computer use among people having primary or secondary and vocational secondary school educational level are 38,1% and 35,8% respectively, the rate is 55,8% for people having high and vocational high school educational level and it is 74,3% for people

having higher education. The rates of Internet use among people having primary or secondary and vocational secondary school educational level are 26,5% and 20,8% respectively, the rate is 41,1% for people having high and vocational high school educational level and it is 61,4% for people having higher education (Table 7). The differences between the rates among people having primary or secondary and vocational secondary school educational level can be explained as a result of the difficulties for comparing educational systems in different countries, as a result of changing the scale which measures the educational level.

TurkStat survey also reveals that as education level increases, the rate of computer and Internet use also increases. While the rate of computer use among people having higher education is 90,4%, 71,8% of high school graduates, and 15,3% of primary school graduates reported using computer in the last 3 months in Turkey. Similar result is valid for Internet use; while 89,6% of individual having higher education use the Internet, only 14,0% of primary school graduates reported using the Internet in the last 3 months (Table 8).

Conclusion

The findings of the study show that the problem of the digital divide is more sophisticated than it is commonly understood. Some challenges to the approach which measures the digital divide basing on the indicator of Internet users per 100 people or the same indicators have appeared [Fink, Kenny, 2003]. The results of researches depend on the analyzed indicators [Chircu, Mahajan, 2009].

The limited access to ICTs in any country does not also show that there are insuperable obstacles to its further development. A famous economist J. Schumpeter has demonstrated that very few people in every country are responsible for providing innovations for economic developing [Schumpeter, 1961]. So quite enough people in developing countries have an access to ICTs and they are able to enjoy their benefits [James, 2005]. In addition, people in developing countries can realize the indirect abilities which are given by ICTs [James, 2004] and it will be another way to overcome the digital divide. The gross domestic product per capita in developing countries is growing faster and they are improving their positions. Some countries have already overcome the digital divide although at first blush it is very difficult to register it as relatively low ratios are quite adequate for countries of the specified sizes [Scott, 2006].

Russia and Turkey have quite good opportunities for further development basing on ICTs and for reducing the gap between them and developed countries. Both of these countries have already taken step forward and now there are some beneficial effects, especially in Turkey.

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