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On the way to becoming global citizens:

Use of ICT by Ukrainian students

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Abstract

Information is one of the important assets in today's society. Information and communication technologies (ICT) may be particularly important for students as one of the tools to become global citizens. The objective of this study was to investigate use of ICT by high school students (n=122) from a developing country, like Ukraine. The *Global Citizenship Survey* (Lima, 2006) was used and modified for the purpose of this study. Initial analyses indicated that the majority of the students use computer at school at least once per week. However, most of the students do not use the Internet at school on a weekly basis. At the same time, majority of students from Ukraine have a computer at home and more than half of students have the Internet access at home. A chi-square analysis revealed statistically significant gender differences in the use of computers and the Internet.

Introduction

As stated in Lima and Brown's work on global citizenship; "The world we live is constantly changing and generating new challenges for its inhabitants. Information and communication technologies (ICT) present opportunities for all to be more informed, engaged, and able to communicate within an interconnected world, but new skills must be mastered by the individuals to be empowered and included in this knowledge society where access and use of information are the most valuable assets." (p 141).

It has been argued, that a world transformation is being stimulated by the phenomenon of globalization and the information technology revolution that has resulted in gains of productivity for countries, companies and individuals (Carnoy, 1999; Castells, 1999; Giddens, 2000). Friedman (2005) has argued that we are living in an era of globalization, as result of the empowerment of individuals who understand the *flat world*, adapt themselves quickly to its processes and technologies and who are able to act globally, collaborating and competing globally. Friedman further states that, individuals' empowerment is provided by the role of ICTs, such as telephone, fax machines, personal computers and networks, which enhance the opportunities of access and gathering of information.

However, globalization is a double edged phenomenon that brings opportunities for the development of nations and also creates huge disparities among nations (Held & McGrew, 2003; United Nations, 2004). Some of the divides created are translated into the term *social exclusion* which is defined by Castells (2003) as, "the process by which certain individuals and groups are systematically barred from access to positions that would enable them to an autonomous livelihood within the social standards framed by institutions and values in a given context" (p. 432). Therefore, it becomes critical to provide opportunities to empower individuals and communities focusing on their development. *The World Commission on the Social Dimensions of Globalization* (2004) discusses a clear relationship among globalization, information, development, technology and social exclusion, as it emphasizes the importance of education for a more inclusive world. The report, *A fair globalization – creating opportunities for all*, states that "knowledge and information are the keys to social inclusion and productivity, and connectivity is the key to global competitiveness (World Commission on the Social Dimensions of Globalization, 2004, p. 108).

The term digital divide is defined by Chen and Wellman (2004) as "the gap between individuals (and societies) that have the resources to participate in the information era and those that do not" (p. 40). It is abundantly clear that education of global citizens needs to incorporate new perspectives. We cannot systematically leave anyone behind or out of the global community. However, it is not clear as to what knowledge and skills students must possess to be active global citizens now, and as future leaders?

This study was designed to extend the work of Lima and Brown (2007) to investigate the perceptions of students from a developing country like the Ukraine about global citizenship, as well as if they possess adequate knowledge and skills that would impel them to be global citizens.

ICT for Development

The globalized world is organized around networks of computers at the heart of information systems and communication processes. The entire realm of human activity depends on the power of information and communication technologies' innovations, which accelerate its pace every day (Castells, 1999). This approach places the communities' assets and capabilities in the center of the analysis and examines the role of the improved flow of information and knowledge thorough the use of ICT as a catalyst in expanding the human and social capabilities of the poor. However, as Murelli (2002) states, unfamiliarity with new ICT is one of the serious problems that need to be solved to prevent the creation of new social differences among people and to avoid the fragmentation of society by the emergence of new technologies; Highlighting the inequalities brought by ICT access and use, which lead to under-development and social exclusion.

Within this context, Gigler (2004) investigated key factors that are needed to enable the poor to have 'real and meaningful' access to ICT and to allow them to acquire these technologies and use them as an instrument for their development and empowerment. Gigler states that "[s]imilarly to literacy, newly acquired 'informational capabilities' can act as an agent for change for individuals and communities enhancing their abilities to engage with the formal institutions in the economic, political, social and cultural spheres of their life" (p. 31). Castells (1999) states that, "there is little chance for a country, or a region, to develop in the new economy without its incorporation in to the technological system of the information age" (p. 3). Undoubtedly, the Internet and other ICT in general constitute a valuable channel for knowledge dissemination and opportunities for development and growth among nations in the world. But since technology is financially expensive, developing countries are facing a dilemma that is aggravated by their economic issues, the need of people to possess adequate and accurate information in order to feel included in the society.

In 2004, the developed world still had eight times the Internet user penetration rate of the developing world (International Telecommunications Union, 2005). Facing the expansion of technology penetration, the term digital divide is being redefined by the notion that inequities will not disappear just by providing physical access to technology for all. It is imperative to investigate *how* technology is being used for those who have access to it in order to apply successful experiences to model future venues aiming development. A profusion of research related to technology penetration shifts its interest to investigating how people use technology (DiMaggio, Hargittai, Celeste, & Shafer, 2001; Hargittai, 2002; Warschauer, 2003).

In regards to international investigations on this theme, Chen, Boase and Wellman (2002) state that there has been little research about how the Internet is being used in developing countries, emphasizing that international comparisons are almost non-existent besides the ones focusing on the number of people accessing the web. The present study intends to contribute to that topic investigating global citizenship traits, which include how ICT are being used in socially valued ways leading to development.

Global Citizenship

Banks (2004) argues that, "citizens in a diverse democratic society should be reflective, moral, and active citizens in an interconnected global world ... should have the

knowledge, kills and commitment needed to change the world to make it more just and democratic" (p. 298). Noddings (2005) affirms that good global citizens should be concerned about the existing economic injustice aggravated by the efforts to globalization.

A globalized world highlights diversity as a characteristic that all the nations are facing, in part due to a huge flux of immigration worldwide. Banks (2004) states that citizenship education needs to be transformed due to the increasing racial, ethnic, and cultural, language and religious diversity in nation-states throughout the world. Noddings (2005) suggests that good global citizens should be concerned about diversity, which usually point to a desirable mix of people representing racial, ethnic, and religious differences.

Aligned with students' definition of a global citizen, the UNDP Report 1999 (Held & McGrew, 2003) positions that global markets, global technology, global ideas and global solidarity can enrich the life of people everywhere, greatly expanding their choices. According to UNDP Report, "the growing interdependence of people's lives calls for shared values and a shared commitment to the human development of all people" (p. 423). Osler and Starkey (2006) define citizenship referring to an awareness of the individual living in relationship with others, working with others to change the way things are and participating freely in society.

ICT Use

As it was discussed earlier, it is imperative to study how ICT is being used, what kinds of practices and access people are experiencing, what they use it for, how it serves as a tool for the development of individuals and, more broadly, countries. Murelli (2002) assumes that "[u]nfamiliarity with the new information and communication technologies is one of the serious problems that have [sic] to be solved in order to create no further social differences among people and to avoid the fragmentation of society by new technologies" (p. 5-6). According to Gigler (2004), "[s]imilarly to literacy, newly acquired 'informational capabilities' can act as an agent for change for individuals and communities enhancing their abilities to engage with the formal institutions in the economic, political, social and cultural spheres of their life" (p. 31).

Warschauer (2003) argues that good use of ICT improves education, government and health care being a key factor for social inclusion, instead of simply availability of hardware, software and connections. He defines social inclusion as "the extent that individuals, families, and communities are able to fully participate in society and control their own destinies, taking into account a variety of factors related to economic resources, employment, health, education, housing, recreation, culture, and civic engagement" (Warschauer, 2003, p. 29).

Knowing about world problems and how they impact everyone's lives are important aspects to inform the attitudes developed by individuals and how they behave with others. Being a more critical, responsible and participative citizen propels one to make informed decisions. Additionally, access and use of ICT can serve as a promoter of development and social inclusion, if adequately used or cause underdevelopment and exclusion if implemented poorly.

Research Questions

This study identifies the use of information and communication technologies (ICT) as a tool for the development of global citizenship and social inclusion by high

school students from Ukraine. The instruments for this study were based on Lima study (2006) in which they examined Brazilian and American students using Global Citizenship Survey. For the purpose of this study, the Global Citizenship Survey was used and modified for Ukrainian students.

The research interests were to examine frequency, locations and use of ICT by students from a developing country, like Ukraine, in order to become global citizenships. Specifically, four research questions were examined:

- RQ1: use of ICT *at school* designed to measure students' use of a computer and the Internet per week;
- RQ2: ease of access of ICT *at home* designed to determine whether students have a computer and the Internet access;
- RQ3: frequency of ICT use *out of school* design to measure students' use of a computer and the Internet per week;
- RQ4: use of the Internet designed to identify *places* where students use the Internet the most.

Methodology

Participants

Participants for the study were selected through a convenience sample of high school students from an Ukrainian urban public school # 30, one of the many high schools in the city. The school is located in Chernihiv, which is an urban city in the northeastern part of Ukraine with a population of approximately 300,000.

A total of 122 high school students completed the survey; 64 boys (52.5%) and 58 girls (47.5%). The mean age of the participants was 15.6 years (SD=.93; range 13-18). For the purpose of analysis, two age groups were created. The mean age of the participants of the first group was 14.8 years (n-61; SD=.47; range 13-15); the mean age of the participants of the second group was 16.36 (n=59; SD=.55; range 16-18). See Table 1 for demographics of participants.

			Ν	Percent
	Male		64	52.50%
	Female		58	47.50%
Gender				
Age Groups	13-15	Male	28	45.60%
		Female	33	54.10%
		Total	61	100.00%
	16-18	Male	34	57.60%
		Female	25	42.40%
		Total	59	100.00%
	Missing cases		2	

Table 1

Participant Demographics (n=122)

Instruments

The instruments for this study were based on the Lima (2006) and Lima and Brown (2007) studies. *The Global Citizenship Survey* (Lima, 2006) was modified for use with the Ukrainian students.

As stated by Lima and Brown (2007), the survey is designed "to define citizenship traits and identify the use of information and communication technologies (ICT)".

The Global Citizenship Survey includes several response formats; items as check off, indications of use, indications of frequency, a 5-point Likert-type response section

which were analyzed quantitatively and part VI that has open-ended section which was analyzed qualitatively.

For the purpose of this study we only examined the subset of the responses to the total survey. Specifically, we analyzed only those items related to the Research Questions and which were focused on the use of ICT, frequency and location. As you can see in Appendix A those questions are in Italics (and with * sign in front of them). The survey is composed of 61 items to measure students' usage of ICT, frequency, locations, and opinions towards globalization.

Procedures

The Global Citizenship Survey (Lima, 2006) was administered to the students in a paper and pencil format during a class period. Students completed the survey anonymously in their native language (Ukrainian). Once completed, the surveys were collected and delivered to a member of the research team. There was no way to link student responses to specific students, thereby protecting the students' identities.

Results

Frequency analysis and Pearson's chi-square test was carried out to evaluate the data in order to address the research questions.

RQ1: Use of ICT at school designed to measure students' use of a computer and the Internet per week

Frequency analysis indicates that 53.3% of students use a computer at school at least once per week; 38.5% responded that they never use computer at school (see Table 2). It is important to note that only six students (4.9%) reported that they use computer at

school every day. Among them only three students use the Internet at school everyday.

Most of students never use the Internet at school (82%) and only 13.9% of students

reported that they use the Internet at school once per week.

	Use of computer		Use of the Internet	
—	N	Percent	N	Percent
Every Day	6	4.90%	3	2.50%
At least Three				
Days	4	3.30%	2	1.60%
At least One Day	65	53.30%	17	13.90%
Never	47	38.50%	100	82.00%
Total	122	100.00%	122	100.00%

 Table 2a

 Frequency of Computer and the Internet Use at School (per week)

A chi-square analysis was conducted on computer use and age group. Significant differences were identified in use of computer at school ($\chi^2 = 20.419$; p=.001) indicating a differential use of computer pattern by the two age groups. Younger students use the computer less frequently than older students.

Table 2bFrequency of Computer Use by Age Group

		<u> </u>			
		Three Days	One Day		m 1
	Every Day	per Week	per Week	Never	Total
Age 1 (younger)	5	2	20	34	61
Age 2 (older)	1	2	43	13	59
Total	6	4	63	47	120

RQ2: Ease of access of ICT at home designed to determine whether

students have a computer and the Internet access

Most of Ukrainian students have a computer at home (84.4%) and 60.2% of them have also the Internet access at home. Overall, 50.8% of all responded students have the Internet at home. Table 3 presents the frequency and percent on availability of a

computer at home categorized by gender. There is a significant statistical difference in availability of computers of males and females ($\chi^2 = 3.934$; p=.047). Overall, more boys have a computer at home than girls.

Table 3Availability of Computer at Home (N=122)

	Male		Female		
Respond	Ν	Percent	Ν	Percent	
Yes	58	90.60%	45	77.60%	
No	6	9.40%	13	22.40%	
Total	64	100.00%	58	100.00%	

Table 4 presents summary of the data on ease of the Internet access at home by Ukrainian high school students categorized by gender. There is a significant gender inequality in terms of access to the Internet at home (χ^2 =5.514; p=.019). Specifically, boys tend to have access more often (60.90%) than girls do (34.70%). More than half of girls in a sample do not have the Internet access at home (60.30%). Overall, half of all students (50.82%) have the Internet access at their homes.

Table 4Ease of Access to the Internet at Home (N=122)

	Male		Female		
Respond	Ν	Percent	Ν	Percent	
Yes	39	60.90%	23	34.70%	
No	25	39.10%	35	60.30%	
Total	64	100.00%	58	100.00%	

RQ3: Frequency of ICT use out of school design to measure students' use of a computer and the Internet per week.

The majority of students (60.7%) use computer out of school every day and 39.3% of all students use the Internet every day. That means that students who do not use the Internet at school, use it out of school. Only 14.8% of students responded that they

never use computer out of school and 21.3% never use the Internet out of school. Table 5 presents the summary of responses to these two items.

	Use of computer		Use of the Internet	
	Ν	Percent	Ν	Percent
Every Day	74	60.70%	48	39.30%
At least Three				
Days	20	16.40%	25	20.50%
At least One Day	10	8.20%	22	18.00%
Never	18	14.80%	27	22.10%
Total	122	101.00%**	122	99.90%**

 Table 5

 Frequency of Computer and the Internet Use out of School (per week)

** Note the totals vary from 100% due to rounding issues.

RQ4: Use of the Internet designed to identify places where students use

the Internet the most.

When asked where Ukrainian students use the Internet the most, 46.7% reported using it at home, 17.2% reported using it at the Internet Cafes, and 15.6% reported using the Internet at friend's house. Additionally, 20.5% reported using the Internet at other places, such as at school, library, work, etc. Table 6 presents frequencies and percent on the location of the Internet use.

Percent Ν At Home 57 46.70% 5.70% At School 7 At Internet Cafés 21 17.20% At the Library 0.80% 1 At Friend's House 19 15.60% Other 3 2.50% Do not Use 6.60% 8 Missing 6 4.90% 122 100.00% Total

Table 6	
Location of the Internet Use	

Discussion

Focusing on the social dimension of globalization, it is essential to provide new ways to empower individuals and societies seeking their development, not their exclusion from the dominant systems. In the globalized world we live, the emergence of ICT brings opportunities for people to be informed, engaged, and able to communicate and operate within an interconnected world. However, new skills have to be mastered by the individuals for their empowerment and inclusion in a society where access and use of information are the most valuable assets. Therefore, socially valued ICT usage becomes a crucial means in providing equity of opportunities leading to social justice and to prepare fully equipped and participative global citizens.

The results presented in this study clearly indicates that the majority of the Ukrainian students surveyed have access to computers, whether in school, in their home, or publically accessible at internet cafes, etc.. These results demonstrate that Ukrainian students have access to computers and the Internet, and they appear to use these ICTs often.

Banks (2004) argues that citizenship education needs to be transformed due to the increasing racial, ethnic, cultural, language and religious diversity in nation-states throughout the world. According to Carnoy (1999) educational systems in developing countries are under pressure to produce more educated labor force which can attract foreign investment, and therefore they are playing an important role in the global economy.

The way globalization is present in our lives today, bring an array of opportunities for development, and request individuals to acquire new knowledge and

skills in order to become active citizens, included in their societies and in the world. Based on this study, Ukrainian students demonstrated that they are using ICT to be informed about what is happening in the world. Therefore, they appear to becoming ready to face the challenges offered by the globalized world, possessing the appropriate knowledge and skills to be global citizens.

The next phase of this research is to examine how these students use ICTs and what knowledge, attitudes and behaviors they have developed, and need to further refine, as they become global citizens.

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Appendix A

Global Citizenship Survey

Part I - Demographic Data

- 1. School: # _____
- *2. Gender:
- o Male
- o Female

*3. Age in years (circle): 12 / 13 / 14 / 15 / 16 / 17 / 18

4. What languages do you speak? (check all that apply)

- o Ukrainian
- o Russian
- \circ English
- o ther (please, specify) ______

5. Would you like to learn another language?

- o Yes
- o No

6. If yes, why would you like to learn a foreign language? (Select **ONE ITEM** you think is the most important):

- o to use when I travel abroad
- \circ to have a better job
- to be able to understand people from other cultures better
- \circ to be able to communicate with people from other cultures better
- o for personal satisfaction

7. I am in _____ grade (circle): 6 / 7 / 8 / 9 / 10 / 11 / 12

- 8. Do you intend to go to college?
- o Yes
- o No

*9. How often do you use a computer AT SCHOOL per week? (Select ONE ITEM)

- o Every day
- o At least three days
- At least one day
- o Never

*10. How often do you use the Internet AT SCHOOL per week? (Select ONE ITEM)

• Every day

- At least three days
- At least one day
- o Never

11. What do you use the computer AT SCHOOL for? (Check all that apply)

- doing research for classes
- doing homework
- o playing games online or downloading games
- using e-mail
- o chatting with friends on Instant Messenger, ICQ, MSN, Yahoo!-Messenger, etc.
- listening to music
- communicating with people from other countries
- o browsing entertainment websites (e.g. movies, tv shows, sports, music groups)
- taking an online course
- accessing social network communities (e.g. vkontakte.ru, odnoklassniki.ru. facebook.com)
- using search engines (e.g. Google, yahoo, yandex, rambler)
- designing/developing web pages
- working with digital images or graphs
- buying things online (e.g. books, clothing, music)
- going to a chat room
- o getting news or information about current events
- \circ going to websites where I can write my opinion about things
- nothing from above
- o ther (please, specify) ______

*12. Do you have a computer AT HOME?

- o Yes
- o No

*13. Do you have Internet access AT HOME?

- o Yes
- o No

*14. Where do you access the Internet THE MOST? (Select **ONE ITEM**)

- At home
- At school
- At Internet cafés
- At the library
- At a friend's house
- Other (please, specify)

*15. How often do you use a computer OUT OF SCHOOL per week? (Select **ONE ITEM**)

• Every day

- o At least three days
- At least one day
- o Never

*16. How often do you use the Internet OUT OF SCHOOL per week? (Select **ONE ITEM**)

- Every day
- At least three days
- At least one day
- o Never

17. What do you use the computer OUT OF SCHOOL for? (Check all that apply)

- doing research for classes
- doing homework
- o playing games online or downloading games
- using e-mail
- o chatting with friends on Instant Messenger, ICQ, MSN, Yahoo!-Messenger, etc.
- listening to music
- o communicating with people from other countries
- o browsing entertainment websites (e.g. movies, tv shows, sports, music groups)
- taking an online course
- accessing social network communities (e.g. vkontakte.ru, odnoklassniki.ru. facebook.com)
- using search engines (e.g. Google, yahoo, yandex, rambler)
- designing/developing web pages
- working with digital images or graphs
- buying things online (e.g. books, clothing, music)
- o going to a chat room
- o getting news or information about current events
- \circ going to websites where I can write my opinion about things
- nothing from above
- o other (please, specify)

18. What resource do you use the MOST to be informed about what is currently happening in the world? (Select **ONE ITEM**)

- Read the news in newspapers
- Read the news in magazines
- Read the news in the Internet
- \circ Watch the news on the TV
- Listen to the news on the radio
- Nothing from above
- Other (please, specify)

19. What resource you use the MOST to do your coursework? (Select **ONE ITEM**)

- Books used for classes
- Other books or encyclopedias

- o Newspapers
- Magazines
- The Internet
- Television
- o Radio

20. Which of these kinds of websites do you visit? (check <u>all</u> that apply)

- Ukrainian sites in Ukrainian
- Russian sites in Russian
- \circ sites from other countries in Ukrainian
- sites from other countries in Russian
- sites from other countries in other languages (please, specify) _____

21. Who helps you more when using the Internet? (Select **ONE ITEM**)

- \circ teacher
- o parents
- \circ siblings
- o friends
- o no one

22. Choose the answer that BEST describes how often you communicate with people from other countries through the Internet: (Select **ONE ITEM**)

- I always communicate with people from other countries through the Internet
- I very often communicate with people from other countries through the Internet
- \circ I sometimes communicate with people from other countries through the Internet
- I rarely communicate with people from other countries through the Internet
- I never communicate with people from other countries through the Internet

Part II - Knowledge

23. Please choose your level of agreement with the following statements:

Scale: (Strongly Disagree, Disagree, Either Disagree or Agree, Agree, Strongly Agree)

I know how to find the information I need on the Internet.

I am aware of what is currently happening around the world.

I know what my roles and rights are as a citizen.

I am aware of political issues in the world (including my country).

I know how to critically analyze information found on the Internet.

I know what democracy means.

I know about different cultures' customs.

I am aware of economic issues in the world (including my country).

I know how to synthesize information from various websites.

Part III - Attitudes

24. Please choose your level of agreement with the following statements: Scale: (Strongly Disagree, Disagree, Either Disagree or Agree, Agree, Strongly Agree)

Globalization generates conflicts around the world. It is important that everybody have access to the Internet. Speaking a foreign language will help me get a better job. Knowing how to use technology makes me feel more included in society. It is important to communicate with people from different cultures. Globalization causes extreme poverty and hunger in the world. I am committed to justice and equality for all. I will have a better job if I know how to properly use technology. It is necessary to be concerned with those in need. I believe that prejudice against races should be eliminated. Globalization increases the differences between rich and poor countries. People should be concerned about protecting the environment. It is important to participate in political activities.

Part IV - Behaviors

25. Please choose how often you do the following statements: Scale: (Never, Rarely, Seldom, Occasionally, Frequently)

I use the Internet to communicate with friends. I read the newspaper to be informed about current issues in the world. I support social projects. I do research on the Internet for homework. I read about international politics. I volunteer time to work for others' benefit. I participate in recycling programs. I have helped people in need. I read about international economics. I regularly communicate with people from different cultures. I get current information about the world on the Internet.

Part V - Self-Efficacy

26. Please choose your level of agreement with the following statements: Scale: (Strongly Disagree, Disagree, Either Disagree or Agree, Agree, Strongly Agree)

I believe I can help people solve problems. I can easily find the information I need in the Internet. I believe I can make a difference in my community. I am able to use technology effectively. I believe I can make a difference in the world. I believe I am a global citizen.

Part VI –Global Citizenship

27. What knowledge and skills do you think are important for you to have in order to be a global citizen?

28. Which of these knowledge and skills do you think you already have?

29. Which knowledge and skills would you like to have? Why?

30. What can you do in order to acquire these knowledge and skills?