

Promoting global citizenship through ICT: Ukrainian high school students*

Mariya A. Yukhymenko, Scott W. Brown

(Department of Educational Psychology, University of Connecticut, Connecticut 06268, USA)

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 shaping global citizens. The objective of this study was to investigate the use of ICT by high school students (n=122) from a developing country, like Ukraine. The *Global Citizenship Survey* was used and modified for the purpose of this study (Lima, 2006). Initial analyses indicated that the majority of the students use computers 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, the majority of students from Ukraine have computers 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.

Key words: ICT; citizenship; globalization

1. Introduction

As stated in Lima and Brown's (2007) work on global citizenship:

The world we live in 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 a result of the empowerment of individuals who understand the "flat world". These individuals adapt themselves quickly to its processes and technologies and they are able to act, collaborate and compete globally. Friedman further states that individuals' empowerment is provided by the role of ICTs, such as telephones, 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 created divides result in "social exclusion", which is, as defined by Castells (2003), "the process by which certain individuals and groups are systematically barred from access to positions that would enable them to an

* The authors acknowledge Clarisse Lima, who provided the basis for much of this research—including the instrument and previous data.

Mariya A. Yukhymenko, M.A., Department of Educational Psychology, University of Connecticut; research field: educational psychology.

Scott W. Brown, Ph.D., professor, Department of Educational Psychology, University of Connecticut; research field: educational psychology.

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 all 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, p. 40) as “the gap between individuals (and societies) that have the resources to participate in the information era and those that do not”. It is 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 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 Ukraine, about global citizenship, as well as if they possess adequate knowledge and skills that would propel them to become global citizens.

1.1 ICT for development

The globalized world is organized around networks of computers at the heart of information systems and communication processes. Human activity depends on the power of ICT innovations, which are accelerating at a rapid pace daily (Castells, 1999). This approach places the communities’ core assets and capabilities center stage for the analysis of the role of the improved flow of ICT as a catalyst in expanding the capabilities of the poor, promoting social justice and inclusion. However, as Murelli (2002) states, lack of access and poor knowledge with new ICT is one of the serious problems that needs to be addressed to prevent the creation of new social gaps among people and to avoid the fragmentation of societies by the emergence of new technologies highlighting the inequalities brought by ICT access and use, which then leads to under-development and further social exclusion.

Gigler (2004) investigated the key factors needed to enable the poor to have “real and meaningful” access to ICT and to allow enable them to acquire these new technologies as a tool for their development and social empowerment. Gigler states that “similarly 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 into the technological system of the information age” (p. 3).

As stated by Lima (2006), “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” (p.49).

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 critical to examine how technology is being applied for those who have access in order to apply successful experiences to promote future successful-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 regard 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 (Lima, 2006, p. 5).

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.

1.2 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, skills and commitment needed to change the world to make it more just and democratic” (p. 298). Noddings (2005) states that good global citizens must be concerned about the existing social injustice stimulated by 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 diversity in nations globally. Noddings (2005) suggests that good global citizens should be concerned about diversity, which includes a desirable mix of people representing racial, ethnic, and religious differences.

Consistent with definitions of a global citizen, the UNDP report 1999 (Held & McGrew, 2003) posits that global markets, global technology, global ideas and global solidarity can enrich the life of people everywhere, greatly expanding their choices. According to the 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.

1.3 ICT use

As discussed earlier, it is imperative to study how ICT is being used, what kind of practices and access people are experiencing, what they use it for, and how it serves as a tool for the development of individuals and, more broadly, countries. Murelli (2002) assumes that “unfamiliarity with the new information and communication technologies is one of the serious problems that have to be solved in order to create no further social differences among people and to avoid the fragmentation of society by new technologies” (pp. 5-6). According to Gigler (2004), “Similarly 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) states that effective use of ICT improves many aspects of a society-education, government and health care being a key factor for social inclusion, rather than simply providing an infrastructure 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” (Lima, 2006, p. 19). 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.

1.4 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’s study (2006) in which she examined Brazilian and American students using the *Global Citizenship Survey*. For the purpose of this study, The *Global Citizenship Survey* (Lima, 2006), was modified and used 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:

- (1) RQ1: Use of ICT “at school” designed to measure students’ use of a computer and the Internet per week;
- (2) RQ2: Ease of access of ICT “at home” designed to determine whether students have a computer and the Internet access;
- (3) RQ3: Frequency of ICT use “out of school” design to measure students’ use of a computer and the Internet per week;
- (4) RQ4: Use of the Internet designed to identify “places” where students use the Internet the most.

2. Methodology

2.1 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 of Chernihiv which is an urban center in the northeastern part of Ukraine. Chernihiv has a population of approximately 300,000.

A total of 122 high school students completed the *Global Citizenship Survey* (modified); 64 boys (52.5%) and 58 girls (47.5%). The mean age of the participants was 15.6 years (SD=0.93; range 13-18). For the purpose of analysis, two age groups were created, younger and older students (Table 1). The mean age of the younger group was 14.8 years (n=61; SD=0.47; range 13-15) and the mean age of the older group was 16.36 years (n=59; SD=0.55; range 16-18). Table 1 presents the demographics of participants.

Table 1 Participant demographics (n=122)

		N	Percent (%)	
Gender	Male	64	52.50	
	Female	58	47.50	
Age groups	13-15	Male	28	45.90
		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		

2.2 Instruments

The instruments for this study were based on the Lima’s (2006), and Lima and Brown’s (2007) studies of global citizenship and ICT use. The *Global Citizenship Survey* (Lima, 2006) was modified for use with the Ukrainian students. As stated by Lima and Brown (2007, p. 145), 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 a subset of the responses to the total instrument. Specifically, we analyzed only those items related to the four research questions (RQ’s) which were focused on the use of ICT, frequency and location. As you can see in Appendix A (The *Global Citizenship Survey*—modified for the Ukraine) those questions are in italics (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.

2.3 Procedures

A modified version of the *Global Citizenship Survey* (Lima, 2006) was administered to the students in a paper and pencil format during a school class period. Students completed the survey anonymously and 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.

3. Results

Frequency distributions and chi-square tests were carried out to analyze the data in order to address each of the four research questions.

Addressing RQ1, regarding the frequency of ICT use at school, frequency analysis indicated that the majority (53.3%) of Ukrainian students use computer at school at least once per week. But, 38.5% responded that they never use computer at school. Tables 2a and 2b present the frequency distributions of computer and Internet use at school.

It is important to note that only six students (4.9%) reported that they use a computer at school every day and among them only three students use the Internet at school everyday. Most students never use the Internet at school (82%) and only 13.9% students reported that they use the Internet at school once per week.

Table 2a Frequency of computer and the Internet use at school (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

A chi-square analysis was conducted on a computer use and age group resulting in significant differences in use of a computer at school ($\chi^2=20.419$; $p=0.001$) indicating younger students use a computer at school less frequently than older students.

Table 2b Frequency of computer use by age group

	Every day	Three days per week	One day 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

Addressing RQ2, focusing on home access and use, we found that 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 the students have access to 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 for males and females ($\chi^2=3.934$; $p=0.047$). Overall, boys had significantly greater access to a computer at home than girls.

Table 3 Availability of computer at home (N=122)

Respond	Male		Female	
	N	Percent (%)	N	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 a 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 ($\chi^2=5.514$; $p=0.019$). 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%). However, half of all students (50.82%) have the Internet access at their homes.

Table 4 Ease of access to the Internet at home (N=122)

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

With regard to RQ3, focusing on the weekly use of computers and the Internet, the majority of students (60.7%) use a computer outside 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 appear to use it outside of school. Only 14.8% of students responded that they never use a computer outside of school and 21.3% never use the Internet outside of school. Table 5 presents the summary of responses to these two items.

Focusing on where students use the Internet most (RQ4), 46.7% of the students reported using it at home, 17.2% reported using it at 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 5 and 6 presents frequencies and percent on the location of the Internet use separately.

Table 5 Frequency of computer and the Internet use out of school (per week)

	Use of computer		Use of the Internet	
	N	Percent (%)	N	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**

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

Table 6 Location of the Internet use

	N	Percent (%)
At home	57	46.70
At Internet cafés	21	17.20
At friend's house	19	15.60
Do not use	8	6.60
At school	7	5.70
Missing	6	4.90
Other	3	2.50
At the library	1	0.80
Total	122	100.00

4. Discussion

Focusing on the social dimension of globalization, it is essential to provide new ways to empower individuals and societies to seek their development, not their exclusion from the dominant systems. In the globalized world in which 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 for providing equity of opportunities leading to social justice and preparing fully equipped and participative global citizens and new leaders.

The results presented in this study clearly indicate that the majority of the Ukrainian students surveyed have access to computers, whether in school, in their home, or in publically accessible locations, such as Internet cafes, etc. The data from the survey 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 must be transformed because of the increasing diversity—racial, ethnic, cultural, language and religious—and globalization. According to Carnoy (1999), educational systems in developing countries are motivated to produce a highly educated labor force which can attract economic development. Therefore, educational systems must play pivotal role in the global economy.

The way of globalization presents in our lives today provides an array of opportunities for development, and requires individuals to acquire new knowledge and skills in order to become active citizens, included in their local societies and across the globe. Based on this study, Ukrainian students have demonstrated that they are using ICT

to be informed of what is happening in the world and participating both locally and globally. Therefore, Ukrainian students appear to be emerging and ready to face the challenges offered by the globalized world, possessing the appropriate ICT knowledge, attitudes and skills to be successful global citizens.

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

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(Edited by Max and Maggie)

Appendix:

Global Citizenship Survey—Modified (Lima, 2006)

Part I—Demographic data

1. School: # _____
- 2*. Gender:
 - Male
 - Female
- 3*. Age in years (circle): 12 / 13 / 14 / 15 / 16 / 17 / 18
4. What languages do you speak? (check all that apply)
 - Ukrainian
 - Russian
 - English
 - other (please, specify) _____
5. Would you like to learn another language?
 - Yes
 - No
6. If yes, why would you like to learn a foreign language? (Select ONE ITEM you think is the most important):
 - to use when I travel abroad
 - to have a better job
 - to be able to understand people from other cultures better
 - to be able to communicate with people from other cultures better
 - for personal satisfaction
7. I am in _____ grade (circle): 6 / 7 / 8 / 9 / 10 / 11 / 12
8. Do you intend to go to college?
 - Yes
 - No
- 9*. How often do you use a computer AT SCHOOL per week? (Select ONE ITEM)
 - Every day
 - At least three days
 - At least one day
 - 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
 - Never
11. What do you use the computer AT SCHOOL for? (Check all that apply)
 - doing research for classes
 - doing homework
 - playing games online or downloading games
 - using e-mail
 - chatting with friends on Instant Messenger, ICQ, MSN, Yahoo!-Messenger, etc.
 - listening to music
 - communicating with people from other countries
 - 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

- getting news or information about current events
 - going to websites where I can write my opinion about things
 - nothing from above
 - other (please, specify) _____
- 12*. Do you have a computer AT HOME?
- Yes
 - No
- 13*. Do you have Internet access AT HOME?
- Yes
 - 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
 - At least three days
 - At least one day
 - 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
 - Never
17. What do you use the computer OUT OF SCHOOL for? (Check all that apply)
- doing research for classes
 - doing homework
 - playing games online or downloading games
 - using e-mail
 - chatting with friends on Instant Messenger, ICQ, MSN, Yahoo!-Messenger, etc.
 - listening to music
 - communicating with people from other countries
 - 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
 - getting news or information about current events
 - going to websites where I can write my opinion about things
 - nothing from above
 - 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

- 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
 - Newspapers
 - Magazines
 - The Internet
 - Television
 - Radio
20. Which of these kinds of websites do you visit? (check all that apply)
- Ukrainian sites in Ukrainian
 - Russian sites in Russian
 - 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)
- teacher
 - parents
 - siblings
 - friends
 - 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
 - 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?