ATTITUDES TOWARD, AND AWARENESS OF, ONLINE PRIVACY AND SECURITY:
A QUANTITATIVE COMPARISON OF EAST AFRICA AND U.S.
INTERNET USERS

by

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A THESIS

Submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

Department of Computing and Information Sciences
College of Engineering

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2015

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2015

Abstract

The increase in penetration of Internet technology throughout the world is bringing an increasing volume of user information online, and developing countries such as those of East Africa are included as contributors and consumers of this voluminous information. While we have seen concerns from other parts of the world regarding user privacy and security, very little is known of East African Internet users' concern with their online information exposure. The aim of this study is to compare Internet user awareness and concerns regarding online privacy and security between East Africa (EA) and the United States (U.S.) and to determine any common attitudes and differences. The study followed a quantitative research approach, with the EA population sampled from the Open University of Tanzania; an open and distance-learning university in East Africa, and the U.S. population sampled from Kansas State University; a public university in the U.S. Online questionnaires were used as survey instruments. The results show no significant difference in awareness of online privacy between Internet users from East Africa and the U.S. There is however, significant difference in concerns about online privacy, which differ with the type of information shared. Moreover, the results have shown that the U.S. Internet users are more aware of online privacy concerns, and more likely to have taken measure to protect their online privacy and conceal their online presence, than the East African Internet users. This study has also shown that East Africans Internet users are more likely to be victims of online identity theft, security issues and reputation damage.

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List of Abbreviations

U.S.   –   United States

USA   –   United States of America

EA   –   East Africa

ITU   –   International Telecommunication Union

TOR   –   The Onion Ring

VPN   –   Virtual Private Network

Acknowledgements

Dedication

To my husband, *Mkuzi Ismail Mohamed* whose love and support made it possible for me to complete this work. To my two children, *Abraham Lee Mkuzi*, and *Aida Kulthum Mkuzi,* my most important treasure in this life.

To my mother, *Kulthum Mohamed*, who sacrificed a lot to make sure I succeed in life: thank you for being there for me when I needed you the most, Mama.

Chapter 1 - Introduction

This chapter gives an overview of the topic of this thesis. The first section will give a brief introduction to the thesis, the background of the problem addressed in this work, followed by statement of the problem, objectives, research questions, significance of the study, limitations and the scope of the study.

Background of the problem

The Internet has shaped the way information is stored, shared and distributed around the world. Personal data is among the main driver of today's Internet world specially the social network sites. Social network sites such as *Facebook*, *Twitter*, *LinkedIn*, blogs and picture sharing sites like *Instagram and Flickr* are driven by user-supplied information. Social networking sites in particular are treasure troves of personal information, often unprotected and publically available [1,2]. As the amount of online user information increases, privacy has become an issue of concern. User information is sometimes used in decision-making [3]: for instance, employers can conduct background checks [4,1] on potential employees from social network sites and use that information to make hiring decisions. Together with people sharing their own information, websites do track users' browsing behaviors [5,6], from browser cookies sometimes without website users' knowledge or consent [7]. Information obtained from tracking user behavior online is used to profile users [6] and provide targeted advertisements from marketing and advertising companies [3].

A lot of research on online privacy and security has been conducted in countries such as the USA [5,8,9], India [10], Ghana [11] and regions like Europe [12] Middle East, and North

Africa [13]. These studies have been done to investigate people's awareness of privacy and the measures they take to protect their online privacy and security. Very little is known, however, about user perception of privacy in developing countries, especially in sub-Saharan Africa. In this thesis I compare awareness and concerns about privacy and security of online users from developing countries such as the East African region to those of developed countries such as USA.

Problem Statement

The penetration of Internet throughout the world is bringing an increasing volume of user information online; developing countries such as those of East Africa are included as contributors and consumers of this voluminous information. Concerns have been shown from different parts of the world [3,5,8,9,11,12,13] regarding Internet user privacy and security. For East African region, very little is know regarding how are Internet users concerned with their online privacy and security. This thesis aims to compare Internet user awareness and concerns about online privacy and security between users from East Africa and the USA, and to determine any common attitudes and differences between these user groups.

Objectives

The objectives of this study are to:

1. Explore user awareness of online privacy and security.
2. Examine the nature of East African Internet users' online privacy concerns in comparison to users from USA.
3. Explore what measures East Africa Internet users take to protect their privacy in comparison to their counterparts in the USA.
4. Explore security issues that East African Internet users face as a result of their online activities in comparison to the US Internet users.

Research Questions

1. What percentage of East African Internet users is aware of online privacy and security?

2. Are American Internet users more aware about online privacy than the East African Internet users?

3. What are the differences in awareness towards online privacy between East Africans and U.S. Internet users?

4. How are East African Internet users addressing privacy issues when using the Internet?

5. Are American Internet users more concerned about their online privacy than the East African Internet users?

6. What are the differences in concerns towards online privacy between East Africans and U.S. Internet users?

7. What are the differences in measures taken to address and protect online privacy between East African and U.S. online users?

8. What are the security issues that East African Internet users are more likely to be victim of due to their online activities compared to the US Internet users?

Significance of the Study

As online privacy has become an issue of concern around the world, findings from this study would be beneficial to the policy makers in the East African region. Findings could also result into awareness projects in developing countries that sensitize people by creating awareness and understanding about online privacy risks and their impacts in Internet users' offline lives. To the future researcher, this study provides relevant information on user perception of privacy and security in East Africa.

Limitation and Scope of the Study

Due to limitations of time and a lack of budget, it was not be possible to collect data from the entirely of the East Africa and the USA. Hence, the area served by the Open University of Tanzania, a distance learning university providing higher education to the region of East Africa will be used as the key representative research area for East African region. The Open University of Tanzania[1] has enrolled students who are from Tanzania, Malawi, Uganda, Kenya, Namibia, Hungary, Burundi, Libya, Ethiopia, Rwanda, Saud Arabia, Lesotho, and Botswana. And, the area served by Kansas State University[2] a United States-based public university with its main campus in Manhattan, Kansas, in the U.S. will be used as the key representative research area for the USA. In keeping with the scope of this study, only students and staff who are affiliated with the Open University of Tanzania will be the population representatives of the East Africa and those affiliated with Kansas State University will be the population representatives of the U.S.

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[1] www.out.ac.tz

[2] www.k-state.edu

Thesis Overview

This chapter has given an introduction to this thesis, background of the problem,

statement of the problem, significance of the study and objectives and limitation and scope of the

study. Background material concerning the study and related work follows in Chapter 2,

followed by a detailed description of the methodology used for this study in Chapter 3. The

statistical analysis of the study is then presented in Chapter 4, and the thesis concludes with a

discussion of the findings and ramifications in Chapter 5.

Chapter 2 - Background and Related Work

This chapter discusses related work, lays the groundwork for the study, and motivates it by reviewing reasons for studying user privacy concerns in East Africa.

Internet Penetration in the East African Region

The East African region referred in this report is made up of the countries from the East African Community (EAC), the regional intergovernmental organization of the Republics of Burundi, Kenya, Rwanda, the United Republic of Tanzania, and the Republic of Uganda. The region spans an area of 1.82 million square kilometers, including water. It has a total population of 143.5 million people, with a total Gross Domestic Product (GDP) of $110.3 billion (2014) [14].

Before the 2009 fiber optic undersea cable connection between the coast of East Africa and the rest of the world, Internet connectivity and usage in East African region was lagging behind[3] than of most other countries, with very slow and costly Internet service. Since the introduction of fiber optic undersea cables (Appendix A-) [15], Internet access and use in East Africa have increased tremendously. According to International Telecommunication Union (ITU) [16] the prevalence of Internet users in East African by 2010 was between 10 to 25 users per 100 inhabitants, varying across Tanzania (11), Uganda (12.5) and Kenya (20.98). The increase in Internet usage has put the East African countries in the top ten African Internet countries (Figure 2.1) with Kenya and Tanzania having 21.3 and 7.9 million Internet users, respectively [17].

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[3] http://phys.org/news/2014-11-broadband-east-africa-21st-century.html

Although we do see significant increase in Internet usage, the Internet penetration rate for East African countries as of 2014, Kenya (47.3%), Uganda (18.2%), Tanzania (15.3%), Rwanda (9.0%) and Burundi (3.9%) remains very low in comparison to USA which as of March 2014 had Internet penetration of 87.7% of the population [17].

Figure 2.1: Africa Top 10 countries by Internet usage 2014 [17]

Africa Top 10 Internet Countries
2014 Q2

Country	Millions of Users
Nigeria	70.3
Egypt	46.2
South Africa	24.9
Kenya	21.3
Morocco	20.2
Madagascar	17.3
Malawi	12.2
Mali	11.9
Sudan	9.3
Tanzania	7.6
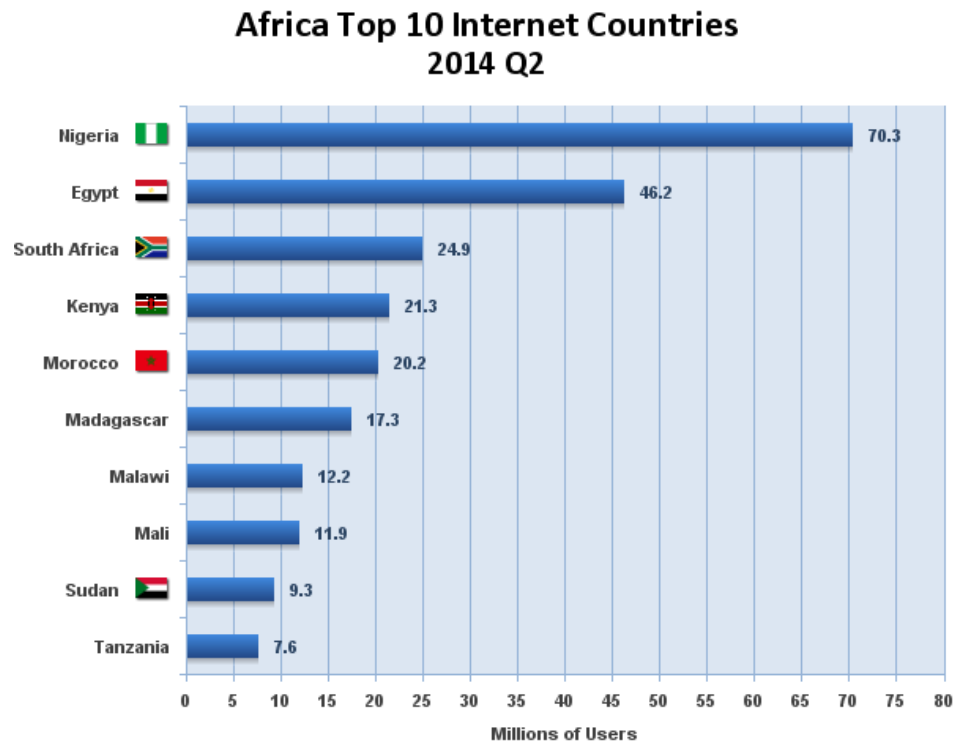
Source: Internet World Stats - www.internetworldstats.com/stats1.htm
297,885,898 Internet Users in Africa estimated for June 30, 2014
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The growing adoption of smartphones in East Africa has significantly increased Internet access within the local populations. A research study conducted by Ericsson Consumer lab [18] showed that approximately 70% of Internet users in sub-Saharan Africa access the Internet through their mobile phones compared to 2% who use computers.

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Access to social network sites such as blogs, *YouTube*, *Twitter*, *Instagram*, *LinkedIn*, and *Facebook* has also increased significantly. Almost one-third of the Internet users in Africa are also Facebook users, according to the Internet Word statistics [17]. This increase in Internet penetration and usage also increases concerns about online privacy. In developed countries such as USA, many studies that have been conducted to assess Internet users concerns about privacy, but little is known for the East African countries.

Many Internet users express demand for legislation that protects their privacy online [19,20,35]. Currently East African countries have no comprehensive laws for online privacy and data protection. However, there are data protection bills in place that are adopted from European data protection laws. [21] Kenya paved the way for East African countries with its Data Protection Bill of 2012, followed by the Tanzania Data Protection and Privacy Bill of 2014 and the Uganda Data Protection and Privacy Bill of 2014. Other East African countries such as Rwanda and Burundi have yet to introduce specific data protection and privacy bills. All these proposed data protection and privacy bills have their weaknesses. There have been a lot of ongoing discussions in respective countries criticizing the bills as being weak and inadequate in protecting individual data and privacy [22,23]. An evaluation done by Boshe [24] on the Tanzanian Data Protection and Privacy Bill of 2014 suggests that personal data are left vulnerable, rather than being protected.

The following section will talk about previous studies done around the world concerning privacy and security.

Related Work on Privacy and Security

A review of literature shows that there are numerous empirical studies that have been conducted to study online privacy and security concerns [5,6,8,9,10,25,26]. The subject matter of these studies includes Internet security perceptions [11], general Internet user privacy concerns [8,9,10], specific privacy awareness and concerns of smartphone users [12,26,27], awareness of online behavior tracking [3,5,6], and social network privacy concerns [4,5].

An early study on general online privacy awareness and concerns was done by AT&T in 1998 [9] with the aim of understanding how American user are concerned with their online privacy. The sample was drawn from the *FamilyPC* magazine/Digital Research, Inc. Family Panel to represent the future Internet population of the USA. The finding indicated that 52% of Internet users were concerned about web cookies, and among those concerned, 56% had taken measures to change their cookie settings to something other than accepting all cookies without warning [9].

A more recent study on user concerns on Anonymity, Privacy, and Security Online was done by the Pew Research Center in 2013 [8]. This study was directed to American Internet users and data was collected from telephone interviews among a sample of 1,002 adults. The study shows a growing level of privacy concern for Internet users: in practice, "*86% of Internet users have taken steps online to remove or mask their digital footprints – ranging from clearing cookies to encrypting their e-mail, from avoiding using their name to using virtual networks that mask their Internet protocol (IP) address* [8].*"

A similar comparison study to ours was conducted in 2005 between India and U.S. by Kumaraguru et al. [10]. A major distinction between Kumaraguru et al.'s study and the study of this thesis is that they did not do a direct comparison between their sample from India and a more

recent study from the U.S. Kumaraguru et al. compared data they collected in 2005 from India with data from a 1998 AT&T study of American Internet users [9]. The study's aim was to understand the attitudes of users in regard to online privacy, and to assess their level of awareness on privacy-related issues and concerns about privacy [10]. Results did show less concern about and awareness of privacy among Indians than among Americans [10].

Chapter 3 - Research Methodology

The purpose of this study is to compare Internet users' awareness of and concerns about online privacy and security through a direct comparison between user from East Africa and the U.S. and to determine any common attitudes and differences.

This chapter provides a description of the research approach and design rationale, followed by a discussion of the population and sample. In addition, this chapter describes the procedure used in designing the instruments and data collection, and concludes with an explanation of the statistical procedures used in data analysis.

Research Approach and Design Rationale

A quantitative research approach was chosen for this study because it provides a fast and an inexpensive way to collect numerical data to explain phenomena and analyze that data using mathematical methods [28]. I wanted to compare and contrast user awareness and concerns regarding online privacy and security, between developed and developing countries, and to use computer software to provide multivariate analysis. Hence, a quantitative research method was appropriate for the study.

To give an accurate portrayal of a particular individual, a descriptive research method was used. Surveys were administered to a selected sample from a population identified from Kansas State University in the USA and from the Open University of Tanzania in East Africa. Surveys are a research method used to describe a population, to explain behaviors and to explore uncharted waters. Surveys can be defined as a well-written set of questions to which an individual is asked to respond [28] by using different survey instruments such as interviews or paper-based, phone-based, or web-based questionnaires.

In this study I used surveys in form of web-based (also known as online) questionnaires to obtain data from individuals regarding demographics, their familiarity with privacy, and their concerns on online privacy, anonymity and law on privacy and security. I chose online questionnaires in place of other survey methods because they: are less expensive; are easy to administer; and provide a fast way to obtain responses and an easy way to process data. Also, one requirement of the study was that a person must be an Internet user; hence the use of an online questionnaire was appropriate.

For the above reasons, this study used a quantitative research approach and designed online questionnaires as survey instruments to meet the objectives of the study, which is to assess Internet user awareness and concerns of online privacy and security between user from east Africa and the U.S. and to determine any common attitudes and differences.

Population and Sample

The study population consisted of all students and employees of Kansas State University in the USA, and the Open University of Tanzania in East Africa. The population was sampled by e-mail invitations. A total of 134 participants from East Africa sample [4] and 154 from the U.S. sample[5] were willing to participate in the survey. For Kansas State university the eligible population included local distance students. For the Open University for Tanzania information about the country in which respondents are located was collected.

The sampling method used for this study was probability sampling, which ensures that each member of the population has an equal chance to be selected. According to [29], an

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[4] The Open University of Tanzania sample from here on will be referred as East African sample.

[5] The Kansas State University sample from here on will be referred as U.S. sample.

advantage of probability sampling is that researchers can be confident that the sample is representative of that large population from which it was drawn.

The probability sampling method used to obtain our representative sample was simple random sampling - participants are drawn from a population at random and all elements have an equal probability of being chosen as the sample [29]. This study did not use other types of probability sampling method such as stratifies sampling because it is difficulty to construct since a detailed knowledge about the population characteristic is required[6]. The sampling process involves the researcher to follow and verify data for each stratum to be included [29]. This process requires more time than simple random sampling method.

The sample included participants who were randomly selected met the following criteria: each was required to be willing to participate, be from, and located in the USA or East Africa, be between 18 and 65 years old, and be an Internet user. It should be noted that our sample consisted of individuals who tended to be more educated and had more Internet experience than the general population of East Africa, based on the observed demographic.

Instrument Design Procedure

A questionnaire was chosen as the data collection instrument. A *questionnaire* is defined as a set of questions for gathering information from individuals. Questionnaires can be administered by mail, telephone or face-to-face interview in form of paper-based or web-based [28].

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[6] http://psychology.ucdavis.edu/faculty_sites/sommerb/sommerdemo/sampling/types.htm

In our case, I chose web-based/online questionnaires in place of other survey methods to collect data, because they are easy to administer, more flexible in answering questions, skipping questions and in randomizing questions.

The questionnaire (Appendix D -) used in this study addressed four purposes:

1. Explore user awareness of online privacy and security

2. Examine how participants are concerned about their online privacy.

3.Explore what measures users take to protect their privacy.

4. Explore security issues that East African Internet users face as a result of their online activities, in comparison to U.S. Internet users.

The survey instruments in this study were developed as a result of analysis of previous studies and review of literature. The questionnaire questions used were existing and are adapted from surveys developed by Cranor et al. [9] and Pew Research Center [8]. It was important to use existing surveys because the questionnaire from available literatures have usually already been tested and validated [28].

Two questionnaires were used to collect data. One was for participants from the USA and other for participants from East Africa. The questionnaires were in English for both groups, English was used because it is an official language used in all regions. The only differences the two questionnaires were in demographics questions, specifically questions asking about educational level and country.

The questionnaire is grouped into four categories in order to obtain data from individuals on: a) demographics; b) their familiarity with privacy c) what concerns they had regarding online privacy, anonymity and laws concerning privacy and security. The questionnaires included only

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closed-ended questions. This is because I wanted to make it easy for participants to respond within a short time and make it easy to analyze data.

Data Collection Procedure

Participants were invited using an e-mail (Appendix B -) that explained research objectives and asked them to participate in the study during the month of April 2015. E-mail recipients were given a link that took them to the online questionnaire (Appendix D -). Two weeks later a reminder was sent to each recipient of the e-mail. Four weeks later a follow-up and final e-mail was sent to the selected sample.

The online survey was conducted using Google Forms, a free and fast way to create online survey with responses collected in an online spreadsheet. Participants were given the flexibility of skipping questions they thought were burdensome to respond to, or stop filling out the questionnaire at any time without their data being collected. Overall completion of the survey was estimated to take a total of 20 minutes.

Ethical Considerations

Two approval forms were obtained to conduct research with human subjects; one was an approval form from IRB of Kansas State University and another from the Directorate of Research and Postgraduate Studies (DRPS) of the Open University of Tanzania.

Informed consent forms (Appendix C -) of two types were distributed one for the U.S. sample and another for the East African sample. Consents were obtained from users before they started responding to the questionnaires. Participants were informed of their rights to voluntary participate or to stop filling in the questionnaire at anytime without their data being collected. Only when subjects signed "yes" in an online consent form were they taken to the questionnaire.

Anonymity and confidentiality were maintained at all times. No personal information about the participants was collected. Although this study used online questionnaires, neither IP addresses nor precise geographical locations of the participants were collected. The data collected for this study are not linked to the participants in any way.

Data Analysis

Recorded results from respondents were collected in a Google Docs spreadsheet. A Microsoft Excel spreadsheet was used for data cleaning and coding; the final clean data was transferred to SPSS for statistical analysis. The statistical analysis performed included calculation of descriptive statistics and independent sample *t*-tests for comparison of two independent groups (the USA and the East Africa region) and a Pearson product-moment correlation coefficient (*r*) was computed to assess the relationship between two variables. Frequency tables and descriptive statistics were used to display results according to the objectives of the study.

Chapter 4 - Data Analysis

This chapter presents the findings and analysis derived from the collected responses from the online questionnaire. Participants of this study were students, staff and faculty from Kansas State University and the Open University of Tanzania in East Africa.

Participants were asked a series of questions about their familiarity with privacy and about measures they take to protect their privacy online. The questions asked are an amalgam of similar questions asked in a study conducted by Cranor et al. in 1998 [9] and the Pew Research Center in 2014 [8].

The first question on privacy was intended to assess user awareness of online privacy. Participants were asked whether they are familiar with the term "privacy", and whether their personal information, such as their home phone number, e-mail address, photos, video, and political affiliation are available online for others to see.

The second part of the questionnaire covered the objective of examining *how* Internet users are concerned about their online privacy. Specific questions were asked about their concerns regarding the availability of their personal information on the Internet. To get a better picture of how much Internet users cares about their activities online, respondents were asked to rate how much they care about who can access specific type of their online information.

The third part of the questionnaire was designed to help understand what measures Internet users take to protect their online privacy. Questions about familiarity with cookies and their concerns were asked. Also, I wanted to know whether users have taken any other measures to mask their online presence. Measures that users could take, are such as: using Virtual Private

Network (VPN), The Onion Router (Tor), or proxy servers; use of temporary user name and e-mail address; or encrypted communications.

Fourth part of the questionnaire was designed to help explore security issues that Internet users face as a result of their online activities. Problems that Internet users might faces are such as identity theft, reputation damage and security issues.

The fifth and final section consisted of questions aimed at finding out whether people are aware of laws that are available in their respective countries, to protect their online privacy. The following section will give a brief summary of the participants' demographics.

Demographics.

There were a total of 388 respondents for the whole survey, out of which 154 were from the USA, and 134 from the East Africa. A total of 380 responses were usable; respondents with too much missing information were removed from the sample, which resulted into 149 and 131 responses from the United States and East Africa, respectively. East African countries that were surveyed are Kenya (12.2%), Rwanda (7.6%), Tanzania (73.3%) and Uganda (6.9%); there were no participants from Burundi due to their contemporary situation of political unrest, where the government ordered telecom companies to shut down internet services[7,8] in the country.

One hundred and thirty nine participants were female and 140 male. Seventy-seven participants from United States were female, and 72 were male; the East African sample had 62

[7] https://www.eff.org/deeplinks/2015/06/worrying-trend-shutting-internet-access-countries-limited-connectivity

[8] http://www.pcworld.com/article/2917412/appeal-goes-out-to-un-africa-union-over-burundi-social-media-shutdown.html

female participants and 68 males. The age range of the respondents was relatively young; 83.6% of the respondents were between 18 and 30 years old (M =1.62, SD = 1.133). The two samples had different distributions of age: the majority of the respondents (89%) from the U.S. were between 18 and 25 years old, and there were no respondents who were aged between 51-60 years (M = 1.24, SD = 0.811). While the East African sample had 45% of respondents who were between 18 and 25 years of age, 26.7% who were 26 to 30, and 2.3% of the respondents were 51 to 60 (M = 2.05, SD = 1.285).

Since the population consisted of university students, staff and faculty, the sample participants tended to be more educated and have more Internet experience than the general population. It should be noted that the sample of this study is not statistically representative of United States Internet users, nor of East African Internet users. According to a 2013 International Telecommunications Union (ITU) report on the trend of Internet users per hundred people in sub-Saharan Africa [16], countries in East Africa such as Kenya, Uganda and Tanzania are in the group of countries identified by ITU to have an average of between 10-25 users among 100 inhabitants, varying among Tanzania (11), Uganda (12.5) and Kenya (20.98). In this study, since our target was already restricted to regular Internet users, 100% of all the respondents from East Africa and United States reported using the Internet at least occasionally. This is expected for a web-based survey with a sample recruited via email.

Education level of the respondents ranged from high school diploma to doctorate degree holders. For the East African respondents, 49.2% of the sample reported having a bachelor's degree, 16.9% had a high school diploma, 26.2% had a master's degree, and 7.7% had a doctorate degree. While 35.6% of our U.S. respondents held bachelor's degree, 63.1% held high school diploma and 1.3% held master's degrees.

Table 4.1: Gender

Gender	U.S.	East Africa
Female	51.7%	47.7%
Male	48.3%	52.3%
Total	100%	100%

Table 4.2: Education level of respondents U.S. vs. East Africa

Level of Education	U.S.	East Africa
High school diploma	63.1%	16.9%
Bachelor's degree	35.6%	49.2%
Master's degree	1.3%	26.2%
PhD or Doctorate	0.0%	7.7%
Total	100%	100%

Analysis

Online Privacy Awareness

This study asked questions to get to know what percent of Internet users were aware of online privacy. Data analysis of the responses on familiarity with privacy showed that 94.6% of the Internet users from East Africa and 95.3% of the U.S. respondents were aware of term online privacy (East Africa: $M = 1.08$, $SD = 0.344$; U.S.: $M = 1.09$, $SD = 0.402$). An independent sample t-test was conducted to compare the mean awareness on privacy between U.S. and East Africa. There was no significant difference in the awareness of online privacy for U.S. ($M = 1.09$, $SD = 0.402$, $N = 149$) and for East Africa ($M = 1.08$, $SD = 0.344$, $N = 131$); $t (277)=0.23$, p

>.05. These results suggest that East African and United States Internet users are similarly aware of online privacy.

As already explained in previous chapters, the sample participants tended to be more educated than the general population. A Pearson product-moment correlation coefficient was computed to assess the relationship between the level of education and awareness about online privacy. For the East African sample (Table 4.4), there is a negative correlation between education level and awareness of online privacy, r (129) = -0.068, $p>0.05$. Similarly for the U.S. sample (Table 4.3), there is a negative correlation between education level and awareness of online privacy, r (149) = -0.097, p> 0.05. Both results showed p>0.05, implying that there is no statistically significant correlation between level of education and awareness about online privacy.

Table 4.3: Correlations for the U.S. Sample

		Level of Education	Familiarity with privacy	Concerns about online privacy
Level of Education	Pearson Correlation	1	-.097	-.094
	Sig. (2-tailed)		.238	.252
	Sum of Squares and Cross-products	39.195	-2.973	-6.034
	Covariance	.265	-.020	-.041
	N	149	149	149

Table 4.4: Correlations for the East African sample

		Level of Education	Familiarity with privacy	Concerns about online privacy
Level of Education	Pearson Correlation	1	-.068	-.050
	Sig. (2-tailed)		.446	.575
	Sum of Squares and Cross-products	88.123	-2.481	-4.307
	Covariance	.683	-.019	-.034
	N	130	129	127

When survey participants were asked about knowing of the availability of their personal information online for anyone to see, a majority of respondents from the United States (95%) and East Africa (91%) knew of the availability of their photos online, this might be because of the rising rate of use of social media such as Facebook or Instagram, a significant part of whose function and user experience are augmented by uploading of photos.

There was a huge difference in responses regarding availability of videos online between East Africa and U.S. respondents: only 26% of East African respondents had videos online, compared to 69% of the U.S. respondents.

When asked about the availability of their cell phone numbers, 58% of the East Africa respondents reported having their cell phone number available online compared to 44% of the U.S. respondents. Twenty four percent (24%) of the East Africa respondents had home phone numbers online compared to 20% of the U.S. respondents. Thirty four percent (34%) of the East Africa respondents had their home address online; similarly, 34% of the U.S. respondents also had their home address online. Also, 89% of the East Africa respondents had their e-mail address online compared to 80% of the U.S. respondents. Moreover, 72% of U.S. respondents reported to
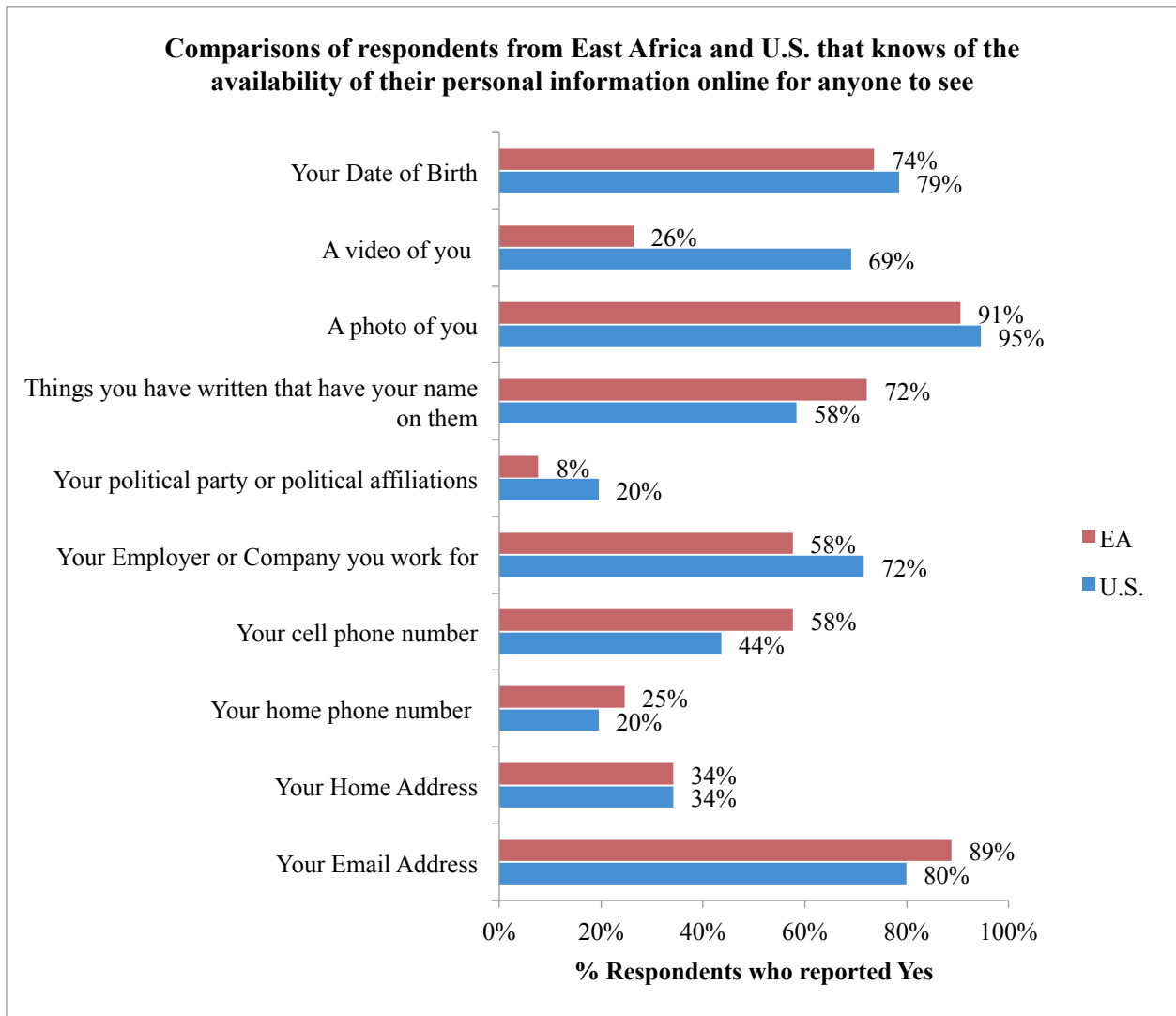
knowing about availability of their employment information online, compared to 58% of East African respondents.

A few respondents from East Africa (8%) have their political affiliation information online, compared to 20% of the U.S. respondents. Results from this study on information-sharing regarding political party or affiliation for U.S. respondents seems to be consistent with the Pew Research [8] study: which also reported that of their U.S. respondents, 20% had their political party or affiliation online. These results suggest that political issues are considered sensitive information and that people tend to avoid making political views or affiliation public.

Results from this section show that there is no significant difference of privacy awareness between East African and Unites States' Internet users. Also, due to frequent use of social media among Internet users, a majority of the respondents had their photos online. Some personal information such as political party or affiliation was indicated to be a sensitive matter in both surveyed groups as we have seen people share this information less often. There was a big difference in video sharing between the survey groups: many of the U.S. respondents reported to have shared their videos online, compare to East African respondents. The reason for this lower number might be limited Internet connectivity or cultural differences.

Figure 4.1: Comparison of East African and United States Internet users that know of availability of their personal information online

Comparisons of respondents from East Africa and U.S. that knows of the availability of their personal information online for anyone to see

	EA	U.S.
Your Date of Birth	74%	79%
A video of you	26%	69%
A photo of you	91%	95%
Things you have written that have your name on them	72%	58%
Your political party or political affiliations	8%	20%
Your Employer or Company you work for	58%	72%
Your cell phone number	58%	44%
Your home phone number	25%	20%
Your Home Address	34%	34%
Your Email Address	89%	80%

% Respondents who reported Yes

Online Privacy Concerns

Respondents were asked to rate their concerns about availability of their personal information online. Fifty-two percent of users from the East African sample reported being very concerned and 36% reported being somewhat concerned about their personal information online,

compared to 23% of the U.S. sample who reported being very concerned, and 46% who reported being somewhat concerned.
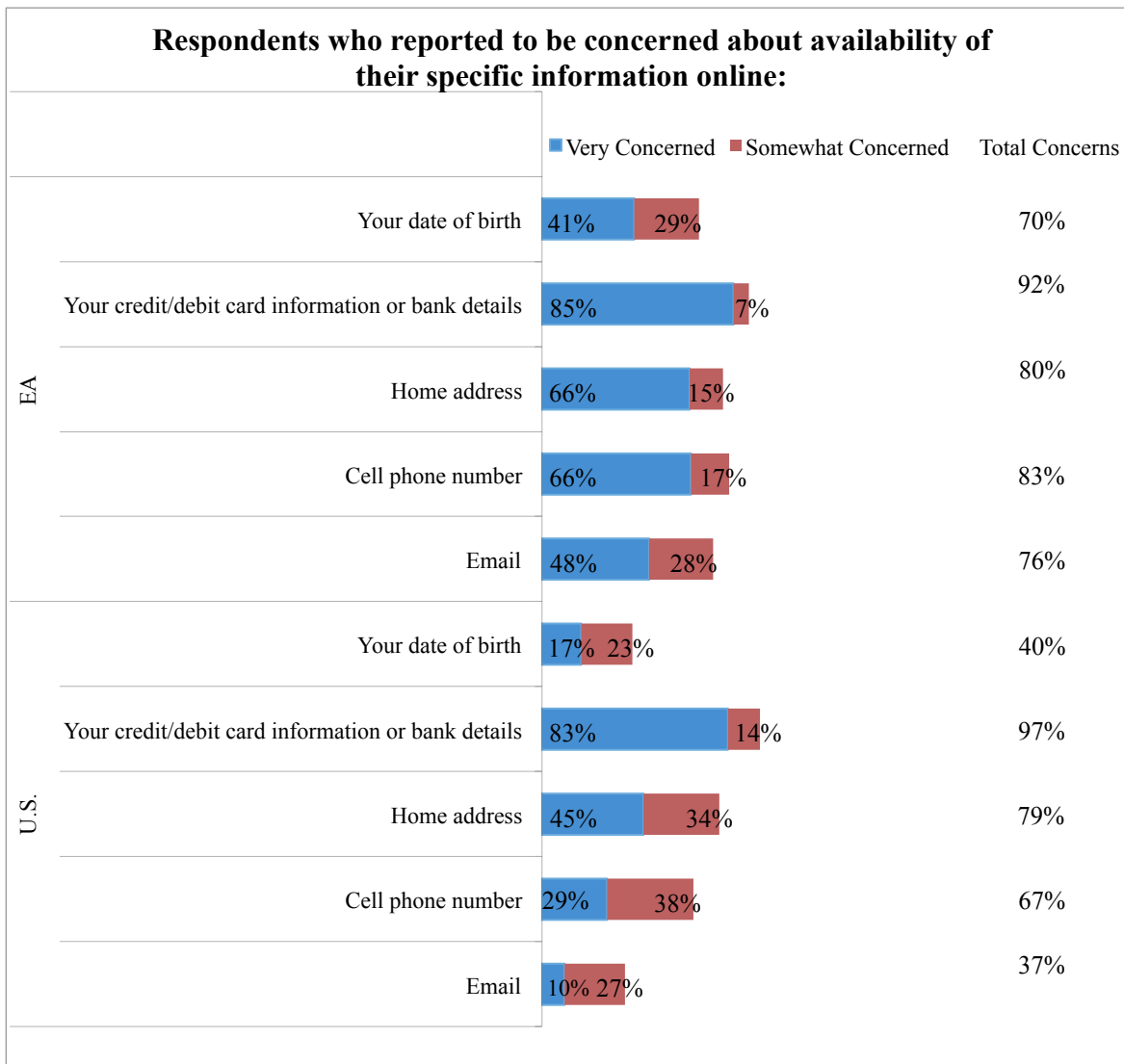
In order to test the differences in concerns about online privacy between the two groups, an independent sample t-test was conducted to compare the mean concerns regarding online privacy between U.S. and East Africa. The test found that there was significant difference in the concerns about online privacy t (275)=4.93, p < .05. These results indicate that individuals in the East African group (M = 1.65, SD = 0.819, N = 128) were more concerned about availability of their information online than those in the U.S. group (M = 2.14, SD = 0.838, N = 149).

A Pearson product-moment correlation coefficient was computed to assess the relationship between the level of education and concerns about online privacy. For the East African sample (Table 4.4), there was a negative correlation between education level and concerns regarding online privacy, r (127) = -0.05, p > 0.05. Similarly for the U.S. sample (Table 4.3), there is a negative correlation between education level and concerns regarding online privacy, r (149) = -0.094, p > 0.05. Both results indicated p>0.05, inferring that there is no statistically significant correlation between level of education and concerns about online privacy.

The respondents were then asked if they had concerns about availability of specific personal information online (Figure 4.2); the respondents from East African did show relative higher concerns compared to the U.S. Internet users. Both groups, from East Africa (85%) and the U.S. (83%), reported being very concerned about having their bank details such as their credit or debit card information online. It is interesting to note that the U.S. sample did not show concerns about having their e-mail address online, 42% of U.S. sample were not very concerned while 48% of the East Africa sample reported being very concerned. Internet users from East Africa (66%) and U.S. (45%) reported being very concerned about availability of their home
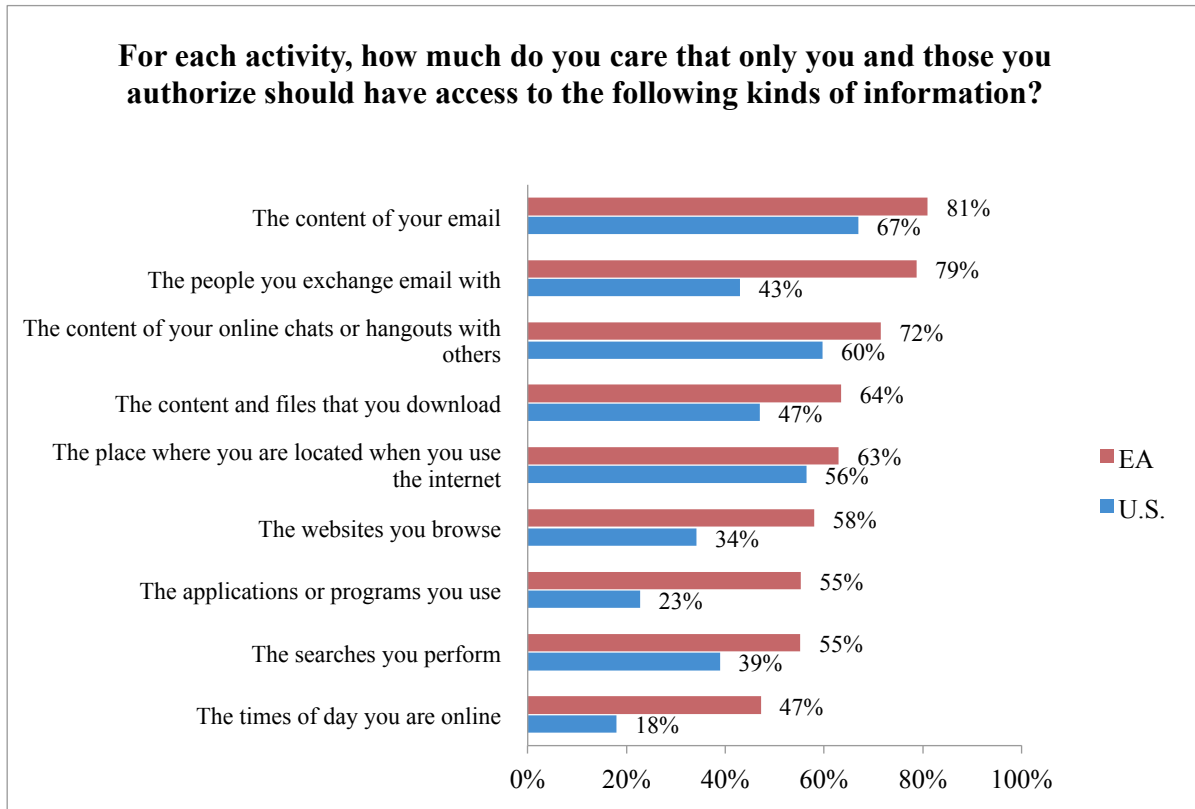
address online. When asked if they were concerned about having their date of birth online, 41%
of respondents in the East Africa sample were very concerned and 28% were somewhat
concerned, compared to 17% of respondents in the U.S. sample who were very concerned, and
23% who were somewhat concerned. Although a majority (58%) of East Africans reported
having their cell phone number online, 66% of the East Africa respondents were concerned about
availability of their cell phone numbers online, compared to 29% of the U.S. sample.

**Figure 4.2: Comparisons of respondents who are concerned about availability of their
specific personal information online**

Respondents who reported to be concerned about availability of their specific information online:			
	■ Very Concerned ■ Somewhat Concerned		Total Concerns
EA	Your date of birth	41% 29%	70%
	Your credit/debit card information or bank details	85% 7%	92%
	Home address	66% 15%	80%
	Cell phone number	66% 17%	83%
	Email	48% 28%	76%
U.S.	Your date of birth	17% 23%	40%
	Your credit/debit card information or bank details	83% 14%	97%
	Home address	45% 34%	79%
	Cell phone number	29% 38%	67%
	Email	10% 27%	37%

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Furthermore, Internet users were asked to rate how important (*very important, somewhat important, not important, not important at all*) different types of personal information were to them that only they and those they authorize have access to. Figure 4.3 indicates how important U.S. Internet users and East Africa Internet users rated specific pieces of information. It is interesting to note that both groups rated highly ("very important" according to 81% of East African respondents and 68% of U.S. respondents) that only they or those they authorize have access to the content of their e-mails. Also both groups did not find the times of the day they are online to be very important, and hence the average rating for this variable was low. Other kinds of information were more varied in perceived importance: for instance, East Africans found people they exchange e-mail with to be very important and rated this item second, while the content of online chats or hangouts was rated second by users in the U.S. sample.

Figure 4.3: Comparisons of East Africa and U.S. on importance of personal information and privacy online

For each activity, how much do you care that only you and those you authorize should have access to the following kinds of information?

Activity	EA	U.S.
The content of your email	81%	67%
The people you exchange email with	79%	43%
The content of your online chats or hangouts with others	72%	60%
The content and files that you download	64%	47%
The place where you are located when you use the internet	63%	56%
The websites you browse	58%	34%
The applications or programs you use	55%	23%
The searches you perform	55%	39%
The times of day you are online	47%	18%

Web Cookies

Web cookies have created a privacy concern, due to the fact that cookies can be used to collect personal information and track users' online behavior for marketing purposes, without their knowledge. The purpose of web cookies is to store personal information from web forms that a user supplies while registering, placing an order, or making payments on a website [30]. These kind of web cookies usually originate from the website user is currently viewing. Collection of this personal information from forms is necessary for identifying returning visitors and simplifying the online transaction process. However, in present-day e-commerce, web cookies also include third-party cookies, normally issued by web sites that users are not currently visiting. These kinds of web cookies originate from third-party advertising web sites with the

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intention of tracking online user behavior for personalized ad suggestions. Our study asked whether Internet users are aware of web cookies and what configurations they have used to control web cookies.

When survey participants were asked if they are familiar with web cookies, 56% of East Africa reported being familiar with web cookies compared to 76% of U.S. respondents. In order to understand whether there is a significant difference between awareness regarding web cookies for the two groups, an independent sample t-test was conducted. This test found that there is significant difference between awareness about web cookies $t (237)= 3.99, p < .05$. This result indicates that the individual in the U.S. ($M = 1.30, SD = 0.59, N =149$) group were more aware about web cookies than those from East Africa ($M = 1.63, SD = 0.8, N = 131$).

To understand more about user concerns on their privacy, participants were asked to rate their concerns about web cookies (vey concerned, somewhat concerned, not concerned, not concerned at all, not sure). 30% of participants in the East Africa sample reported being very concerned and 25% were somewhat concerned, compared to 6.8% of participants in the U.S. sample who were very concerned and 48% who were somewhat concerned. An independent sample t-test was conducted to compare the mean concerns about web cookies between U.S. and East Africa sample. There was no significant difference in concerns about web cookies for the U.S. ($M = 2.86, SD = 1.24, N = 148$) and for East Africa ($M = 2.63, SD = 1.51, N = 119$); $t (227)$ $p > .05$. The results suggest that Internet users from two regions are all somewhat concerned about web cookies.

Four specific questions about measures taken to configure web cookies were asked in order to gain an understanding about user experience with web cookies. Figure 4.4 indicates the comparisons on percentage of respondents who indicated having configured web cookies. It is

interesting to note that very few respondents have configured web cookies. The only configuration that a large percentage of respondents reported to have set is warning about all cookies; for all other web cookie configuration settings listed, or respondents had not set them or they were not sure. When participants were asked whether they had ever rejected web cookies, a majority of the respondents from both group East Africa (44%) and U.S. (47%) denied to having rejected all cookies; only 28% of the East Africa sample agreed to have rejected all cookies compared to 25% of the U.S. sample. When asked about accepting cookies from original server without warnings, 28% of East Africa sample indicated that this was their practice, compared to 27% of the U.S. sample that so indicated.

Figure 4.4: Comparisons of East Africans and U.S. respondents who agreed to have configured web cookies
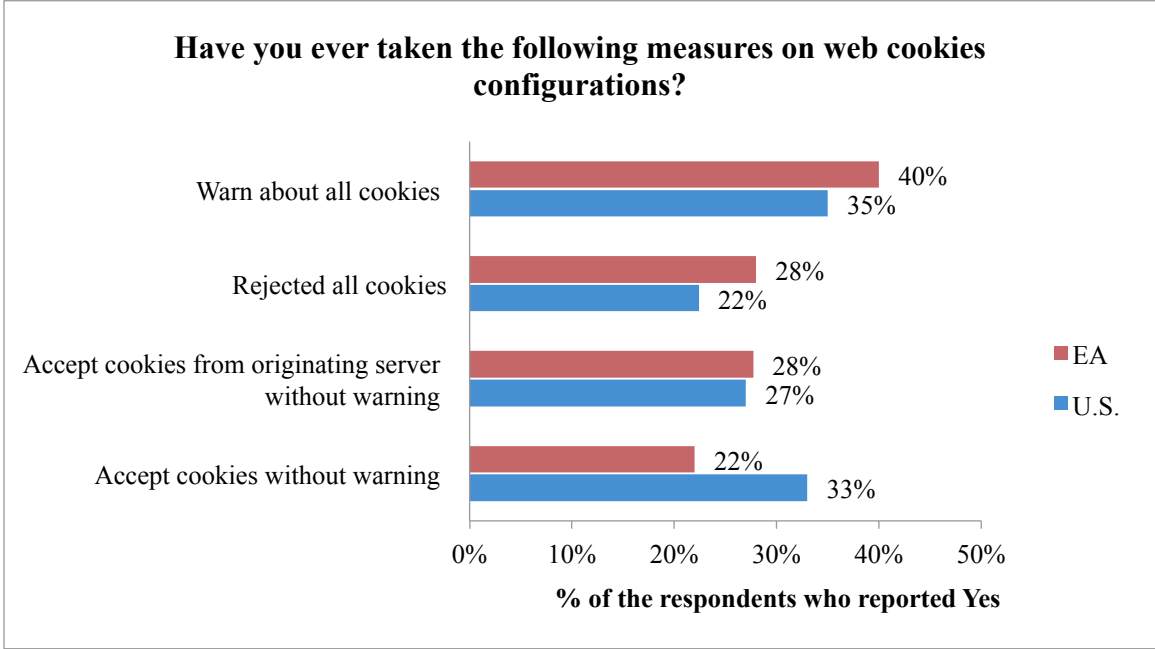
Anonymity

This study also wanted to understand measures people take to conceal their online presence so some few questions about anonymity were asked, as in [8]. The first question asked whether respondents think it is possible for someone to use the Internet completely anonymously so that none of their online activities can be easily traced back to them (Figure 4.5). A majority of the respondents 64% from the U.S. sample (*M*= 1.76, *SD* = *0.55*) reported that it is **not** possible for someone to use the Internet completely anonymously; only 30% reported the opinion that it **is** possible. By contrast, 44% of the East Africans *(M*= 1.71 *SD* = 0.73)* reported that it is possible to use the Internet completely anonymously, while 40% reported it is not possible. The U.S. results were consistent with those from the related study done by the Pew Research Center where when the exact same question was asked of their 792 Internet users, of whom a majority (59%) responded that it is not possible to for someone to be completely anonymous online.

Figure 4.5: Comparison of East Africa and U.S. responses on Anonymity question

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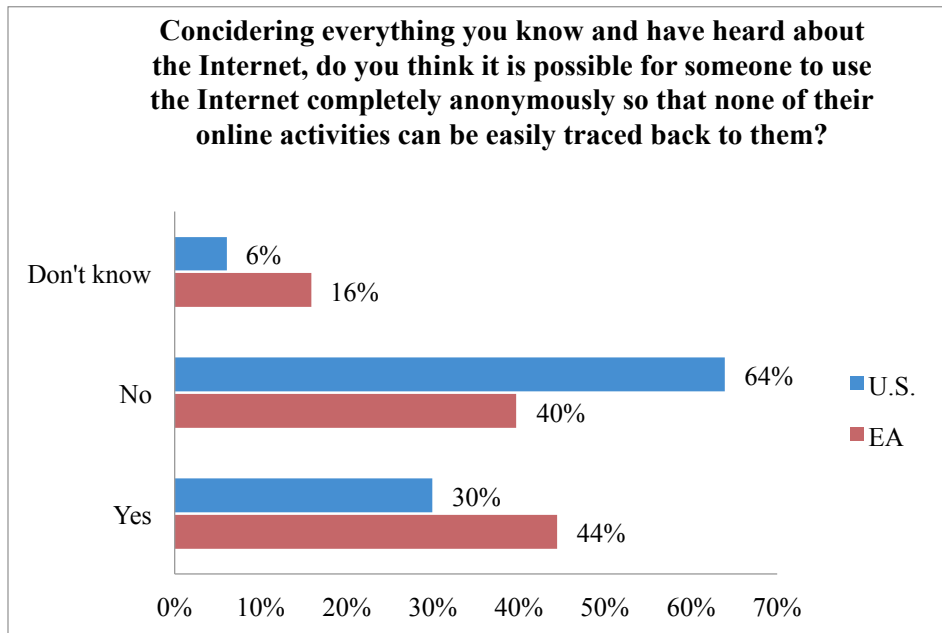
The respondents were then given a broader list of activities that one could do to obscure their online presence or behaviors, as Figure 4.6 illustrates. The responses were very interesting: Internet users from the U.S. had higher percentages in all the measures taken to mask their online visibility. The most common tactics that the East African (83%) and U.S. (93%) respondents reported using was to delete something they have written in the past. Another technique that many respondents reported using was to clear cookies and browser history, which 75% East Africa reported to have done compared to 83% of the U.S. respondents. The less common technique used by both groups was encrypting communications and using services that allows one to browser the web anonymously (or at least with increased privacy), such as proxy servers, VPNs, or Tor.[9]

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[9] www.torproject.org

Figure 4.6: Strategies for decreasing online visibility

While using the internet, have you ever done any of the following things?

Strategy	EA	U.S.
Deleted or edited something you posted in the past	83%	93%
Cleared cookie and browser history	75%	83%
Used Temporary username or email address	55%	64%
Used a fake name or untraceable user name	51%	62%
Asked someone to remove something that was posted about you online]	48%	56%
Given inacurate or misleading information about your self	42%	56%
Decided not to use a website because they asked for your real name	50%	54%
Used a public computer to browse anonymously	46%	51%
Set browser to disable or turn off cookies	44%	47%
Used a service that allows you to browse the web anonymously, such as a proxy server, Tor, or a virtual private network (VPN)	41%	44%
Encrypted your communications	26%	30%

% of respondents who have taken measure to conceal their online presence

Security Issues

In many cases, problems that are caused by online activities such as online identity theft, reputation damage and security breaches do not end online, but follow Internet users to their offline lives. This study wantend to know of any online activities that has affected Internet users'

offline lives and any secuirty issues experienced by East Africans and U.S. Internet users due to compromise of their personal privacy (Figure 4.7).

The most common personal privacy and security problem that has been experienced by a majority in both groups - that is, 35% of East African respondents and 29% of the U.S. respondents - is trouble in a relationship between themselves and a family member or a friend due to something they (the respondents) posted online.

The East African Internet users surveyed seems to be affected more by compromise of their e-mail or compromise of social network accounts, compared to the U.S. Internet users. 35% of the East African respondents have had their e-mail or social network information compromised or taken over by someone without their permission, compared to only 18% of the U.S. sample that reported experiencing the same problem. Also, online stalking and harassment is another problem that has been reported by many (29%) of East African Internet users surveyed, compared to only 17% of U.S. participants who reported experiencing the same problem. The least common problem for both groups is losing a job or educational opportunity due to online activities. Only 1% of the respondents from East Africa, and 3% of those from the U.S., reported losing a job or educational opportunity because of something they or someone else posted about them online.

Figure 4.7: Online security issues and compromise of personal privacy

As far as you know, have you ever had any of these experiences as a result of your online activities

% of respondents who reported yes

EA / U.S. values by category:
- Experienced trouble in a relationship between you and a family member or a friend because of something you posted online: EA 35%, U.S. 29%
- Had your email or social networking account compromised or taken over without your permission by someone else: EA 35%, U.S. 18%
- Been stalked or harassed online: EA 29%, U.S. 17%
- Felt physical danger due to something that happened online: EA 18%, U.S. 11%
- Been the victim of an online scam and lost money: EA 8%, U.S. 5%
- Had important personal information stolen such as your bank account information: EA 7%, U.S. 8%
- Lost a job opportunity or educational opportunity because of something you posted online or someone posted about you online: EA 3%, U.S. 1%

Online Privacy Protection Laws

Participants of this survey were asked if they are aware of any law that protects their data privacy online. Figure 4.8 shows the summary of comparison of the responses between the two groups. A large percentage of the East Africans (45%) were sure that there were no laws that protects their privacy online; indeed, by the time of this survey the laws on data protection and

privacy had not yet passed. Meanwhile, 50% of U.S. participants did not know of laws that protected their privacy online.

When respondents were asked whether they thought it was important for their country to have laws that provide reasonable protection of people's online privacy activities, a large majority (95%) of East Africa respondents and of U.S. respondents (93%) said yes. This result shows the cohesion in attitudes of Internet users when it comes to caring about legal protection of their personal privacy and their online activities.

Figure 4.8: Internet user awareness of online protection and privacy laws

Thinking about current laws in your country, does your country have laws that provide reasonable protections of people's privacy about their online activities?

Response	EA	U.S.
Don't know	30%	50%
No	45%	35%
Yes	25%	16%

% of responses from EA and U.S.
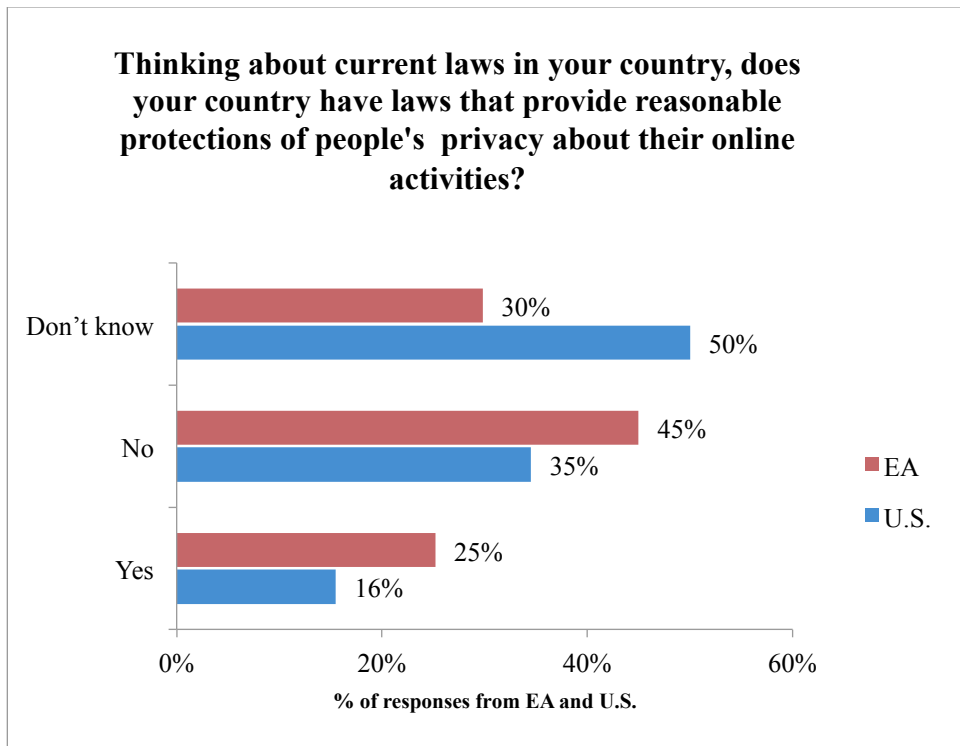
Chapter 5 - Discussion and Conclusion

The aim of this research project was to determine common attitudes between Internet user populations from East Africa and the U.S., by comparing their awareness of and concerns about online privacy and security. The study followed a quantitative research approach, and used online questionnaires as survey instruments. This study had four objectives that are listed and discussed below.

Objective 1: Explore user awareness of online privacy and security.

The first objective of this study was to explore user awareness of online privacy and security. Results from this study suggest that the Internet user population from East Africa was no more or less aware about online privacy than its U.S. counterpart.

It should be noted that the surveyed East Africans are more educated and heavier Internet users, which may indicate that the result obtained cannot be generalized to the entire East African population. When correlation analysis was conducted between level of education and awareness about online privacy, the results show that there is no significant correlation between level of education and awareness about online privacy. That means increases or decreases in in education do not significantly relate to increases or decrease in awareness of online privacy.

With regard to sharing and availability of user personal information online, results from the surveys showed that there are commonalities and differences of type of information that are available online between East Africans and Americans. Since the introduction of the social media networks such as *Facebook*, people have shared more and more about themselves and their lives though photos and video. The results from this study show that when it comes to

availability of photos online, Internet users from East Africa have shared as much as Internet users from the U.S.

This report also shows that there is a significant difference in video sharing between the surveyed groups: while a majority of the U.S. Internet users had their videos online that have been shared by themselves or someone else, very few East African Internet users reported to have shared their videos online. The lower percentage of Internet users in East Africa who have shared their video online may be attributed to limited Internet connectivity in the region or to cultural differences.

Some types of data appear to be considered more sensitive by both groups. One example of this is information such as political party or affiliation is indicated, which Internet users rarely reported sharing publicly. This result is consistent with a result by the Pew Research Center where the same questions were asked of participating U.S. Internet users, and respondents reported being unlikely to share their political party or affiliations [8].

Objective 2: Examine how concerned East African Internet users are about online privacy issues in comparison to those from USA.

This study also explored about Internet users' concerns about online privacy. The results suggested that there are significance differences in attitude between the surveyed groups. East Africa Internet users were very concerned about their online privacy compared to the U.S. Internet users, of whom a majority was somewhat concerned. This result might not necessarily correspond to their actual behavior with respect measures taken by East African users to protect their online privacy, as indicated in their responses to questions asking about these measures as discussed in objective three.

When correlation analysis was conducted to determine if there is statistically significant correlation between level of education and concerns regarding online privacy. The results showed no significant correlation between level of education and concerns regarding online privacy. Hence increase or decrease in education does not determine increase or decrease in concerns about online privacy.

When asked about specific concerns, respondents did show more concerns regarding some types of data than others. Both groups the U.S. Internet users and East African were more concerned about their bank or credit card details being online. There was also significant differences in concerns to similar kinds of data: for instance, East African Internet users seemed to be very concerned about availability of their date of birth and e-mail address online, compared to U.S. Internet users, of whom a majority reported being somewhat concerned.

A very remarkable significant difference observed between the two groups was regarding concerns about availability of cell phone numbers online. A majority of East Africans Internet users indicated being very concerned about the availability of their phone numbers online. The difference in concerns about availability of an Internet user's cell phone number online could be explained by cell phone numbers being of higher value to the East Africans, especially to those who use their cell phone numbers for financial transactions. In East Africa, for instance, there are two kinds of banking that are widely used and involves cell phone numbers - that is, Mobile-money and SIM-banking. For both Mobile-money and SIM-banking, the cell phone number is used as identification for all financial transactions. Mobile-money is a financial service that is offered by mobile phone operators to registered mobile phone users; here cell phone number is used as an account number for all Mobile-money transactions. SIM-banking is provided from banks, in order to be able to access SIM-banking services, a bank customer is required to register

her cell phone number which is then connected to her bank account for all future SIM-banking transactions. This means, a criminal who can block a phone number and re-register the same number would have access to a user's Mobile-money and SIM-banking services, provided she could crack the password. This is a possible explanation for higher concerns among East Africans regarding cell phone identity compared to the U.S. Internet users.

Objective 3: Explore measures taken by East African Internet users in protecting their online privacy in comparison to their counterparts in the U.S.

Results from this study suggest that the U.S. Internet users are more familiar with different methods to cover their online tracks than the East African Internet user. This might be due the Snowden Effect[10], an increase in public concern about information security and privacy resulting from disclosures that Edward Snowden made detailing the extent of the National Security Agency's (NSA) surveillance activities. Due to snowden Effect, Americans especially young people are now reported to care more about privacy [31]. In a survey of 23 countries (including the USA) on Internet Security and Trust, the Centre for International Governance Innovation (CIGI) [32] reported that 39% of surveyed people now take measures to protect their online privacy and security after the revelations of Edward Snowden. Also, results for U.S. Internet users from our study who have taken measures to hide their online activities is consistent with the results by the study done by the Pew Research Center of a U.S. Internet user population, where a majority of respondents reported trying to take measures to conceal their online activities, even though they did not think it is possible to be completely anonymous online [8].

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[10] http://whatis.techtarget.com/definition/Snowden-effect

Objective 4: Explore security issues that East African Internet users face as a result of their online activities in comparison to the US Internet users.

In many cases problems that are caused by online activities such as online identity theft, reputation damage and security breach do not end online, they do follow Internet users to their offline lives. My survey investigated online security issues and the compromise of personal privacy that East Africans and U.S. Internet users reported experiencing. This study showed that East Africans were more likely to report negative experiences. East African Internet users surveyed reported, more frequently than U.S. respondents: being the victims of e-mail or social media account compromise; experiencing trouble in a relationship between themselves and others due to something posted online; being stalked or harassed online, having their reputation damaged by online activity; and being put in physical danger after online activities. For comparison, there are significant differences between the two groups, on e-mail and social network account compromise: the East African respondents were twice as likely to have had their e-mail and social network accounts compromised as the American respondents. Another issue where a significant difference was observed is online stalking and harassment: East Africa respondents are more likely report being victims of such malicious activity, compared to U.S. respondents.

Concerning laws about online personal privacy protection, a majority of the American respondents did not know if the current laws in their country provide reasonable protections of people's privacy about their online activities. Although laws are in place in the U.S, U.S. Internet users did not find the laws providing enough protection to their personal data. This might be because data protections in the U.S. are regulated by many states and federal laws and there is no all-encompassing law regulating the collection and processing of personal data [33,35].

Meanwhile a majority of the East Africa Internet users population responded that there was no law that protected their online activities. For East African countries, certainly by the time of this survey none of the East African countries had specific online data protection and privacy laws in place as discussed in the previous chapters. There are only data protection and privacy bills in place, which still have some issues of their own in regards to protections of personal privacy. Overall, Internet user from East Africa and U.S. all expressed a desire for laws that provide enough protection for their online personal privacy.

Future Work

A number of further questions arose during the study. It would be useful to: conduct research for each East African country separately and take on a random national sample of the Internet users; study why some personal data are more sensitive East African than to American and vice versa; and study further why American are more aware of measure to conceal online privacy than East Africans. This information would benefit Communication Regulatory Authorities in East African countries, who could adopt to the approaches and findings reported in this research to better understand their consumers' behavior regarding online privacy and see how they can regulate the privacy policies to align with user needs.

Chapter 6 - Bibliography

[1] Shlomit Yanisky-Ravid."To Read Or Not to Read: Privacy within Social Networks, the Entitlement of Employees to a Virtual Private Zone, and the Balloon Theory," *American University Law Review*, vol. 64, no. 1, pp. 53-108, 2014. [Online]. http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1939&context=aulr

[2] Kadri-Liis Piirsalu, Dagmar Mäe, Tõnis Vassar, and Alessandro Nani. (2012) Privacy issues of Social Networks. [Online]. http://social-networks-privacy.wikidot.com/

[3] Delfina Malandrino, Vittorio Scarano, and Raffaele Spinelli. "Impact of Privacy Awareness on Attitudes and Behaviors Online," *Science* , vol. 2, no. 2, p. 65, 2013.

[4] Sherry Denise Saunders. "Privacy Is Dead: The Birth of Social Media Background Checks ," March 2012.

[5] Mihajlo Zeljkovic Craig E. Wills. "A personalized approach to web privacy: awareness, attitudes and actions," *Information Management & Computer Security*, vol. 19, no. 1, 2011, pp. 53-73.

[6] Claud Castelluccia. "Behavioural Tracking on the Internet: A Technical Perspective," in *European Data Protection: In Good Health.*: Springer Netherlands, 2012, pp. 21-33.

[7] Lorrie Faith Cranor. ""I didn't buy it for myself." Designing personalized user experiences in eCommerce," 2004, pp. 57-73..

[8] Pew Research Center. (2013, September) Anonymity, Privacy, and Security Online. [Online]. http://www.pewinternet.org/

[9] Lorrie Cranor, Reagle Joseph , and Mark S Ackerman. "Beyond Concern: Understanding Net Users' Attitudes About Online Privacy," in *Telecommunications Policy Research Conference*,1999, pp. 25-27. [Online]. http://arxiv.org/html/cs/9904010/report.htm

[10] Ponnurangam Kumaraguru and Lorrie Cranor. (2005) Privacy in India: Attitudes and Awareness. [Online].http://lorrie.cranor.org/pubs/PET_2005.pdf

[11] Jay Chen, Michael Paik, and Kelly McCabe. "Exploring Internet Security Perceptions and Practices in Urban Ghana," in *Symposium On Usable Privacy and Security*, 2014.

[12] Zinaida Benenson, Olaf Kroll-Peters, and Matthias Krupp. "Attitudes to IT Security when Using a Smartphone," in *Federated Conference on Computer Science and Information Systems*, 2012, pp. 1179–1183. [Online]. https://fedcsis.org/proceedings/2012/pliks/207.pdf

[13] Robert Faris, Hal Roberts, Rebekah Heacock, Ethan Zuckerman, and Urs Gasser. (2011, August) Online Security in the Middle East and North Africa. [Online]. http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/OnlineSecurityinthe MiddleEastandNorthAfrica_August2011.pdf

[14] East African Community (EAC). (2015) www.eac.int. [Online]. http://www.eac.int/index.php?option=com_content&view=article&id=169&Itemid =157

[15] Steve Song. (2015) "African Undersea Cables." Many possibilities. (2015) [Online]. https://manypossibilities.net/african-undersea-cables/

[16] ITU. (2013) Study on international Internet connectivity in sub-Saharan Africa. [Online]. https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/IIC_Africa_Final-en.pdf

[17] Internet World Stats. [Online]. http://www.internetworldstats.com/stats1.htm

[18] Ericsson ConsumerLab. (2014, June) [Online]. http://www.ericsson.com/res/docs/2014/emr-june2014-regional-appendices-ssa.pdf

[19] Mpemba Advocates. (2014) Tanzania lag on privacy law. [Online]. http://mpembaadvocates.co.tz/index.php/2014-10-03-01-29-03/92-tanzania-lag-on-privacy-law

[20] OAfrica. (2014) These days, African Internet users need to worry about privacy and not just access. [Online]. http://www.oafrica.com/ict-policy/these-days-african-internet-users-need-to-worry-about-privacy-and-not-just-access/

[21] Cynthia O'Donoghue. "New Data Protection Laws in Africa." (2015, Feb) Technology Law Dispatch. [Online]. http://www.technologylawdispatch.com/2015/02/regulatory/new-data-protection-laws-in-africa/

[22] CIPESA. (2015, February) http://www.opennetafrica.org/. [Online]. http://www.opennetafrica.org/?wpfb_dl=23

[23] Alex Makulilo. (2013, February) Kenya's Data Protection Bill 2012 : Many leaks still unplugged. [Online]. http://repository.out.ac.tz/326/1/Kenya's_DP_2012-Many_leakes_still_unplugged.pdf

[24] Patricia Boshe. "An evaluation of the Data Protection Bill in Tanzania," *Privacy Laws and Bussines : Data Protection and Privacy Information Worldwide*, no. 127, February 2014.

[25] The European Commission. "Information and Technology and Data Privacy," Directorate General "Internal market and financial services", INRA (EUROPE) - E.C.O., Brussels, 1997.

[26] Porter Felt Adrienne, Egelman Serge, and Wagner David. "I've Got 99 Problems, But Vibration Ain't One: A Survey of Smartphone Users' Concerns,".

[27] Balebako Rebecca, Jaeyeon, Lu, Wei Jung, Lorrie Faith Cranor, and Carolyn Nguyen. "Little brothers watching you: Raising awareness of data leaks on smartphones," in *Proceedings of the Ninth Symposium on Usable Privacy and Security*, 2013, p. 12.

[28] Jonathan Lazar, Jinjuan Heidi Feng, and Harry Hochheiser, *Research Methods in Human-Computer Interaction*.: Wiley Publishing, 2010.

[29] Penny S Visser , Jon A Krosnick, and Paul J Lavrakas. "Survey Research," in *Handbook of research methods in Social persoanl psychology*. New York, NY, US: Cambridge University Press, 2000, vol. xii, p. 558.

[30] All about cookies. [Online]. http://www.allaboutcookies.org/privacy-concerns/

[31] Byron Acohido. "Snowden effect: Young people now care about privacy." USA Today. (2013, Nov) [Online]. http://www.usatoday.com/story/cybertruth/2013/11/13/snowden-effect-young-people-now-care-about-privacy/3517919/

[32] CIGI. (2014) https://www.cigionline.org. [Online]. https://www.cigionline.org/internet-survey

[33] INFOSEC. Differences between the privacy laws in the EU and the US. [Online]. http://resources.infosecinstitute.com/differences-privacy-laws-in-eu-and-us/

[34] PWC. (2013) Changing the game Key findings from The Global State of Information Security. [Online].

[35] Jim Harper. (2004, August) Understanding Privacy—and the Real Threats to It. [Online]. http://object.cato.org/sites/cato.org/files/pubs/pdf/pa520.pdf

Appendix A - Internet penetration in Africa

Figure A.1: African Fiber-Optic undersea cables [15]
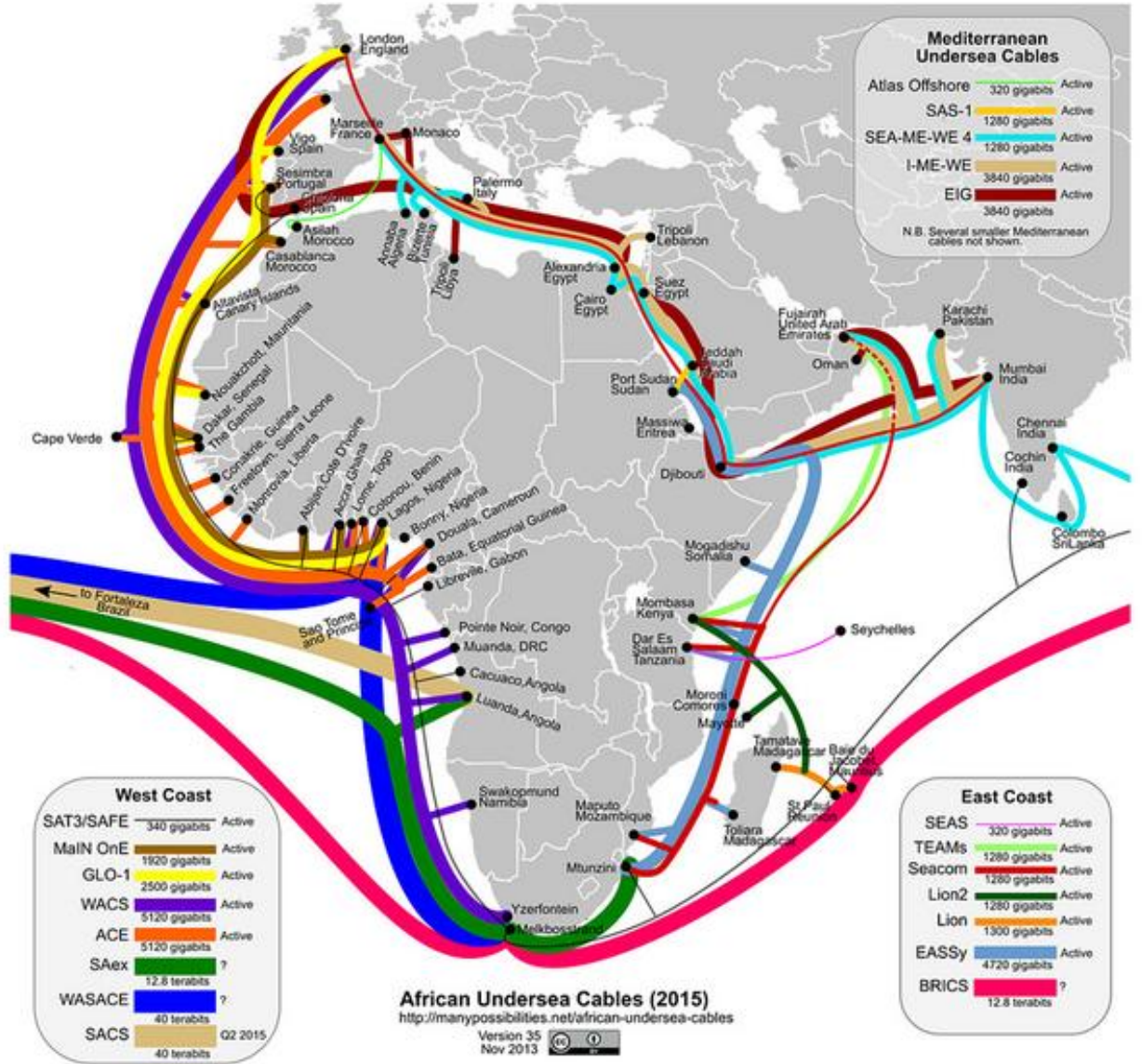
Appendix B - Recruitment Procedure

This appendix shows e-mail sent to undergraduate and graduate students and staff of the Open University of Tanzania in Tanzania and Kansas State University in USA. The contents of the e-mails are as follows:

E-mail to American Participants:

Subject: Survey on user awareness and concerns of online privacy and security.

Greetings,

You're invited to **participate in a research study** conducted by Eugene Vasserman and Zainab Ruhwanya from department of Computing and Information Sciences at Kansas State University in USA. The study seeks to investigate **"user awareness and concerns of online privacy and security in third world countries in comparison to developed countries"**. To be eligible, you must be between 18 and 65 years old and must be an Internet user. You will not be compensated for this study, participation is completely voluntary and you may choose to not participate or to stop at any time.

This study has been reviewed and approved by Kansas State University Institutional Review Board (IRB). If you have question about your right as a participants please contact Kansas State University research Compliance office at comply@ksu.edu or IRB committee chair at **rscheidt@ksu.edu**. This study is not expected to pose any risk to participants. Results of this research may be published for scientific purposes, but you will never be personally identified.

If you choose to participate, please click on following link and fill in the questionnaire. Information collected is completely anonymous. **No personal information about you will be collected as part of the study.**

If you have any questions, please contact the principal investigator, Eugene Vasserman (eyv@ksu.edu), or Zainab Ruhwanya (zruhwanya@ksu.edu).

Thanks in advance,

Eugene and Zainab

E-mail to East African Participants:

Subject: Survey on user awareness and concerns of online privacy and security.

Greetings,

You're invited to **participate in a research study** conducted by Eugene Vasserman and Zainab Ruhwanya from department of Computing and Information Sciences at Kansas State University in USA. The study seeks to investigate **"user awareness and concerns of online privacy and security in third world countries in comparison to developed countries"**. To be eligible, you must be between 18 and 65 years old and must be an Internet user. You will not be compensated for this study, participation is completely voluntary and you may choose to not participate or to stop at any time.

This study has been reviewed and approved by Kansas State University Institutional Review Board (IRB) and received research clearance from the Open University of Tanzania Directorate of Research and Postgraduate studies (DRPGS). If you have question about your right as a participants please contact Kansas State University research Compliance office at comply@ksu.edu (or IRB committee chair at **rscheidt@ksu.edu**) or Director of research and postgraduate studies at the Open University of Tanzania at drpgs@out.ac.tz. This study is not expected to pose any risk to participants. Results of this research may be published for scientific purposes, but you will never be personally identified.

If you choose to participate, please click on following link and fill in the questionnaire. Information collected is completely anonymous. **No personal information about you will be collected as part of the study.**

If you have any questions, please contact the principal investigator, Eugene Vasserman (eyv@ksu.edu), or Zainab Ruhwanya (zruhwanya@ksu.edu).

Thanks in advance,

Eugene and Zainab

Appendix C - Consent Forms

(Appeared at the First page of the questionnaire)

Consent Form for the U.S. Participants

Thank you for agreeing to participate in this survey. The purpose of this study is to investigate user awareness and concerns of online privacy and security and we ask for your help. The entire study should take at most 20 minutes. You will not be compensated for your participation -- you can choose to participate in this study voluntarily, and can quit at any time without submitting your survey answers, just close your browser window. You can also skip questions that you do not feel comfortable answering.

If you have any question or concerns about this study please contact the principal investigator, Dr. Eugene Vasserman at eyv@ksu.edu, or Zainab Ruhwanya at zruhwanya@ksu.edu.

If you have any question about your right as a research participant please contact Kansas State University research Compliance office at comply@ksu.edu or Rick Scheidt committee chair of the Institutional Review Board (IRB) at rscheidt@ksu.edu.

This study is completely anonymous, your personal information is not collected and you can't be identified from results of this study in anyway.

By clicking Yes below, I acknowledge that I have read this consent form and I understand what is requested of me as a participant of this study. I freely consent to participate and certify that I am between 18 and 65 years old. To continue please click **yes**.

Consent Form for the East African Participants

Thank you for agreeing to participate in this survey. The purpose of this study is to investigate user awareness and concerns of online privacy and security and we ask for your help. The entire study should take at most 20 minutes. You will not be compensated for your participation -- you can choose to participate in this study voluntarily, and can quit at any time without submitting your survey answers, just close your browser window. You can also skip questions that you do not feel comfortable answering.

If you have any question or concerns about this study please contact the principal investigator, Dr. Eugene Vasserman at eyv@ksu.edu, or Zainab Ruhwanya at zruhwanya@ksu.edu.

If you have any question about your right as a research participant please contact Kansas State University research Compliance office at comply@ksu.edu or Rick Scheidt committee chair of the Institutional Review Board (IRB) at rscheidt@ksu.edu OR Director of research and postgraduate studies at the Open University of Tanzania at drpgs@out.ac.tz.
.

This study is completely anonymous, your personal information is not collected and you can't be identified from results of this study in anyway.

By clicking Yes below, I acknowledge that I have read this consent form and I understand what is requested of me as a participant of this study. I freely consent to participate and certify that I am between 18 and 65 years old. To continue please click **yes**.

Appendix D - Questionnaires

This section contains two sets of questionnaires, one distributed to the East African sample and another distributed to United States sample.

User Awareness And Concerns Of Online Privacy and Security

* Required

Thank you for agreeing to participate in this survey. The purpose of this study is to investigate user awareness and concerns of online privacy and security and we ask for your help. The entire study should take at most 20 minutes.
You will not be compensated for your participation -- you can choose to participate in this study voluntarily, and can quit at any time without submitting your survey answers, just close your browser window. You can also skip questions that you do not feel comfortable answering.

If you have any question or concerns about this study please contact the principal investigator, Dr. Eugene Vasserman at eyv@ksu.edu , or Zainab Ruhwanya at zruhwanya@ksu.edu.

If you have any question about your right as a research participant please contact Kansas State University research Compliance office at comply@ksu.edu or Rick Scheidt committee chair of the Institutional Review Board(IRB) at rscheidt@ksu.edu OR Director of research and postgraduate studies at the Open University of Tanzania at drpgs@out.ac.tz.

This study is completely anonymous, your personal information is not collected and you can't be identified from results of this study in anyway.

By clicking Yes below, I acknowledge that I have read this consent form and I understand what is requested of me as a participant of this study. I freely consent to participate and certify that I am between 18 and 65 years old. To continue please click yes.

1. **Do you want to continue?** *
   Mark only one oval.

   ◯ Yes

   ◯ No   *Stop filling out this form.*

2. **What is your age range?**
   Mark only one oval.

   ◯ 18 - 25

   ◯ 26 - 30

   ◯ 31 - 35

   ◯ 36 - 40

   ◯ 41 - 50

   ◯ 51 - 65

3. **What is your self-identified gender?**

Mark only one oval.

- ( ) Female
- ( ) Male
- ( ) Other: ....

4. **What is your level of education?**

Mark only one oval.

- ( ) Elementary / Primary education
- ( ) High school diploma
- ( ) Bachelor's degree
- ( ) Master's degree
- ( ) Ph.D. / Doctorate
- ( ) Other: ....

5. **In which country are you from?** *

Mark only one oval.

- ( ) Tanzania
- ( ) Burundi
- ( ) Kenya
- ( ) Uganda
- ( ) Rwanda
- ( ) Other: ....

6. **What is the language in which you are most fluent?**

Mark only one oval.

- ( ) English
- ( ) Swahili
- ( ) Other: ....

7. **Do you use the Internet, at least occasionally?** *

Mark only one oval.

- ( ) Yes
- ( ) No

8. **Do you have a smartphone?**

A smartphone is a mobile phone that performs many of the functions of a computer, typically having a touchscreen interface, Internet access, and an operating system capable of running downloaded apps.
Mark only one oval.

◯ Yes

◯ No

◯ Not sure

9. **What device do you mostly use to access the internet? ***

Mark only one oval.

◯ Computer

◯ Smartphone

◯ Both (computer and smartphone)

10. **Are you familiar with the term privacy?**

Mark only one oval.

◯ Yes

◯ No

◯ Not sure

11. **We'd like to know if any of the following information about you is available on the Internet for others to see. It doesn't matter if you put it there yourself or someone else did so.**

Mark only one oval per row.

	Yes	No	Not sure	Does not apply
Your employer or a company you work for	◯	◯	◯	◯
Your home phone number	◯	◯	◯	◯
Your cell phone number	◯	◯	◯	◯
Your date of birth	◯	◯	◯	◯
A video of you	◯	◯	◯	◯
A photo of you	◯	◯	◯	◯
Your email address	◯	◯	◯	◯
Your home address	◯	◯	◯	◯
Things you've written that have your name on them	◯	◯	◯	◯
Your political party or political affiliation	◯	◯	◯	◯

12. **How concerned are you about availability of your private information on the Internet?**

Mark only one oval.

- ( ) Very concerned
- ( ) Somewhat concerned
- ( ) Not very concerned
- ( ) Not concerned at all
- ( ) Not sure

13. **Are you concerned about these personal information being on the internet?**

Mark only one oval per row.

	Very concerned	Somewhat concerned	Not very concerned	Not concerned at all	Not sure
Your cell phone number	( )	( )	( )	( )	( )
Your credit/debit card information or bank details	( )	( )	( )	( )	( )
Your home address	( )	( )	( )	( )	( )
Your email address	( )	( )	( )	( )	( )
Your date of birth	( )	( )	( )	( )	( )

14. **Now, here is a list of some things that you might do online. For each activity, how much do you care that only you and those you authorize should have access to the following kinds of information? First, is it very important to you, somewhat important, or not too important to you that only you and those you authorize have access to**

Mark only one oval per row.

	Very Important	Somewhat important	Not too important	Not at all important	Does not appy	Dont know
The people with whom you exchange email	◯	◯	◯	◯	◯	◯
The content of your online chats	◯	◯	◯	◯	◯	◯
The websites you browse	◯	◯	◯	◯	◯	◯
The applications or programs you use	◯	◯	◯	◯	◯	◯
The content and files that you download	◯	◯	◯	◯	◯	◯
The place where you are physically located when you use the Internet	◯	◯	◯	◯	◯	◯
The times of the day you are online	◯	◯	◯	◯	◯	◯
The contents of your email	◯	◯	◯	◯	◯	◯
The searches you perform	◯	◯	◯	◯	◯	◯

15. **Are you familiar with web cookies?**

Mark only one oval.

◯ Yes

◯ No

◯ Not sure

16. **How concerned are you about web cookies?**

Mark only one oval.

◯ Very concerned

◯ Some what concerned

◯ Not very concerned

◯ Not concerned at all

◯ Not sure

17. **Have you ever taken the following measures on web cookies configurations?**

Mark only one oval per row.

	Yes	No	Not sure
Accept cookies without warning	○	○	○
Warn about all cookies	○	○	○
Accept cookies from original server without warning	○	○	○
Rejected all cookies	○	○	○

18. **Considering everything you know and have heard about the Internet, do you think it is possible for someone to use the Internet completely anonymously – so that none of their online activities can be easily traced back to them?**

Mark only one oval.

○ Yes

○ No

○ Don't know

19. **While using the internet, have you ever done any of the following things?**

Mark only one oval per row.

	Yes	No	Don't know
Used a service that allows you to browse the web anonymously, such as a proxy server, Tor, or a virtual private network (VPN)	○	○	○
Used temporary username or email address	○	○	○
Set browser to disable or turn off cookies	○	○	○
Used a public computer to browse anonymously	○	○	○
Asked someone to remove something that was posted about you online	○	○	○
Encrypted your communications	○	○	○
Used a fake name or untraceable username	○	○	○
Cleared cookie and browser history	○	○	○
Decided not to use a website because they asked for your real name	○	○	○
Deleted or edited something you posted in the past	○	○	○
Given inacurate or misleading information yourself	○	○	○

20. **As far as you know, have you ever had any of these experiences as a result of your online activities?**

    Mark only one oval per row.

	Yes	No	Don't know
Had important personal information stolen such as your bank account information	○	○	○
Lost a job opportunity or educational opportunity because of something you posted online or someone posted about you online	○	○	○
Felt physical danger due to something that happened online	○	○	○
Been stalked or harassed online	○	○	○
Had your email or social networking account compromised or taken over without your permission by someone else	○	○	○
Experienced trouble in a relationship between you and a family member or a friend because of something you posted online	○	○	○
Had your reputation damaged because of something that happened online	○	○	○
Been the victim of an online scam and lost money	○	○	○

21. **Thinking about current laws in your country, does your country have laws that provide reasonable protections of people's privacy about their online activities?**

    Mark only one oval.

    ○ Yes

    ○ No

    ○ Don't know

22. **Do you think that it is important for your country to have laws that provide reasonable protections of people's privacy about their online activities?**

    Mark only one oval.

    ○ Yes

    ○ No

    ○ Don't know

User Awareness And Concerns Of Online Privacy and Security

* Required

Thank you for agreeing to participate in this survey. The purpose of this study is to investigate user awareness and concerns of online privacy and security and we ask for your help. The entire study should take at most 20 minutes.
You will not be compensated for your participation -- you can choose to participate in this study voluntarily, and can quit at any time without submitting your survey answers, just close your browser window. You can also skip questions that you do not feel comfortable answering.

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This study is completely anonymous, your personal information is not collected and you can't be identified from results of this study in anyway.

By clicking Yes below, I acknowledge that I have read this consent form and I understand what is requested of me as a participant of this study. I freely consent to participate and certify that I am between 18 and 65 years old. To continue please click yes.

1. **Do you want to continue?** *
   Mark only one oval.

   ◯ Yes

   ◯ No   *Stop filling out this form.*

2. **What is your age range?**
   Mark only one oval.

   ◯ 18 - 25

   ◯ 26 - 30

   ◯ 31 - 35

   ◯ 36 - 40

   ◯ 41 - 50

   ◯ 51 - 65

3. **What is your self-identified gender?**

Mark only one oval.

   ⃝   Female

   ⃝   Male

   ⃝   Other: ....

4. **What is your level of education?**

Mark only one oval.

   ⃝   Elementary / middle school

   ⃝   High school diploma

   ⃝   Bachelor's degree

   ⃝   Master's degree

   ⃝   Ph.D. / Doctorate

   ⃝   Other: ....

5. **In which country are you from?** *

Mark only one oval.

   ⃝   USA

   ⃝   Other: ....

6. **What is the language in which you are most fluent?**

Mark only one oval.

   ⃝   English

   ⃝   Other: ....

7. **Do you use the Internet, at least occasionally?** *

Mark only one oval.

   ⃝   Yes

   ⃝   No

8. **Do you have a smartphone?**

A smartphone is a mobile phone that performs many of the functions of a computer, typically having a touchscreen interface, Internet access, and an operating system capable of running downloaded apps.

Mark only one oval.

   ⃝   Yes

   ⃝   No

   ⃝   Not sure

9. **What device do you mostly use to access the internet?** *

Mark only one oval.

- ◯ Computer
- ◯ Smartphone
- ◯ Both (computer and smartphone)

10. **Are you familiar with the term privacy?**

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Not sure

11. **We'd like to know if any of the following information about you is available on the Internet for others to see. It doesn't matter if you put it there yourself or someone else did so.**

Mark only one oval per row.

	Yes	No	Not sure	Does not apply
Your employer or a company you work for	◯	◯	◯	◯
Your home phone number	◯	◯	◯	◯
Your cell phone number	◯	◯	◯	◯
Your date of birth	◯	◯	◯	◯
A video of you	◯	◯	◯	◯
A photo of you	◯	◯	◯	◯
Your email address	◯	◯	◯	◯
Your home address	◯	◯	◯	◯
Things you've written that have your name on them	◯	◯	◯	◯
Your political party or political affiliation	◯	◯	◯	◯

12. **How concerned are you about availability of your private information on the Internet?**

Mark only one oval.

- ◯ Very concerned
- ◯ Somewhat concerned
- ◯ Not very concerned
- ◯ Not concerned at all
- ◯ Not sure

13. **Are you concerned about these personal information being on the internet?**

Mark only one oval per row.

	Very concerned	Somewhat concerned	Not very concerned	Not concerned at all	Not sure
Your cell phone number	◯	◯	◯	◯	◯
Your credit/debit card information or bank details	◯	◯	◯	◯	◯
Your home address	◯	◯	◯	◯	◯
Your email address	◯	◯	◯	◯	◯
Your date of birth	◯	◯	◯	◯	◯

14. **Now, here is a list of some things that you might do online. For each activity, how much do you care that only you and those you authorize should have access to the following kinds of information? First, is it very important to you, somewhat important, or not too important to you that only you and those you authorize have access to**

Mark only one oval per row.

	Very Important	Somewhat important	Not too important	Not at all important	Does not appy	Dont know
The people with whom you exchange email	◯	◯	◯	◯	◯	◯
The content of your online chats	◯	◯	◯	◯	◯	◯
The websites you browse	◯	◯	◯	◯	◯	◯
The applications or programs you use	◯	◯	◯	◯	◯	◯
The content and files that you download	◯	◯	◯	◯	◯	◯
The place where you are physically located when you use the Internet	◯	◯	◯	◯	◯	◯
The times of the day you are online	◯	◯	◯	◯	◯	◯
The contents of your email	◯	◯	◯	◯	◯	◯
The searches you perform	◯	◯	◯	◯	◯	◯

15. **Are you familiar with web cookies?**

Mark only one oval.

◯ Yes

◯ No

◯ Not sure

16. **How concerned are you about web cookies?**
Mark only one oval.

◯ Very concerned

◯ Some what concerned

◯ Not very concerned

◯ Not concerned at all

◯ Not sure

17. **Have you ever taken the following measures on web cookies configurations?**
Mark only one oval per row.

	Yes	No	Not sure
Accept cookies without warning	◯	◯	◯
Warn about all cookies	◯	◯	◯
Accept cookies from original server without warning	◯	◯	◯
Rejected all cookies	◯	◯	◯

18. **Considering everything you know and have heard about the Internet, do you think it is possible for someone to use the Internet completely anonymously – so that none of their online activities can be easily traced back to them?**
Mark only one oval.

◯ Yes

◯ No

◯ Don't know

19. **While using the internet, have you ever done any of the following things?**

Mark only one oval per row.

	Yes	No	Don't know
Used a service that allows you to browse the web anonymously, such as a proxy server, Tor, or a virtual private network (VPN)	◯	◯	◯
Used temporary username or email address	◯	◯	◯
Set browser to disable or turn off cookies	◯	◯	◯
Used a public computer to browse anonymously	◯	◯	◯
Asked someone to remove something that was posted about you online	◯	◯	◯
Encrypted your communications	◯	◯	◯
Used a fake name or untraceable username	◯	◯	◯
Cleared cookie and browser history	◯	◯	◯
Decided not to use a website because they asked for your real name	◯	◯	◯
Deleted or edited something you posted in the past	◯	◯	◯
Given inacurate or misleading information yourself	◯	◯	◯

20. **As far as you know, have you ever had any of these experiences as a result of your online activities?**

Mark only one oval per row.

	Yes	No	Don't know
Had important personal information stolen such as your bank account information	◯	◯	◯
Lost a job opportunity or educational opportunity because of something you posted online or someone posted about you online	◯	◯	◯
Felt physical danger due to something that happened online	◯	◯	◯
Been stalked or harassed online	◯	◯	◯
Had your email or social networking account compromised or taken over without your permission by someone else	◯	◯	◯
Experienced trouble in a relationship between you and a family member or a friend because of something you posted online	◯	◯	◯
Had your reputation damaged because of something that happened online	◯	◯	◯
Been the victim of an online scam and lost money	◯	◯	◯

21. **Thinking about current laws in your country, does your country have laws that provide reasonable protections of people's privacy about their online activities?**

    Mark only one oval.

    ◯ Yes

    ◯ No

    ◯ Don't know

22. **Do you think that it is important for your country to have laws that provide reasonable protections of people's privacy about their online activities?**

    Mark only one oval.

    ◯ Yes

    ◯ No

    ◯ Don't know

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