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Communicating Abroad: A Case Study of Za'atari Syrian Refugee Camp

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ABSTRACT

In this study, we examine how refugees in the Middle East stay connected through various communication services. Our findings are based on survey data collected in Za'atari Syrian refugee camp in Jordan. First, we find that social media such as WhatsApp and Facebook are used more frequently compared to mobile voice, SMS, Skype and email. Second, the demographic variables of sex and education level were found to be significant predictors in the choice of communication services in Jordan but have no significant effect in explaining past choices in Syria. In Jordan, men are more likely to use mobile voice, Viber and email, and people with higher education tend to use Viber. These findings provide quantitative evidence of the usage behaviors of refugees, providing valuable information for service providers as well as a basis for future research.

Author Keywords

Internet; Mobile Phone; Refugee Camp; Forced Migration; Information Need; Communication Behavior; Survey Study; Confirmatory Factor Analysis

INTRODUCTION

By the end of 2014, 59.5 million individuals across the globe were forcibly displaced from their homes [18]. In many cases, the displaced are also forcibly separated from their loved ones. Displacement creates a variety of information and communication needs, including maintaining connections with family and friends, keeping updated on the latest news, and staying informed for making decisions about subsequent moves. Increasingly, these needs are becoming top priorities, together with food, shelter and safety. Especially with the high penetration rate of mobile phones and increasing availability of internet access, the role of information and communication technologies (ICTs) in facilitating refugees' lives in asylum calls for further analysis.

Globally, there are 19.5 million refugees and 86% are hosted in developing countries [18]. With the protracted situation in Syria and increasing refugee populations seeking a safe haven in the Middle East and Europe, we conducted a case study in Za'atari refugee camp in Jordan to understand Syrian refugees' communication needs.

In particular, our research examines:

1. What are the communication services refugees use in a camp in Jordan, and how do they differ from the use in Syria?
2. Which demographic variables predict use of traditional communication services (such as SMS and mobile voice, email) versus use of social media and social messaging (such as WhatsApp, Viber, and Skype)?
3. Are different communication services used when communicating with friends and families living in Syria as compared with those living in Jordan?
4. If internet access was reliable, high speed or inexpensive, what kinds of online activities would be of interest to refugees?

RELATED RESEARCH

ICT Use in Middle East

The literature on communication behaviors via mobile phone and internet in the Middle East began with early studies of internet diffusion and recently the role of social media in political change, particularly following the Arab Spring.

Published in 2009, research by Shirazi et al. [16] examined ICTs' contribution to freedom and democracy across 10 Middle Eastern countries (Bahrain, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, and United Arab Emirates). Using country level data from 1995-2005, the research operationalized ICTs as the sum of fixed phone lines, mobile phone subscribers, Internet users and PCs per 100 inhabitants. The research found the digital divide between the Middle East and western countries was closing and also found evidence that ICTs contributed to the promotion of democracy and freedom of expression.

In more recent research, published in 2014, Wojcieszak and Smith [22] studied politics and new media use by Iranian youth. They surveyed 2,800 mostly male youth to understand the use of blogs, text messages and Twitter to communicate about personal topics, new technologies and work-related affairs and politics. They also found that nearly all (96%) had a mobile phone and of those nearly all (99%) had texted in the past month, with average use being daily. The majority of respondents (68%) had social network accounts (Facebook, Cloob). Despite being active in the blogosphere (reading 92%; commenting 70%; writing

54%), any Twitter use was much lower (17%), with an average frequency of every two weeks.

Varol et al. [20] studied the role of social media as tools of mass communication and information diffusion in a social uprising and political mobilization. They studied 2.3 million tweets during the Gezi Park movement in Turkey to characterize individuals' behaviors and roles in the upheaval. The found conversation becomes more democratic and online and offline events become tightly intertwined.

Other works investigate censorship and surveillance in the Middle East. For example, Al-Rawi [1] examined the Syrian Electronic Army and its claims to be a neutral organization protecting its national cyberspace, and Wagner and Gainous found internet use had a positive effect on political knowledge and participation, but only where filtering was limited [21].

Communication Technology Use by Refugees

Studies have been conducted on urban refugees' ICT use, camp-based refugees ICT use and ICT use by resettled refugees permanently in a third country. In each of these circumstances the information needs of refugees as well as access to mobile networks and the internet may differ significantly. Reports of use in well-established camps suggest refugees are eager to use social media for variety of reasons including communication with loved ones, feeling connected, overcoming isolation, and having their stories told [13]. Social media such as Facebook, and mapping technologies have been found to be useful in coordinating during flight to neighboring countries [17] [8]. On the other hand, some refugee studies in communication focus on the differences about how information is delivered and received between refugees and service providers given the variations of culture, power, language and institutions [3]. The dynamics of information delivery in refugee protection and services are also worth investigation [4].

METHODS

Za'atari Syrian Refugee Camp

Located in a desert region near the border of Syria and Jordan, Za'atari Refugee Camp is one of the largest camps in the world. After four years of existence, it is now stably hosting more than 80,000 Syrian refugees with the help of Jordanian government and a network of 26 international humanitarian service providers. Za'atari is functioning as the fourth largest city in Jordan. More than 90% of the households living in caravans have access to electricity, part of which is powered by solar energy [12]. Across the whole camp, 60%-80% of households have private water tanks and 60% have a shower/bathing area inside their shelters [24]. In addition to infrastructure construction, an integrated security mechanism – a Civil Defense Center - was built to ensure faster response to camp emergencies and to offer camp residents unhindered and undisrupted access to services offered by various providers [19]. The

education system, as one of the primary systems for the large youth population, is also built to provide both formal and informal education in the camp. Three formal schools using Jordanian curriculum are functioning to provide classes for girls and boys separately. Other informal training centers are also present, established by various international organizations to help people gain skills like office management, electronics, sewing and design, and barbering.

To support the function of various sub-systems in the camp with information technologies, UNHCR and its implementing partners are able to use wireless internet access to share real-time information with one another. Refugees can use cellular services from both Syrian and Jordanian operators to communicate with friends and family who remain in Syria or have relocated to Jordan or other countries. Mobile and internet access are supported by a range of economic activities within the camp. For instance, the camp hosts approximately 3000 refugee owned and operated shops generating more than 10 million euros a month [12]. Among the shops are retailers of phones, batteries, chargers and SIM cards.

Many refugees arrive with mobile handsets and Syrian mobile carrier SIM cards. The prevalence of mobile phones has led UNHCR, upon refugee registration, to distribute SIM cards to newly arriving refugees as a potential means of staying connected and providing updated information. However, the SIM cards do not provide call minutes so their use is fairly limited. UNHCR and other service providers are interested in the extent and means of mobile phone and internet use in the camp as potential means for information distribution and as platforms for social service programs. The extent to which, for example, the refugees might access tertiary education online, is a potential strategy for overcoming the lack of educational opportunities.

Survey Study

In January 2015, we visited Za'atari Syrian refugee camp in Mafraq, Jordan. With a permit from Jordanian Ministry of Interior, the study was collaborative effort with UNHCR and its implementing agencies, such as Norwegian Refugee Council, International Rescue Committee, International Relief and Development, Relief International, and World Food Program. To examine communication behavior in Za'atari, we developed and reviewed a survey in conjunction with UNHCR. It was first written in English, and then translated and back translated to Arabic by Syrian and Jordanian academics.

Regarding demographics and communication behaviors we asked 13 questions in total, measuring participants' age, sex, education level, English reading abilities, mobile phone ownership, number of SIM cards owned and borrowed, communication services and information sources used in both Syria and Jordan, and their future interests in online activities.

We mainly distributed the survey in training centers and on the street. Three refugees fluent in English and Arabic provided instructions to respondents, and answered questions. After manually entering and carefully cleaning the data, in total, data from 234 surveys were used for further analyses. Since 192 (82%) of the surveys were collected from training centers, this study is slightly biased towards those who are more likely to engage with programs offered by service providers.

Survey Demographics

The basic demographics collected from the surveys include age, sex, education level and English skills. The ages range from 15 to 45, with the average age being 23. Youths, defined by UNHCR as between the ages of 15 and 24, make up 67.1% of the sample. The gender balance is fairly even, with 6 more females than males. The sample is fairly well-educated with nearly 43% having either started or completed a university degree. By sex, we find that in upper levels of education, particularly ‘some university’ and ‘finished university’ more males than females have achieved that level. As for English skills, the majority reported good (36.6%) or fair (34.5%), with only 2 reported fluent.

CHARACTERIZING MOBILE PHONE USE IN ZA’ATARI REFUGEE CAMP

High Mobile Phone and SIM Card Penetration Rate

We measured the mobile penetration rate of the sample through two survey questions asking about handset ownership, handset brand and SIM card ownership. Results indicate among our sample, mobile phone and SIM card penetration rates are 89% and 85% respectively, reflecting the relatively high mobile phone use in the Middle East. According to GSMA, in 2014, the penetration rate of prepaid SIM cards in Syria is about 90% [6].

High SIM Card Ownership and Borrowing Rates

SIM card borrowing behavior is commonly found in Za’atari. Among participants who answered the question: “How many SIM cards do you own? Roughly how many owned by others do you use?”, 78% indicated they borrowed at least one SIM card and among them 34.4% have borrowed more than one SIM card. .

Mobile Phones Dominate Internet Access

Unsurprisingly, with the high rate of mobile phone ownership, they serve as the most common mode for connecting to the internet.

When asked “In Syria, if you did, HOW did you connect to the internet?”, among 221 participants who answered this question, 52% used only mobile phones – either through their own phone (80%) or borrowing other’s mobile phones (20%). But when asked “In Jordan, if you did, HOW did you connect to the internet?”, 69.2% connect only via mobile phones, with 88.9% owning them. On the other side of the increasing use of mobile internet is the decreasing use of computers to connect to the internet. In Syria, 23.5%

of the participants connected only via computers while the figure dropped to 10% in Jordan. The findings show that ways to connect to the internet become limited when people become refugees and mobile phones play a central role in this process.

COMMUNICATION BEHAVIORS IN ZA’ATARI REFUGEE CAMP

Social Messaging dominates Communication Services

Separated from families and friends in their home country and more spare time in the camp make communication, seeking information and building or reinforcing social networks more prominent. In order to understand which communication services are used we asked “when communicating with friends and relatives in Syria via any device (mobile, phone shop, computer), which of the following services do you use and how frequently?”. We listed six communication services: mobile voice, SMS, WhatsApp, Viber, Skype, and email with six frequencies “1 – Never, 2 – Occasionally, 3 – Monthly, 4 – Weekly, 5 – Once per day, and 6 – Multiple times per day”. We also asked the same question in the case of communicating with friends and relatives in Jordan. Since it is a multiple-choice question, the number of mentions of different communication services is shown in Figure 1, and Figure 2 is the average frequency, that is the intensity of use, of the services to communicate with people living in Syria versus Jordan.

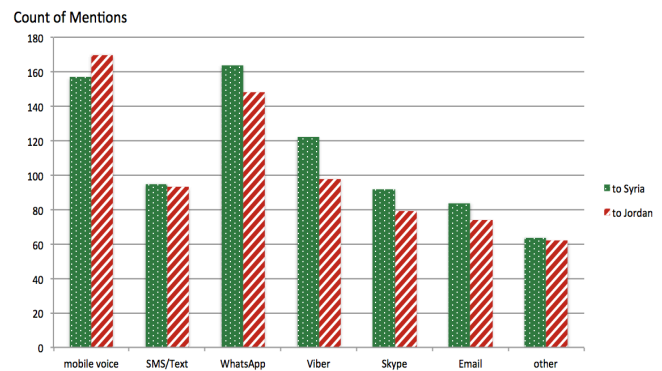


Figure 1 Number of Mentions of Communication Services to Friends and Relatives Living in Syria and Jordan

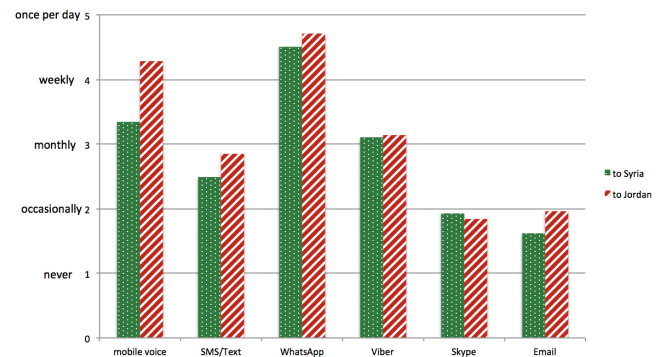


Figure 2 Average Frequencies of Using Different Communication Services to Friends and Relatives Living in Syria and Jordan

To communicate with people living in Jordan, mobile voice (M=4.28, SD=2.08), WhatsApp (M=4.71, SD=2.04) and Viber (M=3.15, SD=2.48) are the three top choices with WhatsApp being the most frequently used service. To communicate people living in Syria, WhatsApp (M=4.51, SD=2.06) is the most popular and also most frequently used service with mobile voice (M=3.34, SD=1.98) and Viber (M=3.08, SD=2.26) being the second and third choices.

Only mobile voice has been used by more people after residing in the camp. All the other communication channels, especially those internet-enabled messaging applications, are being used by fewer people in Za'atari. Nevertheless, the frequencies of use of all the communication services are experiencing an increase except Skype.

Differences between Communicating with People in Syria and Jordan

We use t-test to examine whether there is a significant difference in the use of these communication services to contact with people living in Syria and Jordan. From Table 1, we can tell that only mobile voice usage is different between communicating with people living in Syria and people living in Jordan (p<.001). All the other communication services, except Skype, have some difference, however they are not statistically significant.

Table 1 t test Results

	Frequency Mean To Syria	Frequency Mean To Jordan	t-test	p-value
Mobile Voice	3.34	4.30	4.36	1.72e-05***
SMS/Text	2.49	2.85	1.08	0.28
WhatsApp	4.51	4.71	0.86	0.39
Viber	3.08	3.15	0.21	0.83
Skype	1.94	1.85	0.25	0.80
Email	1.62	1.96	0.92	0.36

P<.001 *** P<.01** P<.05*

Beyond the choices of communication services, we also measured refugees' preferences in terms of mobile carriers when communicating with friends and relatives living in Syria and in Jordan. We then asked "If you communicate with friends and relatives in Syria via your mobile phone, in general do you prefer to use 1. A Syria mobile service, 2. A Jordanian mobile phone service, or 3. No preference?", about 52% choose Jordanian mobile service providers over Syrian ones while the number is 83% when they contact people in Jordan. These preferences are significantly different with a t=2.35 and p=0.02.

Demographic Features of the Choices of Communication Services

Next, we are going to investigate the roles of demographics like age, sex, education level and English ability in predicting the choice of communication services.

We use ordinary least square (OLS) regression model in testing the relationships. In general, sex, comparing to other demographics like age, education level and English abilities, has a significant role in predicting the use of many communication services.

As shown in Table 2, via comparisons of standardized betas age, education level and English abilities are not significant predictors in the use of communication services in Syria. Sex, however, is a strong predictor in the use of WhatsApp, Viber, and Skype – males are more likely to use them than females.

We also test the relationships between the demographics and communication services in Jordan.

As Table 3 shows, age and English abilities have no significant effects on the choice of either service. However, males are more likely to use mobile voice, Viber and email than females. And people who have higher education level are more likely to use Viber in Za'atari.

INFORMATION SOURCES

In addition to communication services refugees use to keep connected with loved ones and current situations both in Syria and Jordan, they seek other various information sources. Therefore, we asked open questions in the survey to understand their choices of information sources and the frequency of use. We asked "In Syria, if you went online, what was your favorite source of information on the internet and how often did you use it " and "Since you arrived in the camp, if you go online, do you access information sources different from those you accessed in Syria? If so what are they? Generally, how frequently do you access them?". In total, 147 participants reported 160 open responses about information sources they use in Syria and 99 participants provided 122 consistent answers when in Jordan. Through analyzing various reported open answers towards this question, we found that top three information sources in Syria are Google (38.8%), Facebook (11.3%) and YouTube (7.5%). Even though 38.4% of the participants reported that there is no change in choosing information sources, among those who experienced the difference, 32.8% listed new information sources in the camp including Facebook and YouTube, which they did not accessback in Syria. We also witnessed the increasing use of other social media like WhatsApp. Also there are 6% of the participants reported that they stopped using the internet in Jordan. To understand the choices of information sources, the frequency of using these various information sources are also examined. For example, Google, Facebook, YouTube, Skype, Wikipedia and WhatsApp are witnessing an average increase of 20.4%.

Table 2 Prediction of the Use of Communication Service When Communicating with People in Syria

Demographics	Services					
	Mobile Voice	SMS/Text	WhatsApp	Viber	Skype	Email
Age	.03	.05	-.07	-.12	.01	-.17
Sex	-.02	-.03	-.17*	-.22*	-.33**	-.22
Education Level	.06	-.16	.08	-.06	-.16	.02
English Ability	.05	.06	-.07	-.05	.09	.14
R ²	.01	.02	.04	.06	.11	.08
Adjusted R ²	.02	.03	.01	.02	.06	.03

Note: Cells entries are standardized Beta coefficients from OLS regression. P<.001 *** P<.01** P<.05*

Table 3 Prediction of the Use of Communication Services When Communicating with People in Jordan

Demographics	Services					
	Mobile Voice	SMS/Text	WhatsApp	Viber	Skype	Email
Age	-.10	.14	-.15	-.03	.06	-.02
Sex	-.17*	-.06	-.12	-.35***	-.22	-.34**
Education Level	.16	-.09	.11	.33**	.01	.03
English Ability	.10	.20	.09	.13	.15	.20
R ²	.08**	.05	.05	.10	.08	.18**
Adjusted R ²	.06**	.004	.02	.05	.03	.13**

Note: Cells entries are standardized Beta coefficients from OLS regression. P<.001 *** P<.01** P<.05*

INTERESTS AND FUTURE DEVELOPMENT

Providing Online Activities

Given the understanding of communication behaviors by refugees living in a refugee camp, we are curious what online activities they wish to participate in. So we asked – “If internet access was reliable, high speed and inexpensive or free, which of the following online/internet-based activities might you be interested in?” It is a 5-point scale question with 17 online activities listed. The scale ranges from “not at all interested” to “very interested” (range = 1 to 5).

Confirmatory Factor Analysis

Here we group these 17 online interests by using confirmatory factor analysis (CFA). CFA is conducted through the use of R package “lavaan” [15] in R Studio [23] to examine construct validity of the groupings. Goodness of fit of the model is assessed by Chi-Square, Degree of Freedom (DF), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Residual (SRMR) [2] [5]. Chi-Square is the basic check for model fit. Together with DF, the model fit is acceptable when the ratio of Chi-Square to DF is less than 3 [11]. CFI assesses the relative improvement of the model with a baseline null model, thus, generally a CFI>.90 and towards 1.00 indicates a

reasonably good fit. RMSEA is a parsimony-adjusted index to measure the error of approximation. A RMSEA less than .08 usually shows a reasonable error of approximation. SRMR is an absolute measure of fit with a value of zero indicating a perfect fit.

The analysis confirms six main areas of interests: online education, information seeking, entertainment, communication motivation and two media use factors. This six-factor model shows a good fit with Chi-Square=212.80, DF=104, Chi-Square/DF=2.05, CFI=0.93, RMSEA=0.07, and SRMR=0.05. Besides the model fit, we also check the convergent and discriminant validity of the factors, which are also reported in Table 4. Online education interests include both online formal and vocational training programs. Media 1 includes both popular social media applications WhatsApp and Facebook, while Media 2 captures interest in less popular (social) media such as Twitter, YouTube, Skype, Viber and email. Information seeking includes the channels refugees use to be aware of the complex situations they are in, such as news, jobs and employment information, health and legal information search, and geographical information through mapping technologies. Entertainment activity interests include sports and gaming. Also, communication needs, both for

contacting people inside and especially outside the camp, are captured in communication motivation.

Regression Analysis

In general, refugees with different age do not show much difference of their interests in all online activities but entertainment, with the younger the higher interests in online entertainment activities. Education level is a strong predictor in online education, media use and communication.

Since English ability is significantly related with education level, it also shows similar effects of education level. In addition, male and female are equally interested in online education, entertainment activities and popular media use

like WhatsApp; however, males tend to be more interested in those less popular media than female users. Therefore, to advocate higher participation of online activities, especially online education, improving refugee’s education level and English skills may improve their confidence as well as interest.

Our findings are concurrent with the study by Hargittai and Hinnant [7], showing that education was positively correlated with ‘capital enhancing’ online activities. Also, our study shows evidences for Helsper’s finding in that older users undertake a more narrow range of online activities [10] [9].

Table 4 Refugees’ Online Interests Factors

Factor	Items	Mean	SD	Factor Loading	Cronbach’s Alpha	AVE
Online Education	Participate in online school/education	3.34	1.81	0.85	0.84	0.80
	Participate in online college/university/vocational training	3.27	1.85	0.93		
Media 1	Instant messaging /WhatsApp	3.84	1.77	0.90	0.84	0.77
	Facebook	3.45	1.96	0.84		
Media 2	Twitter	2.67	2.04	0.79	0.86	0.65
	YouTube	3.07	1.94	0.91		
	Viber/Rounds	2.94	1.94	0.77		
	Email	2.64	1.94	0.75		
	Skype	2.43	1.92	0.80		
Information Seeking	Information search (health, legal)	3.56	1.72	0.86	0.83	0.66
	Jobs/employment	3.45	1.76	0.81		
	Mapping (Google Maps, etc.)	2.78	1.96	0.77		
	News	3.77	1.69	0.82		
Entertainment	Gaming	2.55	1.95	0.80	0.75	0.62
	Information Search (entertainment, sports)	3.00	2.00	0.78		
Communication motivation	Connecting with others inside the camp via social media (Facebook, etc.)	3.45	1.84	0.93	0.95	0.91
	Connecting with people outside the camp via social media (Facebook, etc.)	3.56	1.85	0.98		

Table 5 Prediction of Online Activities Interests

Demographics Factor	Online Education	Media 1	Media 2	Information Seeking	Entertainment	Communication motivation
Age	.03	-.10	-.18	-.03	-.38***	-.05
Sex	-.10	-.36***	-.44***	-.35***	-.37***	-.38***
Education Level	.36***	.16	.27*	.33**	0.05	.21*
English Ability	.14	.14	.11	.13	.14	.08
R ²	.21***	.26***	.35***	.34***	.23***	.23***

Adjusted R²

.18***

.18***

.32***

.31***

.20***

.20***

Note: Cells entries are standardized Beta coefficients from OLS regression. P<.001 *** P<.01** P<.05*

DISCUSSION AND CONCLUSION

Our study contributes to the understanding of communication behaviors by refugees in the Middle East, especially the role of mobile phones and social media in facilitating their communication. As they reside in a refugee camp established by UNHCR and a host government, we propose potential programs that might enhance their well-being. For instance, programs promoting access to information and social media use could help refugees stay connected with loved ones and overcome the isolation of camp life, where movement among the general population is limited.

Given the unique situation in every refugee source country in terms of its political, economic and cultural states, we cannot generalize the findings from this study into other refugee populations around the world. However, in the context of Middle East, we hope our findings could be useful for service providers in understanding the current behaviors of refugees and providing more targeted services for specific refugee populations. Also, we hope scholars from multiple disciplines could be inspired to conduct research that will improve the lives of refugees. As communication technologies interact with the dynamic social network among refugees and institutions, some future studies could explore the roles of these ICTs in coordinating the global refugee situation with the basis we have constructed in this study on the ways refugees choose to keep connected and informed.

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