Mobile (in)security? Exploring the realities of mobile phone use in conflict areas

Benjamin Tkach & Apryl A. Williams

Published online: 14 Jul 2017.

Submit your article to this journal ✎

View related articles ✎

View Crossmark data ✎

Routledge
Taylor & Francis Group

Check for updates

Mobile (in)security? Exploring the realities of mobile phone use in conflict areas

Benjamin Tkach* and Apryl A. Williams

Center on Conflict and Development, Texas A&M University College Station, College Station, TX, USA

ABSTRACT
Across disciplines, scholars extol the revolutionary potential of mobile technologies in developing nations. Mobile phones in particular may facilitate economic and social development. However, our understanding of mobile phone's interaction with a developing country's society is limited by two factors: first, development is often accompanied by social and political conflict; and second, scholars often provide a broad overview on the use of these technologies. We address these limitations through the use of data collected from ethnographic interviews conducted in the eastern part of the Democratic Republic of Congo. We highlight the everyday use of mobile technologies in developing nations that experience political conflict. We conclude that while mobile technologies have some potential of mitigating social inequality, political conflict, and safety concerns, these opportunities for meaningful use are hampered by limitations associated with daily life in developing countries such as irregular access to electricity and network coverage boundaries.

Introduction

This research article is part of an ongoing project investigating ICT use in conflict zones in the Democratic Republic of Congo (DRC) funded in part by the Center on Conflict and Development at Texas A&M University. To date, this multi-component study has collected data from over 240 journalists and community members based in the DRC, Kenya, Rwanda, and Uganda through in-person interviews, surveys, and digitally mediated interviews. The overall objective of this project is to better understand the adoption and use of the Internet, mobile phones, digital communication applications, and social media in the DRC.

In this article, we explore the use of cell phones and computers in an area with limited communication infrastructure and electricity. We utilize a grounded theory approach to examine interview data and observe an emergent theme: access to technology influences the way people think and talk about conflict as it relates to them personally. We present data from 34 interviews with local shopkeepers, Internet café frequenters, and students in digital literacy courses. Findings reveal that use of mobile technologies impacts

individuals' conception of conflict. Specifically, when participants were asked, 'Do you think there is conflict in your area?' responses varied in relation to participants' technology use and Internet access. Participants who reported accessing the Internet from a mobile device or computer were initially more likely to say that, though there is conflict in the area, they themselves have not directly experienced conflict. Interestingly, often they would then provide a narrative about a time when they had, in fact, experienced conflict (e.g., a hijacking or kidnapping). We hypothesize that the apparent disconnect in these participants' responses are in part influenced by higher levels of media saturation. When individuals have greater access to news about conflict, they are more likely to minimize information about bodily harm, conflict, and insecurity to their person.

In this article, we present interview data from two provinces in eastern DRC, a conflict-prone area. The eastern part of the DRC has a long and complex history. Conflict in this area represents ongoing political instability, multiple conflicts, and several competing factions. The history of the region informs our approach. By investigating the daily lives of individuals in insecure areas, we contribute to a growing conversation on the affordances of ICT adoption in developing nations. Specifically, we find that political and economic insecurity introduces a particular set of constraints for users in conflict-prone areas. For example, limited access to electricity acts as a barrier to opportunities for meaningful usage of mobile phones. When users cannot rely on readily charged mobile phones, they cannot trust that they will be able to contact others for help in emergency situations. Yet, we find that users do, in fact, rely on mobile phones to create informal networks of support in emergency and non-emergency scenarios. Therefore, the themes that emerged from our analysis paint a complicated picture of ICT use. Looking beyond mobile phone use for personal safety and support, our research along with that of others, suggests that individuals' agency can be increasingly bounded by connectivity. But in conflict-affected regions like eastern DRC, do individuals grappling with barriers to the digital world (e.g., financial constraints, inconsistent access to electricity, or poor network coverage) for the time being inhabit different realities? We observe that mobile phones have become so integral to daily life that their absence facilitates perceptions of insecurity. Ultimately, we conclude that although barriers to opportunities for usage impede the utility of mobile phones in emergency situations, individuals still choose to rely on them for means of safety, support, and networking. These informal networks of support engender greater agency for individuals in conflict-affected, developing nations.

In the next section, we provide a brief and simplified review of the socio-historical context of eastern DRC, focusing specifically on the North and South Kivu provinces. We do not intend for this overview to be an exhaustive or all-encompassing historical review; rather, we focus on conflict dynamics that inform the current state of (in)security. We discuss the consequences of the region's major wars for refugees, insurgent groups, and government instability. The tumultuous history of the area informs our exploration of media adoption.

North and South Kivu lie nearly 2200 kilometers to the east of the DRC's capital, Kinshasa. The two provinces border Burundi and Rwanda to the east and Uganda to the northeast. The Kivu provinces' geographic and political isolation from the capital, coupled with ineffective border security, were important factors during the First and Second Congolese Wars. The First Congolese War (1996–1997) toppled the dictatorial regime of Joseph-Desiré Mobutu, who had ruled the DRC for 32 years. Partly in response to the refugee crisis generated by the 1994 Rwandan genocide and Mobutu's support of rebel groups

in neighboring countries, Ugandan, Rwandan, and Angolan troops aided rebel leader Laurent-Desiré Kabila's campaign against Mobutu. Kabila's *Alliance des forces démocratiques pour la liberation du Congo-Zaire* (AFDL) seized power after overcoming limited resistance from the ineffective national army. At the same time, the conflict heightened existing ethnic tensions: local populations were harassed, robbed, and killed both by uniformed soldiers as well as by unofficial militia forces (Reyntjens, 1999, p. 243).

The Second Congolese War (1998–2003) was a continuation of the first conflict. Domestic rebel groups initially challenged the Kabila government's control of the eastern provinces. Next, foreign powers intervened in the DRC to forcefully disarm rebel groups operating out of the lawless DRC provinces. In all, 9 countries and over 20 armed groups participated in the conflict, resulting in millions of war-related causalities and displaced persons, which further exacerbated the region's already dire refugee crisis. The lack of border security, persistent incursions by eastern DRC-based rebel groups, and Kabila's dismissal of Ugandan and Rwandan advisors provided a pretext for foreign intervention. Ethnic divisions again flared: Rwanda funded and trained recruits from the ethnic Banyamulenge Tutsi group, who had been denied citizenship rights under Mobutu (Shearer, 1999). Rebel groups quickly occupied the resource-rich eastern provinces and successfully advanced on Kinshasa. Kabila sought and received military support from Angola, Zimbabwe, and Namibia to stifle rebel advances. During the remaining years of the conflict, rebel factions splintered, foreign involvement fluctuated, and the Kivu provinces experienced intense violence. Despite the 2003 formal peace agreement, the eastern DRC continued to experience ethnic violence. In some areas, the violence was widespread and arguably constituted a third war.

Since 2003, insurgent groups have continued to operate out of the Kivu provinces, contributing to regional instability, lawlessness, and violence. The succession of new rebel groups following the 2003 peace agreement partially resulted from discontinuities between the agreement and distribution of power because some players were left out of the agreement (Lemarchand, 2006). Some rebel leaders have recruited members through resource access and allocation, but other leaders have utilized social ties to recruit and retain members (Weinstein, 2005). In response to the violence in the region and the 1999 signing of the Lusaka Ceasefire Agreement between the DRC and five regional states, the United Nations founded the MONUC peacekeeping mission to observe the ceasefire and the disengagement of forces. This mission was expanded in 2010, renamed MONUSCO, and charged with supporting the DRC government in its efforts to protect civilians and safeguard human rights against threats of imminent physical violence. Physical violence remains a threat to individuals in the Kivu regions. In North Kivu alone in 2015 there were over 340 violent incidents that resulted in over 750 fatalities (Armed Conflict Location and Event Data Project, 2016). Both regions remain rife with ethnic tension, poor governance, and conflict consistent with a fragile state (World Bank, 2010).

Literature review

The Center on Conflict and Development is an interdisciplinary research center that conducts research on conflict (broadly defined) and developing nations. The authors of this paper come from different disciplinary backgrounds – sociology and political science. Consistent with the spirit and mission of the Center on Conflict and Development, the

authors find that merging their closely related yet still diverse perspectives has deepened their analysis of the survey and interview data collected so far.

In the following literature review, sociological and political science perspectives are intertwined as we first provide an overview of the status quo of ICT use in developing countries and then provide a cross-disciplinary overview of media effects in conflict zones.

Media adoption in developing nations

Previous research has demonstrated the influence of media in developing nations, in areas experiencing conflict (Salgado, 2009), and countries that are experiencing cultural transition (Fuchs & Horak, 2008; Horst & Wallis, 2011; Voltmer, 2006). Journalists have used traditional media to harness political power in Angola and Mozambique while digital media such as Twitter have been used successfully to encourage political participation (Frere, 2009; Frere & Kiyindou, 2009). At the same time, in many developing nations, including those in Sub-Saharan Africa, digital inequality is a serious issue because of ongoing political and social conflict that hinders the flow of mobile phones and computers into and out of the country and inhibits the use of mobile communication to participate in political action and dialogue – further compounding existing social inequalities and aggravating power imbalances. In countries such as the DRC, the use of these technologies is further impeded by limited access to electricity, which is needed to power devices.

Even under these conditions, digital media and access to the Internet have been shown to have a generally positive effect on social change in areas of insecurity and conflict. Citing the efforts of journalists who were able to initiate grassroots movements in part because of reliable access to the Internet, Frere (2009, p. 226) argues that the implementation of new or emerging media facilitated peace across the central African Great Lakes region, in nations such as Rwanda, the DRC, Uganda, Burundi, Tanzania, and Zambia. Moreover, she attributes impactful changes in media practices directly to increased access to mobile phones and the Internet specifically in the DRC, Rwanda, and Burundi. Even limited access to the Internet in the hands of citizen activists can force government organizations and media conglomerates to be more transparent about the promises and commitments they make and the actions they are taking to uphold these promises and commitments (Frere & Kiyindou, 2009; Ottensen & Mudhai, 2009).

In Salgado's (2012) research on the use of the Internet as a tool of democracy in Mozambique and Angola, she finds that, in spite of limited access, the Internet, websites, online newspapers, and blogs strengthen civil society in that they spread information, encourage the presence of multiple actors, inspire the creation of independent media, and promote participation (p. 1373). On the other hand, a number of studies have also found disadvantages connected to widespread access to media. Government-operated media can manipulate stories they report or disseminate outright propaganda (Ibelema, 2008; Salgado, 2012). Worse, some governments shut down nation-wide internet service providers to control political opposition or suppress unrest.

Global media effects and digital witnessing

The consumption of media in conflict-prone countries is well established. But the ubiquitous availability of the smart phone and accompanying cameras has changed the ways that

people share information. In the context of the DRC, this means that radio journalists who may have previously been restricted by the government have more liberty to share critical or oppositional information. For instance, the use of the WhatsApp messaging platform and other methods of mobile communication provide opportunities to share information with community members without government oversight. Even when community members do not themselves have access to the Internet, they may still become aware of current events more rapidly than before (Chouliaraki, 2015; Steel, 2015). Local officials and other esteemed community members can spread information about conflict through word of mouth, as they have always done, only now their words can much more rapidly reach many more listening ears than before. As well, official and unofficial messages now may contain rich digital data – images and video clips – recorded by on-the-spot eyewitnesses. As reviewed above, the nature of the effects of digital witnessing and reporting are still undetermined.

Based on limited data, some scholars have adopted a fundamentally optimistic perspective about the impact of increased ICT use. Steel, for example, has argued that,

> regardless of whether or not we ascribe these technologies with having … revolutionary power, we cannot deny the fact that the Internet affords [a] greater degree of access to events occurring in other parts of the world; conflicts today are more visible to wider audiences (Hoskins & O'Loughlin, 2009; Matheson & Allan, 2009). As these pieces of content travel through time and space, they come into contact with various actors … who attempt to claim purchase on the narrative of those events as they unfold. (2015, p. 1269)

Yet, while there may be some evidence to support this view in countries where ICT access is universal or nearly universal, we cannot assume that access is equally unhindered in all locales. In the DRC, for instance, access to news via social media and other modes of digital communication is limited to just particular segments of the population.

Communication practices and perceptions of safety

Media systems dependency theory states that conditions of social change and conflict increase people's dependency on media (Matei & Ball-Rokeach, 2005). In light of communally experienced trauma, individuals' consumption of media can influence a community's conceptualization of certain geographical areas as more or less dangerous. The widespread perception of the cell phone as a device that allows individuals to feel safe is due, in part, to users' strong emotional attachment to mobile phones. Numerous studies have demonstrated that personal communication devices can act as a stand-in for immediate human contact. Some of these studies further indicate that the cell phone may be viewed as an extension of the self. Many participants state that they no longer feel comfortable without their mobiles phones (e.g., Cumiskey & Brewster, 2012; Walsh, White, & Ross, 2008). On a communal level, in areas that experience relatively high amounts of conflict, this can mean that owning a cell phone can influence individuals' perceived levels of safety and security.

A study conducted on US undergraduate mobile phone users (Nasar, Hecht, & Wener, 2007) found that users were more likely to participate in situations of uncertainty at night when they had their phones with them. The results indicated that mobile phones may provide users with a false sense of security in that they feel empowered in potential cases of emergency by having a phone. Actual use of a mobile phone in emergency

situations was found to be substantially lower. This study was performed in the US with undergraduate students, but Nlerum and Nnodim's (2015) investigation of mobile phone users in rural Nigeria can provide a more closely fitting context. In their study, users also felt safer when they had access to a mobile phone. However, differing noticeably from the findings with undergraduate populations in the US, rural Nigerian users placed a higher value on the mobile phone because it can be used in times of emergencies.

Thus, mobile phones can be considered a vital part of the communication infrastructure in conflict areas. 'A communication infrastructure consists of the everyday conversations and stories that people, media, and grassroots organizations create and disseminate' about current events (Matei, Ball-Rokeach, Wilson, Gibbs, & Gutierrez Hoyt, 2001, p. 2). In conflict areas, communication platforms including mobile phones and radio are largely responsible for disseminating ideas and perceptions about local and regional conflicts. When public media are viewed as oppositional, they are often censored by local and national governments. Considering the politics surrounding radio broadcasts as well as the possible spread of misinformation, it becomes vital to explore radio as an influential factor in depicting certain geographical areas as more or less prone to conflict. In this context, mobile phones can play an important role in either confirming or correcting ideas that are spread by media in that people with mobile phones living in a specific locale can rapidly communicate with others about recent events. Later in this article, we discuss the role of the cell phone in creating overarching narratives about perceived levels of safety and security.

ICTs and conflict in the DRC

Konkel and Heeks (2009) tentatively theorize that conflicts that occurred in Afghanistan, the DRC, and Somalia have increased the growth of the number of Internet and mobile phone users and the number of companies that are investing in mobile communication technologies:

> Insecure countries are places of great uncertainty, and uncertainty pushes up the value of information. Thus, citizens will be willing to invest a greater than average level of their income on information and communication technologies, particularly those – like mobile phones – which can help to provide just the kind of information (safe/unsafe locations, approaching dangers, places to find scarce commodities, etc.) that addresses their main uncertainties. (p. 418)

Their hypothesis is supported by the work of Castelles, Fernandez-Ardevol, Qiu, and Sey (2007) who argue that personal safety is one of the main reasons users choose to adopt mobile phone technologies.

Though the argument presented by Konkel and Heeks (2009) seems to require somewhat of a speculative leap, their conclusions appeal to common sense. Their argument can be boiled down to two possible scenarios, both of which point to change on the horizon with the advent of improved infrastructure and governmental support. Either mobile telephone companies are becoming more willing to invest in countries experiencing conflict or citizens are more willing to adopt mobile technologies. In the case of the former, this shift suggests that companies see the potential for growth in the DRC and may be willing to bring in more advanced technologies in the future. If the latter is true, individuals are taking their personal safety as well as their economic future into their own hands. While

both of these scenarios portend good news and economic and technological growth for the future of the DRC, the second scenario is more relevant to the study at hand.

If citizens are indeed using cell phones to ensure their own safety, then they are not doing so as singular actors in a vacuum. This is a social process in which entire networks of individuals work together to notify each other of existing or potential threats. In developing nations, particularly in sub-Saharan Africa, scholars caution against inflated optimism about the ability of ICTs to act as an equalizing force in terms of both social and economic inequality (Sey, 2008). Specifically, in the DRC, mobile phones provide hope of ushering in new economic and educational opportunities. But optimism about mobile technology's ability to empower citizens to engage both socially and economically must be tempered by a consideration of the power relations, positions, or practices that exist within that society (Wallis, 2011, p. 2). Thus, in our present analysis, we analyze the use of ICTs in relation to evading, resisting, and conceptualizing conflict in the DRC.

Data and methods

The goal of the overarching study is to provide a broad but nuanced view of the influence of mobile technologies in the daily lives of those living in areas affected by conflict. To address these aims, qualitative data were collected in the field during the summer of 2015. Additional data (for the larger study) are still being collected from radio journalists via the WhatsApp messaging platform. With the help of three key informants, Kisolu, Melvin, and Oliver, one of the authors (Apryl Williams) conducted interviews in three cities in the region of North Kivu, DRC, over a six-week period. A critique of qualitative methods is that they often lack validity. To provide as much validity and transparency as possible, a copy of this manuscript was sent to key informants. Their feedback was considered and incorporated before the manuscript was published.

In the ethnographic tradition, interviews were semi-structured with open-ended questions. Participants were asked questions such as: 'Do you use email to communicate with your local officials?', 'How often do you use your computer or mobile phone to access the news?', and 'Do you feel that the cost of using a mobile phone is expensive?' We interpreted responses using a grounded theory approach. Grounded theory aims to generate new theory by identifying recurring themes in data pertaining to a research focus instead of one or more narrowly defined research questions. Research questions in the ethnographic tradition are intentionally crafted to be open ended, like the questions quoted above. Additionally, participants' responses are used to inform the elaboration and revision of theory and to adjust the direction of hypotheses.

Data from the entire set of interviews were coded using the constant comparative method. The constant comparative method 'is concerned with generating and plausibly suggesting (not provisionally testing) many properties and hypotheses about a general phenomenon (Glaser, 1965, p. 438). Interviews were coded individually by both authors and a research assistant. Abiding by the constant comparative framework elucidated by Boeije (2002), interviews were compared to each other to generate initial codes. We then compared codes collectively to process the following themes that emerged as dominant: government restriction, political tension, gender, mobile phone use, social media, internet access, and conflict. Using this new code book, interviews were then re-coded

by both authors. For the study reported here, we focused exclusively on codes attached to responses to the questions: 'Do you think that there is conflict in your area?' and a series of questions about access to information including: 'Do you use your mobile phone to listen to the radio?', 'Do you have a computer, and if so, what do you use it for?', and 'Do you have access to the Internet?'

Before moving on, we would like to address the ICT codes. ICT codes in our analysis included social media, internet access, and mobile phone use. We were careful throughout our analysis to distinguish internet access and mobile phone usage because they may represent two completely different experiences. Participants were specifically asked if they had access to the Internet on their phones or if they instead accessed the Internet on a computer. In an attempt to further clarify user experiences, participants were asked if they had social media on their phone, if they used the phone to listen to the radio (which necessitates internet access in this case), and/or if they used their phones to read the news or access websites. We maintain that this specification is important because access to the Internet via a mobile device suggests greater and more regular access to information and news reports as opposed to occasional use of the Internet at the local WiFi café. Likewise, if participants did access the Internet through a computer, Williams asked if they owned the computer or if they went to an internet café or to a university campus to access the Internet. To further clarify, participants were asked how many hours a day they had access to electricity because electricity use also provided an indication of how often participants were able to access the Internet.

One of the authors was able to see and verify the mobile phones of each person interviewed. In some situations, questions about social media access via the phone were not asked because the phone was not a smart phone. Participants were still asked if they used social media. Often participants opened their flip phones or turned on their smart phones (some participants kept their phones powered off due to limited electricity availability) and demonstrated their actions as they responded to the questions.

This study has been approved by the Texas A&M University IRB board (IRB2015-0190D). In accordance with the IRB approval, names were not collected. All names presented herein are fictive. Additionally, because of the contentious nature of the area, we have chosen not to reveal specific details about cities in order to best protect participants.

Results and discussion

Cell phone use and individual security

The importance of informal personal networks in the provision of security was a common theme throughout the interviews conducted in the DRC. As detailed in the history section, the North Kivu region has consistently experienced violent conflict. The area's violent history, coupled with the lack of national government capabilities from Kinshasa (2400 kilometers away by road), an ongoing refugee crisis, and limited local institutions, has generated weak local governance. In this context, in the face of pervasive violence and a pervasive threat of future violence, informal networks appear to be filling a need for timely news and information not currently being addressed by formal civic and governmental structures.

Over the course of multiple interviews, respondents frequently stated that cell phones serve as a security mechanism. Cell phone connectivity provides an informal network to

connect individuals and serves as an early warning system. To identify the role of cell phones, interviewees were asked, 'Can you tell me about a time when you used your phone to warn others about conflict?' The conversations that ensued captured nuanced differences in individual perceptions of conflict. During interviews, translators also often utilized additional concepts to convey the question, typically associating the idea of *conflict* with the idea of *instability* to better elicit responses. The distinction between *conflict* and *instability* is context specific: given the conflict in the region, individuals typically associated conflict with the activities of armed rebel groups or other organized violent activities. Instability, on the other hand, was associated with a range of violent and non-violent behaviors that, depending on social context, might or might not be classified as conflict in other societies. Each of the following interview excerpts is in response to the above question ('Can you tell me about a time when you used your phone to warn others about conflict?') and each demonstrates the role of informal cell phone networks as a security mechanism.

Lucas: Yes, for example when there are people who come to invade these pharmacies and the people who are working in them, people call each other. It helps me to know to leave. Other people call and tell me that people are coming. It is very helpful. Or other people call me when they are sick and I go take them medicine.

Mathis: I had some hijackers that were traveling and they kidnapped me and the first thing they did was take the phone so we were unable to communicate. So we left and were able to use other people's phones. We took another phone to communicate from someone else.

Manon: My neighbor was taken away by hijackers and I was able to use my phone to call his family to make some investigation to get him back. And also when there is a sick person we can call and get someone to come back and take care of them.

Gabriel: Yes. I have used the phone to warn others of danger, and they got away. When thieves arrive, I can warn people on the next block so they can prepare.

Each respondent highlights the role of cell phones as a security device in the absence of state security services. It became clear throughout the interviews that, in instances of violent incidents, calls to the police are rarely made. Both Jeanne and Manon explained that, after a kidnapping, the families of the individuals are called to resolve the issue; police or similar state actors are not mentioned. Individuals' first response is to call the person in danger: in fact, only in one case did a respondent mention calling the police as an avenue to address the potential violence. When asked if he has used his phone to warn someone, Albert, a journalist, responded as follows: 'It's not so often, but you can find someone in danger, and there we are obliged to call the authorities. We journalists have so many numbers, and authorities' numbers, so [the thing to do] is to contact them.' In the absence of an organized, state-provided security system, individuals rely on their social network for protection. Albert's response also indicates the reality that most individuals may not have phone numbers for police forces nor any professional obligation to contact the authorities. Cell phones, in the absence of state security services, are the go-to tool for self-protection.

Phones have become so integral to daily life that the absence or lack of a phone generates perceptions of insecurity. Physical security threats, particularly physical violence and crime, while not common, have generated conditions where individuals do not feel safe, absent connection to informal cell networks. The conversation below highlights this dynamic.

Author:	How do you feel when you use the phone or the computer?
Translator:	Or perhaps when you leave [your phone] at home?
Clara:	When I leave my telephone, I feel insecure. When I don't have my phone, I feel lonely when I don't have it.
Author:	Do you think that your phone says something about your personality?
Halle:	No. When I don't have the phone, I don't feel like a person. The phone helps me to feel like I am with people. The phone has become part of me.

At the same time, cell phones are just tools: individuals determine the utility of the device. Cell phones are not a panacea for avoiding violence. The following conversation identifies the dual nature of cell phone technology. The connectivity generated by cell phones can be used for nefarious purposes: individual users can utilize the technology to locate other individuals and identify if someone is at a specific location. The following conversation with Jeanne typifies this dual nature.

Jeanne:	I would like to know what kind of conflict [you mean]?
Translator:	About everything you can see.
Jeanne:	There is conflict even with communication, you can have good contact with someone, and you can maybe kill the person using the phone. So while communicating you can tell other people that you can find them in a certain area. He can't know that you are the person directing others to find him. It happens that there are kidnapping situations that are using communications in a bad way, so you say come and meet me here, and it ends poorly.
Author:	How often do you think that happens?
Jeanne:	It happens several times, but not so much. It seems to be the way people can use to get people in a very quick way. Cell phones are developing reputation of protection – but can be used for nefarious activities.
Author:	Has that ever happened to you personally?
Jeanne:	It happened to my family with communication. Someone called after having taken a phone from a family member, and then called another number and said come to this place, and when she arrived they transported her directly someone else. And then he used the same phone to call and say if you want to talk to your child you can call this phone, and he said if you bring us money, you can find your children.

This conversation highlights several insights about the nature of conflict, cell phone usage, and connectivity. First, location anonymity is one protection against kidnapping and physical violence. An individual may unwittingly divulge their own location or someone else's location in conversation and thereby reduce their security. Second, cell phones are clearly developing a reputation as a security device. Jeanne reinforces the common theme that cell phones are useful tools to warn other individuals. Finally, consistent with what we know about other electronically connected societies, individuals in the DRC feel responsible for the information shared. Jeanne also identifies the extent to which people will utilize cell phones to manipulate and threaten individuals. Other interviewees cite abductions, but Jeanne also details how ransoms are established and paid. The lack of organized state involvement in response to conflict elevates the importance of informal security networks.

Affordances and access in conflict zones

As we discussed briefly in the methods section, the technological affordances associated with use of communication technologies in the DRC are noticeably hindered by missing infrastructure on several levels. For instance, one of the cities in the study is home to a population of about 600,000 people and just received its first paved road in the spring of 2016. Similarly, reduced access to electricity needed to power electronic devices plays a major role in the affordances associated with many technologies but particularly those most needed in situations of insecurity. For example, in several interviews, the authors observed that many individuals kept mobile phones turned off. In order to demonstrate how they used their phones, participants first had to turn on their mobile phones.

Given that many of our respondents reported having access to electricity for limited hours during the day, we have to question the utility of mobile phone affordances in situations of crisis. For example, when Janvier tells us that her neighbor was taken by hijackers and adds that, 'I was able to use my phone to call his family to make some investigation to get him back,' we have to consider that this process might take much longer than it would in a developed nation with ubiquitous, reliable access to electricity. Because we know that this particular participant owns an internet café, we can reasonably assume that she has access to electricity for a large portion of the day when she is at the store. But later in the conversation she reports that electricity in her home is very limited.

> Author: Do you have electricity in your home?
> Janvier: Only in the evening time
> Author: Do you have solar panels at your house?
> Janvier: Yes.
> Author: Can you describe your home for me? What does it look like?
> Janvier: It's a home like this one.
> Author: So wood and plaster?
> Janvier: Yes.

As Janvier describes, she only has electricity in her home in the evenings. To better understand the context of her access, the conversation was extended to ask about the nature of her computing habits.

> Author: Do you live with your family?
> Janvier: Yes.
> Author: Does your whole family live here or do some of them live outside of Bastion?
> Janvier: Yes, in Sudville and Roiville.
> Author: Can you tell me a little about your work? What do you do here?
> Janvier: Me, personally, I check messages, complete the declarations, write the bills.
> Author: Do you have a computer at home?
> Janvier: I have my own computer but I use it here [at work in the internet café], not at home, just because of the lack of light so I have to keep it here.
> Author: Do you share it, or is it just yours?
> Janvier: It is the whole family's computer.

We can glean several insights from this exchange. First, even though Janvier has access to a computer, she is forced to use it at work because of the lack of electricity at home. She only has electricity in her home for a few hours in the evening. In the conversation reported above, she mentioned lack of light, but here it is clear that light is

synonymous with electricity. Next, just as the computer is used only at work, the mobile phone is likely also charged only at work. And as another participant expressed, 'The phones from America are good and last a long time. They are the best, but we are buying these from China. They last for two or three months and then we throw them away.' The idea that mobile phones are used until they no longer function was another common theme. People purchase certain reputable brands, such as Nokia, specifically because their battery holds a longer charge. Thus, the degree to which mobile phone use can be considered helpful in times of crisis is reasonably limited by the lack of electricity to power devices. In Janvier's case, when she needed to summon help for a kidnapped neighbor, she was able to do so because of a combination of her limited hours of solar-powered electricity and the ability to charge her phone at work.

Finally, the conversation with Janvier illuminates another important consideration concerning access and affordances in conflict areas. She says that the computer is supposed to be used by her entire family, yet she keeps it at work due to the ineffective charging capabilities at home. The entire family cannot access the computer at any time of their choosing. They must go to the café to use it, constraining their ability to use the device for seeking information, reading news, or checking in with family and friends on social networking platforms.

Not only did participants report limited charging capabilities as reasons for limited affordances, but they also repeatedly mentioned financial constraints as a further explanation. For these participants, limitations of affordances can result in both social and financial trouble that is cyclical. They may be unable to access mobile banking capabilities because their phone is not charged; they may not be able to pay to charge their phone because they lack money; and they may have to go to great lengths to request and receive money from family and friends who may be able to help if they are proximate (though some of our participants also reported receiving electronic money transfers from people in other cities and countries). The following conversations reveal the cyclical and compounding nature of financial constraints and mobile phone affordances.

Author: How often do you contact people living outside of the city?
Timeo: When I have credit, I can call once a day but when I don't have any, I can't call.
Author: Does your phone have internet?
Imani: Yes.
Author: Do you use Facebook and Whatsapp, too?
Imani: No, I use Gmail and Facebook.
Author: How often do you check your email from your phone?
Imani: Rarely, because money is scarce here, and when I find money, I can buy airtime and can open my account.
Author: Has there ever been a time where you used your phone to ask for help for yourself?
Zuri: No, just for other things like money.
Author: So when you ask for help for money, who do you ask for help from?
Zuri: Usually from my family, my father and my brothers.
Author: How do you receive the money on the phone?
Zuri: Airtel money.

Alternatively, when limits to affordances are few, people report using their mobile phones to conduct business, send and receive money freely, surf the Internet for pleasure, and play games or listen to music.

Author:	Why did you choose those phones? What made you want to choose those brands?
Annan:	The batteries can save power for a long time.
Author:	Why did you choose the brand Techno?
Annan:	Because it's a good one and it keeps energy for a long time, and it's a current version and in the mode of the times.
Author:	In what ways does having the phone benefit you?
Annan:	It helps me communicate for calls, for navigation, and surfing the Internet. It helps me monitor. It is the most important because we have some [newspaper] correspondents that are in Ashur or other villages, and they send us elements [of news reports] that I can download even when I'm at home. I also use it for games, and I even use it to watch videos and movies. It's a good one!

Annan's experience as a relatively privileged mobile phone user is certainly not typical or 'average.' But it is difficult for us to say at this point, based on our small dataset, what a typical or average user experience looks like. What we have illustrated in this section is the variety of user experiences with mobile phone affordances in a developing nation, with the key proviso that generalizations about affordances and overall impact on people's lives in these areas must be made with great care. As our participants detail, the benefits of using a mobile phone, whether to provide a feeling of security or to connect with others, vary greatly based on a person's financial situation and other factors.

Conclusion and limitations

In this study, we examined the impact of ICT use on the daily lives of individuals in conflict-affected areas. Daily habits are difficult to examine by way of macro-level indicators of Internet usage such as cell phone penetration rates provided by network providers. Simply determining access rates to networks does not shed light on the diverse uses and functions enabled by the various connectivity methods available to individuals (e.g., cell coverage, internet, social media, etc.). General themes that emerged from our analysis – the creation of informal security warning networks and the importance of financial and electricity access – depict a complex digital landscape in North Kivu. Beyond personal security, conceptions and perceptions of individual identity can also be tied to digital devices and connectivity. This changing psycho-social landscape creates new opportunities and new quandaries. When individual identity is tied to digital connectivity, what are the impacts of limited access? Do individuals facing different barriers to the digital world (e.g., financial constraints, inconsistent access to electricity, or poor network coverage) for the time being inhabit different realities? This research contributes to the growing literature by identifying the unique complexities in the digital landscape of individuals in conflict-affected areas.

Digital media research is positioned at the confluence of many factors identified in this research – interacting factors that together shape human behavior in complex ways. To investigate this landscape, it therefore seems advisable to start from an interdisciplinary perspective, as we have done. Concerted multi-disciplinary efforts to examine digital media usage are required to fully appreciate the dynamics within the culture and society of a region such as North Kivu province, where social, economic, and political instability is an everyday reality. Specifically, variation in research designs and the application of both qualitative and also quantitative methods will better explore the nuances of media use by emphasizing the interplay of social, political, and cultural factors.

Given the relative inaccessibility of the DRC as well as cultural and geographical particularities that make the collection of large-scale quantitative data difficult, qualitative methods seemed best suited to an in-depth exploration of the questions we have presented here. However, there are some minor limitations that deserve to be addressed. First, due to the researchers' non-native proficiency in French and Swahili, a local translator was used. At times participants spoke in French to the translator if they did not understand a question, and sometimes the translator extemporized as she provided clarification or prompted participants to say more. These conversations were included in the translated transcriptions that were completed by two native French speakers and then subsequently coded. Another consideration regarding qualitative methods is the small lens that it provides. We find this small lens helpful in understanding the micro-level impacts of a global-level problem concerning conflict and developing nations, but we are aware that our results are not straightforwardly generalizable to other developing countries.

We close by discussing implications that impact the daily lives of our participants on both macro and micro levels. As we see it, two policy implications arise from the analysis of digital media use in North Kivu. First, development in conflict-affected areas – sometimes pejoratively identified as the improvement of quality of living by outside agencies and individuals involved in the region – is not a monolithic, static term. This analysis reveals the importance of a multifaceted conceptualization of quality-of-life improvements. For some individuals, improvement in digital access is synonymous with increased access to electricity, as improved access to a dependable electrical grid is the most commonly cited barrier to adoption and use of digital tools. Access to electricity, however, is complicated, because the generation, transportation, and availability of electricity are determined by the economic landscape and further shaped by political instability. At the same time, development practitioners who identify electricity as the primary area for improvement miss the diversity of barriers to digital media access. For example, individuals in this study identified the need for multiple SIM cards to access various cell phone networks. Because phone quality determines access and most phones are imported into the region, improvements in quality may reduce people's need to purchase temporary, short-term use phones that burden their financial resources. Overcoming electricity and network access limitations requires economic and political solutions that currently are unavailable in North Kivu.

Second, phone and multimedia access, when available, potentially augments civil society, strengthening social connections by supplementing limited governmental security provisions. This research indicates that cell phones provide informal security networks in the absence of state-provided security. Yet this benefit is neither uniformly guaranteed nor predictable. When phones are on, all the time, and people are connected, they can more heavily rely on these informal support networks for information, including news and updates. However, financial limitations (e.g., electricity availability, network access, phone ownership) and/or connectivity issues (e.g., other network members choosing to keep their phones turned off for some or most of the day) often determine the extent to which an individual uses these informal networks with other participants. Additional research into alternative uses of informal networks – specifically, social activism, business development, and political engagement – is warranted.

Acknowledgements

Disclosure statement

Notes on contributors

Benjamin K. Tkach earned his PhD in the Department of Political Science at Texas A&M University. He is an Assistant Professor at King University and an Assistant Research Scientist at the Center on Conflict and Development [email: ben.tkach.condev@gmail.com].

Apryl A. Williams (@AprylW) earned her PhD in the Department of Sociology at Texas A&M University. She is an Assistant Professor at Susquehanna University, as well as a Research Associate at the Center on Conflict and Development [email: Apryl17w@tamu.edu].

ORCID

Apryl A. Williams ⓘ http://orcid.org/0000-0003-4896-9366

References

Armed Conflict Location and Event Data Project. (2016). *Codebook*. Retrieved December 20, 2016 from http://www.acleddata.com/wp-content/uploads/2016/01/ACLED_Codebook_2016.pdf

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality and Quantity*, *36*(4), 391–409.

Castelles, M., Fernandez-Ardevol, M., Qiu, J., & Sey, A. (2007). *Mobile communication and society*. Cambridge, MA: MIT Press.

Chouliaraki, L. (2015). Digital witnessing in conflict zones: The politics of remediation. *Information, Communication & Society*, *18*(11), 1362–1377. doi:10.1080/1369118X.2015.1070890

Cumiskey, K. M., & Brewster, K. (2012). Mobile phones or pepper spray? Imagined mobile intimacy as a weapon of self-defense for women. *Feminist Media Studies*, *12*(4), 590–599.

Frere, M.-S. (2009). News media use of ICTs amidst war, violence, and political turmoil in the central African Great Lakes. In O. F. Mudhai, W. J. Tetty, & F. Banda (Eds.), *African media and the digital public sphere* (pp. 223–238). New York, NY: Palgrave Macmillan.

Frere, M.-S., & Kiyindou, A. (2009). Democratic processes, civic consciousness, and the internet in francophone Africa. In O. F. Mudhai, W. J. Tetty, & F. Banda (Eds.), *African media and the digital public sphere* (pp. 73–88). New York, NY: Palgrave Macmillan.

Fuchs, C., & Horak, E. (2008). Africa and the digital divide. *Telematics and Informatics*, *25*, 99–116.

Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems*, *12*(4), 436–445.

Horst, H., & Wallis, C. (2011). Special section: New media in international contexts introduction. *International Journal of Communication*, *5*, 463–470.

Ibelema, M. (2008). *The African Press, civic cynicism, and democracy*. Basingstoke: Palgrave MacMillan.

Konkel, A., & Heeks, R. (2009). Challenging conventional views on mobile-telecommunications investment: Evidence from conflict zones. *Development in Practice*, *19*(3), 414–420. doi:10.1080/09614520902808290

Lemarchand, R. (2006). Consociationalism and power sharing in Africa: Rwanda, Burundi, and the Democratic Republic of Congo. *African Affairs*, *106*(422), 1–20.

Matei, S. A., & Ball-Rokeach, S. (2005). Watts, the 1965 Los Angeles riots, and the communicative construction of the fear epicenter of Los Angeles. *Communication Monographs*, *72*(3), 301–323.

Matei, S., Ball-Rokeach, S. J., Wilson, M., Gibbs, J., & Gutierrez Hoyt, E. (2001). Metamorphosis: A field research methodology for studying communication technology and community. *Electronic Journal of Communication/La Revue Electronique de Communication*, *11*(2), 2–32.

Nasar, J., Hecht, P., & Wener, R. (2007). 'Call if you have trouble': Mobile phones and safety among college students. *International Journal of Urban and Regional Research*, *31*(4), 863–873.

Nlerum, F. E., & Nnodim, A. U. (2015). Comparative benefits of mobile telephone in selected rural and urban locations of Obio/Akpor local government. *International Journal of Agricultural Science, Research and Technology in Extension and Educational Systems*, *5*(2), 107–117.

Ottensen, R., & Mudhai, O. F. (2009). Conflict coverage in a digital age: Challenges for African media. In O. F. Mudhai, W. J. Tetty, & F. Banda (Eds.), *African media and the digital public sphere* (pp. 239–253). New York, NY: Palgrave Macmillan.

Reyntjens, F. (1999). Briefing: The Second Congo War: More than a remake. *African Affairs*, *98*(391), 241–250.

Salgado, S. (2009). Politics, citizenship and the news media in Angola and Mozambique. In A. Kalaitzidis (Ed.), *Global politics in the dawn of the 21st century* (pp. 305–316). Athens: Atiner.

Salgado, S. (2012). The web in African countries. *Information, Communication & Society*, *15*(9), 1373–1389.

Sey, A. (2008). *Mobile communication and development: A study of mobile phone appropriation in Ghana*. (Unpublished doctoral dissertation). University of Southern California, Los Angeles.

Shearer, D. (1999). Africa's great war. *Survival*, *41*(2), 89–106.

Steel, H. (2015). Streets to screens: Mediating conflict through digital networks. *Information, Communication & Society*, *18*(11), 1269–1274. doi:10.1080/1369118X.2015.1072230

Voltmer, K. (2006). *Mass media and political communication in new democracies*. London: Routledge/ECPR Studies in European Political Science.

Wallis, C. (2011). Mobile phones without guarantees: The promises of technology and the contingencies of culture. *New Media & Society*, *13*(3), 1–15. doi:10.1177/1461444810393904

Walsh, S. P., White, K. M., & Ross, M. Y. (2008). Over-connected? A qualitative exploration of the relationship between Australian youths and their mobile phones. *Journal of Adolescence*, *31*, 77–92.

Weinstein, J. M. (2005). Resources and information problem in rebel recruitment. *Journal of Conflict Resolution*, *49*(4), 598–624.

World Bank. (2010). *Enhanced integrated framework program (EIF): Diagnostic trade integration study*. Washington, DC: Author.