Creating a Context of Trust with ICTs: Restoring a Sense of Normalcy in the Environment

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ABSTRACT
This paper reports on an ethnographic study of the technology-enabled behavior that took place amongst a citizen population living in a conflict zone. We interviewed 65 Iraqi citizens who experienced the current Gulf War beginning in March 2003. In the context of a disrupted environment, trust in people and institutions can erode. We find that trust is contextual–-as aspects of the physical world change, conceptions of trust can also change. We show how people were able to create a context of trust in the environment by using ICTs to *manage their public identity*, to *conduct background checks*, and to develop *collaborative practices* that relied on those with whom interpersonal trust previously existed. These new practices, in turn, enabled people to maintain work collaborations, to determine whether or not to continue interacting with others in public, to be able to travel safely, and to find trustworthy jobs. In developing these new practices we argue that technology enabled people to restore a sense of normalcy in an environment that had radically changed.

Author Keywords
Trust, context, collaboration, resilience, normalcy, disrupted environments, empirical study

ACM Classification Keywords
K.4.3 [Computers and Society]: Organizational Impacts – Computer-supported cooperative work.

INTRODUCTION
The study of the use of ICTs (information and communication technologies) by people experiencing disruption in their environment has become an active research topic in the CSCW community. The activities citizens engage in during disruption may now be facilitated by various technologies, e.g. the Internet and mobile phones, and there currently exists a growing body of work looking at how civilians use technology during such events [e.g. 15, 18, 20, 24].

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These studies have focused mostly on technology use in the short period of time directly following an event. Less attention has been given to the role ICTs play during wartime. In contrast to disasters, civilians living in a conflict zone deal with a disruption to their normal, routine life for a prolonged period of time. Disrupted environments lead people to alter their daily routines in order to cope [e.g. 7]. To ameliorate the effects of disruption, civilians must develop continual situational awareness in order to act, as it is difficult to predict catastrophic events, e.g. when a car bomb will explode, or when a militia will strike next.

It is critical during a severe disruption that information and people continue to be reliable and trustworthy. Confusion may arise in the perceived credibility of information, as many official and unofficial sources may be available-–people may not be able to determine what is accurate. It is also critical to understand which people one can trust. Many people not local to the area may enter the disrupted region, such as government affiliated personnel, NGO groups, militia groups, insurgents and other actors, making it difficult for people to distinguish between who can and cannot be trusted. It may be dangerous for people to interact with strangers in mundane activities, such as in public places, at work, or when driving to visit friends and family.

We are particularly interested in the role of ICTs in enabling people to engage in trust-based activities during times when the physical environment is severely disrupted. Ubiquitous technologies allow people to interconnect, access and disseminate information almost instantaneously from anywhere, as long as services are available, e.g. the (mobile) Internet, blogs, forums, Instant Messenger (IM), and cellular phones. More attention needs to be applied to understanding how ICTs enable people to travel to work and school, to maintain employment, to socialize, and to retrieve, consume and disseminate information, when trust in a society breaks down.

TRUST AND DISRUPTION
To date, research in CSCW has not given much attention to how people can use ICTs in environments where trust has eroded. In this section we first present the view that trust is contextual–-whether or not people trust other people, institutions, or information may depend on the environmental context. We then build upon the notion of

trust and context by addressing the following research question: As conceptions of trust change as the environment changes, how can ICTs help people create a context of trust so that they can maintain familiar activities and practices?

The Notion of Trust as Contextual

The way in which researchers in CSCW define context has undergone various transformations over the years. Context has often been viewed from a positivist perspective as the setting where action unfolds, where the setting is believed to be a static entity, stable and separate from the activities taking place therein [5]. Early on, Suchman [31] illustrated that context incorporates people's actions and is neither stable nor predetermined. Others have drawn on Suchman's work, arguing that context is dynamic. Greenberg views context as a "dynamic construct over a period of time, episodes of use, social interaction, internal goals, and local influences." [14]. Dourish takes this notion of context even further by arguing that the determination of context cannot be made a priori--rather, context is an emergent property of interaction [5]. In this view, context is actively produced throughout the course of an interaction. Chalmers [3], however, building on Dourish's view of context, argues that past interactions between people and between people and technology play an integral role in influencing how we interact in the present. In this paper, we modify this notion of context to show how people can create new context even if there is little similar experience to draw on as a model on how to act in a setting.

Furthermore, context has been characterized in various settings, e.g. private residences, organizations and the public realm. We are interested in focusing on the public realm, or non-private sectors outside of private residences where individuals in *co-presence* do not know one another, or only know one another *categorically*, for example as a bus driver or a patron [19]. As described by Lofland [19], when people move out of the private space, they move into a world of unknown others who may not necessarily share the same values, history and perspective.

Despite this, people typically interact in a socially acceptable way in the public sphere. In normal environments, public interactions are governed vis-à-vis established rules and norms [11, 19]. Goffman [11], in describing the ways in which people interact in public, discussed how people modify their own behavior to present a credible and respectable front to others present. For people to have *interpersonal intelligibility* and engage in *smooth interaction* they must have a shared understanding of the setting. Thus, people follow rules and norms when interacting as a way of providing some transparency in their intentions, so that all individuals present can make sense of the situation.

An environmental disruption, however, creates a new and unfamiliar context–-one where the rules and norms governing interactions may no longer hold. This is an issue related to trust [26]. Misztal [22], in describing public interaction in normal environments, asserts that trust governs people's interactions; it is a taken-for-granted attribute that lies in the background. When people feel that a social situation is normal, they tend to trust others in that situation. When that social situation is disrupted, however, the idea of trust can move from the background to the foreground for people. As they are not experiencing a normal situation where trust is expected, people may not be able to trust interacting with others in the public realm.

Trust is a term used to describe how people manage expectations [12]. The expectations people hold can be both positive (when expectations are met) and negative (when expectations are not met) [12]. Trust can influence interactions among people and among people and institutions [1, 16]. Interpersonal trust refers to how trust influences interactions among people [1]. For example, in most situations, like attending classes or going to work, we generally expect that our peers and colleagues will not harm us. Impersonal trust refers to how trust influences interactions among people and institutions [16]. For example, citizens of some countries may hold the expectation that they will receive a free education or health care as per governmental policy.

During wars and conflict, both interpersonal and impersonal trust may erode in the physical environment [4], and as such, people's expectations of other people and institutions can become negative. The rules and norms governing interaction in the public sphere may no longer be applicable. In this sense, people lose control of their interaction context. For example, as a result of bombings, kidnappings and other forms of violence or uncertainty in such environments, it may be difficult to determine interpersonal intelligibility as people in public places are unknown: they might be members of various militias or terrorist groups (negative manifestations of interpersonal trust exist). This may transfer into work and educational settings as well, as people often come in contact with new colleagues with whom they have to determine to be trustworthy or not. Additionally, the infrastructure and governments of the region may break down, and institutions can fail to provide sufficient protection and necessities to citizens of the region during disruption (i.e. impersonal trust breaks down). For example, negative manifestations of trust may develop in the governments' ability to provide its citizens with electricity, public transportation, and clean water.

Additionally, during disaster and war, people need to find trustworthy information to act in the setting. However, information scarcity is common during disruptions; official sources of information, e.g. the government and the national media, are often slow to provide information and when available, it is often outdated [15]. When the government is slow to provide accurate information or when the information provided is outdated, people may develop negative expectations in the government's reliability as a source of information.

When impersonal and interpersonal trust are lacking in a society, ICTs might be beneficial to help people find trustworthy people and information. There is evidence that during crises people are now seeking information from other citizens and unofficial sources, as opposed to official information channels [32]. Also, people are now going online and providing assistance to others in various ways, e.g. through blog posts, in online forums, on Facebook, Twitter, and even online photo-sharing sites [e.g. 18, 29].

This study builds on other research that shows how people seek information and assistance online during disruption [e.g. 15, 18, 29] yet we focus on how citizens use ICTs to build a context of trust in their disrupted environment in order to conduct their daily lives. When people lose control of what had been formerly familiar and expected types of interactions and experiences in their environment, we argue that ICTs can help them regain a sense of control of their new context.

METHODOLOGY

We draw on cases from people experiencing severe conflict, Iraqi civilians who have been living through the current Gulf War since 2003. As of this writing, civilians are still experiencing extreme disruption in Iraq. Our study is part of a larger, ongoing study where we are trying to better understand how technology makes people resilient in maintaining collaborations during disruption [20, 21].

Our data consists of 65 interviews (37 male, 28 female) conducted in either English or Arabic. Arabic interviews were translated and transcribed into English. This data has been collected in three phases. We began our initial set of interviews (20) on September 17, 2007. Our second set of interviews (25) began in June 2008. More recently, we began another phase of interviews (20) in April 2010. By separating our interviews into phases, we have been able to capture people's experiences at three time intervals, which allows us to explore advances as well as changes in people's technology use. The major focus of this paper will be on the new set of interviews.

We initially found people to interview through family contacts, forums, and SNS's and then utilized a snowball sampling method to obtain more contacts [2]. More recently, in order to eliminate potential sampling biases, with our most recent set of interviews we found informants through separate seeds, e.g. through family recommendations, through online sources, through the Iraqi churches in San Diego, and through multiple refugee groups in the United States. This ensures that our informant pool is diverse. Other HCI researchers have used the snowball sampling approach as well [e.g. 15]. The purpose of using a snowball sample was so that we could find informants who used ICTs so that we could learn how they used these technologies to manage trust.

We conducted our study with Iraqi civilians who have been living through the current Gulf War (and now current environment of conflict), which began in March 2003. We were able to study technology adoption and use over time, as well as the impact of the war on trust in a society. We utilized ethnographic interview methods in order to better understand this phenomenon. Applying these techniques in such a unique setting are methodologically difficult [28] and researchers have made many compromises when studying disaster events [6] especially when considering the constantly changing and dangerous environment. We were not able to travel to the conflict zone to conduct our research face-to-face (due to the danger for both informant and researcher), but we conducted semi-structured phone interviews with civilians living in Iraq and abroad, as well as in-person interviews with recent émigrés living in San Diego County. We only interviewed people who had left Iraq if they had been living abroad for two years or less.

Sociologists studying disaster have emphasized the importance of understanding life before and after a disruption, because disasters typically upset the social order [7]. Utilizing this approach, we developed our semi-structured protocol, where we asked people to describe how they engaged in various practices, e.g. social life, work, education, travel, and information acquisition, before and after the current disruption. Researchers in this field have conducted interviews using this method and have found people's memory to be reliable long after an event [6]. Furthermore, others who have studied memory recall have found that people can correctly report typical, recurring activities they engage in over time [9].

Our interviews ranged from one to six hours in length, depending on several factors. When interviews were conducted over the phone, in some cases, when people did not feel comfortable communicating using a voice-chat technology, we used chat-based messenger tools. Additionally, our informants were experiencing disruptions to their technological infrastructure, e.g. electricity and mobile networks, and thus, in some cases we felt the disruption from a distance. When the cellular network in Iraq was not working properly we then switched to voice-over-IP tools. If this did not work we would switch to text-chat, and in the worst case we asked questions via e-mail. In some cases a single interview could take up to one month to complete, considering our informants would not be available for long stretches of time. When interviews were conducted in person, typical Iraqi traditions were observed. In Iraqi culture, it is rude to travel to an Iraqi's home and simply "get down to business." As such, our research team would engage in Iraqi social protocol, where they would first engage in conversation and drink tea or Arabic coffee; the interview would commence soon after. In some cases, when an interview was complete our researchers were invited to have lunch or dinner with the subject's family.

We coded our transcribed documents looking for different aspects of trust in Iraqi society both before and after the war by utilizing an approach from grounded theory [30]. Our informants came from diverse educational backgrounds ranging from translation and literature, to engineering,

computer science, medicine and dentistry. They also came from diverse occupations ranging from students, e.g. medical and dental, to accountants, translators, journalists, university lecturers, engineers, and more. Our informants ranged in age from 18 to over 60 years old, and all are users of technology. Further, the majority of our informants are from urbanized, large, Iraqi cities dispersed throughout the conflict zone, e.g. Basra, Baghdad, and Mosul.

RESEARCH SETTING

Our informants, Iraqi civilians, reported that interpersonal and impersonal trust existed in the country to a certain extent before the war began. They typically stated that they could trust people not to harm them, as long as they did not openly discuss negative opinions towards Saddam Hussein, anyone associated with the Ba'ath Party, or the Party's policies. Despite this fear of the government, our informants felt safe living in Iraq at that time. People could safely travel to different parts of the county to visit friends and family. Safe and reliable government-instituted public transportation was available that people used to travel to and from work and school. People often went to sporting events and other events, e.g. social clubs where strangers were present, and people felt their colleagues and peers at both work and school would not harm them.

Iraq's citizens, at the time of this writing, have been living in an environment disrupted by war and conflict for over seven years. Our informants report that today, negative conceptions of impersonal and interpersonal trust exist in Iraqi society, which is consistent with what has been reported in other studies of war [e.g. 4].

We found that while interpersonal trust amongst kinship networks is still high, our informants report they feel an erosion of interpersonal trust in Iraqi society after March 2003. They feel these negative conceptions of trust are related mainly to the rise in violence. Following the war, various militia and insurgent groups emerged, and sectarian violence between the Sunni's and Shiites has continued to escalate. As such, our informants have reported that they do not trust strangers in public areas, or in all work and university settings, as they may be sources of potential threat. Our informants also report that negative conceptions of impersonal trust exist in Iraqi society today. According to our informants, they have a strong sense that the current government will not provide them with basic necessities and services such as a safe environment, health care, transportation, employment opportunities, accurate information and electricity.

Before the war our informants reported that people did not have access to technology (i.e. the Internet and mobile phones) due to two key factors. First, Saddam's regime limited what was available to people within the country as a method of control. Second, the UN sanctions imposed on the country in 1991, during the first Gulf War, limited the flow of resources into Iraq. People had access to landline telephones, but everyone in our sample claimed that phone conversations were monitored by the government. As such, people feared discussing sensitive subjects over the phone. Directly following the current Gulf War, however, the sanctions were lifted, Saddam was ousted, and several technologies entered the country. Most of our informants reported using a plethora of technologies, such as satellite receivers, televisions, computers, the Internet, and mobile devices.

All of our informants now own, carry, and use a cell phone at all times. They use mobile phones at home, at work, at the university, when traveling, and in various other locations. SMS messaging has become a routine practice as well. Additionally, all but one of our informants now regularly uses Internet-enabled applications, such as: Yahoo™ Messenger, e-mail, Skype™, and Facebook.

CREATING A CONTEXT OF TRUST

The central motivation of this paper is to illustrate how people can create a context of trust when societal trust declines, which in turn enables them to engage in everyday practices. We present several cases from our research illustrating how technology facilitated these new activities.

Using ICTs to manage fear: Maintaining a public identity

As described by our informants, Iraqis no longer feel safe in public places. Whereas before the war interpersonal trust existed in the public sphere, i.e. people generally trusted that strangers were not going to harm them, today, people feared interacting with others in public. Some of our subjects even mentioned having multiple SIM cards or mobile phones available in case one of their phone numbers fell into the wrong hands[1]. This made working in public areas dangerous, especially for people who worked for U.S.-based organizations (targeted by militia groups) and who were either seen with Americans, or needed to use English to communicate with their American colleagues. A new norm governing interaction in the public sphere that people reported was that individuals who worked for American organizations were often targeted by various terrorist groups. New social norms surrounding communication in the public sphere thus emerged, where our informants did not feel safe speaking English in public.

As described by one of our informants:

This is a very expensive problem if you are speaking English in the street or inside a public car. You are a very easy target to the terrorists, or to the people who are chasing those working for public forces.

In our sample, ten of our informants worked as journalists, seven of who were employed by U.S.-based organizations. In many cases these journalists were in the field collecting data, conducting interviews, taking photos, interpreting, and writing eyewitness reports of what was taking place in Iraq. Six of our informants, in possessing a shared understanding

[1] Our informants often reported that they were threatened by people who had gained access to their mobile numbers.

of the nature of their new setting, used technology in a way such that they could present a credible front to others present; they were using technology to hide their other American-associated identity in the public sphere. A new practice emerged where they would switch between different types of communication as provided by any single technology (i.e. from voice to text when using a mobile phone). The act of switching between different types of chat within one type of media acted as a life-saving measure, as well as a way to continue working.

As described by one informant:

I can't always speak in English in public, because it will give away too much and I can be kidnapped, or even killed. So when my English-speaking colleagues need to reach me, if I'm in an area where I can't speak English on the phone, we use text messaging or e-mail instead… through my cell phone or by going to a Internet café in the area, depending on how important it is to get the information to them in a timely manner.

On the one hand, in public they appeared to be "very Iraqi" – innocent bystanders witnessing an event. For example, as described by our informants they did not wear Western style apparel, nor did they use American convoys to get to various sites while working. Also, it is common practice that people now text friends and family in public, especially to report their safety following an incident. On the other hand, their technologies enabled them to connect with their private work environment to maintain work practices. Here, our informants were following new social norms in the public space. However, technology provided them with a bridge to their private work sphere, where by using ICTs, they were able to uphold "proper" interaction in the public realm, thus maintaining control of their social interactions and being able to continue their work collaborations.

Using technology to "check trust": Conducting background checks

Our informants explained that it was difficult to determine whether or not they could have interpersonal trust with another individual in a public space. We discovered a pattern among our informants where they used technology to check backgrounds of strangers they met in public to determine whether or not to continue interacting with them in the future, as well as in the present.

The following is an excerpt from an interview which illustrates how the informants even conducted background checks on the interviewer:

Interviewer: *Hello J. Thank you so much for agreeing to participate today.*

J: *You are most welcome […]. Don't worry, I performed the necessary background checks, I knew I could trust you…*

Interviewer: *Oh, how did you do that*?

J: *It's a regular thing in Iraq today. Whenever we meet someone we check their backgrounds. I searched your name in Google and I found your website, and I saw your picture and read about your background. I also went to Facebook and typed in your name. I saw that you were the same person; you come from a good background…*

As our informants started to mention conducting background checks, we changed the interview protocol to specifically address this. Seven out of ten interviewees discussed how they conducted background checks of a similar nature by obtaining information about someone by cross-referencing multiple sources, e.g. web-based searches, Facebook searches, and by asking friends and family if they know that particular individual. Whereas people in our sample discussed performing these checks on the people they were meeting online, this same practice was also used when they met other Iraqi residents in person (either after or even during their initial interaction), in order to determine whether to trust the other.

One of our informants, a female medical student in Baghdad, described how she mostly made friends with people in Iraq through her family and friends because she feared that strangers might kidnap her or worse. She felt she could trust the other students at her University because they all came from the same socio-economic background (note: this was not the case for other students in our sample who went to less prestigious universities in Iraq). However, when she did meet people in person with whom she had no previous ties, she would "investigate" them further after meeting them by searching for them online, or looking them up on Facebook to look at their profile information and photos to "get an idea of what kind of person they are".

However, not all background checks were conducted after an initial introduction; in some cases these checks were conducted *in situ*. Another informant, a journalist, described how when meeting people in various social situations, he would seek more information about them before determining whether he could interact with them. He described how in some cases he would go home and conduct the background check using his laptop. In other cases, however, he would use his Internet-enabled mobile phone to conduct these checks during an initial meeting to determine whether or not to carry-on. For example, he described how he used Facebook on his cell phone to conduct a background check on one of the new people who had moved to his neighborhood during their initial interaction. He checked to see if they had mutual strong ties in common, or if they both felt the same way about sensitive issues (i.e. supporting the U.S.). Additionally, he checked their educational background. Also, he perused their pictures online to see if the person seemed trustworthy by looking at locations they had visited. This practice enabled him to determine whether or not it was safe to interact with his new neighbor.

In these cases, people were finding information that could connect them to new individuals in some way so as to develop trust in them. It was through the ability to find "connecting information"-–information that enables people to develop trust based on commonalities, e.g. common relationships and common beliefs–-which enabled them to relate to others in some way and create a context of trusted interaction either after initially meeting someone, or during the preliminary interaction.

Maintaining strong links: New collaborative practices

From our data, we discovered an important means by which people rebuild a context of trust is to reconnect with those with who they already have strong social ties. In studies of environmental disruption, it is found that people often turn to family members and friends for support, and this assistance is usually enacted face-to-face [6]. Additionally, people often turn to local community connections (i.e. people from the same neighborhood or school) for assistance [25]. In the context of a conflict zone, people may not be able to receive support from these trusted networks face-to-face as these connections may have become fragmented–-oftentimes family, friends and neighbors become displaced or leave the conflict zone altogether.

With our field study sample, social interactions are commonly conducted through kinship networks. Kinship networks consist of blood ties, as well as fictive kin – close friendship ties that are equivalent to family ties [8]. However, the majority of our informants reported that although they could not see their family and friends as often as they did before the war as a result of various security issues (which we discuss in subsequent sections)**,** through the adoption and use of various technologies they were able to maintain these strong ties. Through our analysis, our informants developed new technology-oriented *collaborative practices* in order to create a context of trust in an environment where trust eroded. First, these practices were constructed via people's ability to maintain their kinship networks with technology. Second, new collaborative practices were based on our informants' abilities to receive recommendations from their trusted contacts within their social networks, both online and offline, thus exercising transitive properties of trust [12]. This refers to the idea that when we do not have the proper experience to make a decision, we often trust the recommendations made by people with whom we have already established as a trustworthy connection [23]. These recommendations can come in various forms, such as through weak ties. Weak ties are especially useful for linking people to information and social resources unavailable in people's closest groups [13]. For example, if an individual requires a service but cannot obtain it directly from one of their strong ties, they will often recommend a weak tie on which their family member or friend can rely. We next report two cases of new collaborative practices that people developed to rebuild trust in their environment.

"Phone hopping": trust-based travel arrangements

Through our interviews we found that since the conflict began, our informants rely as before on their kinship networks. However, what has changed is that in many cases, maintaining these relationships has moved from physical world contact to online interaction. Prior work has shown that citizens in war zones have used mobile phones to connect with people they trust to determine whether or not they should travel, as well as to establish safe or alternative routes [21]. Here, we will report on an entirely unique practice that emerged.

Before the war people traveled with relative ease and safety, driving their own cars, as well as using public transit. Thirty of our informants reported a common routine of using transit systems organized by the government for public use, their employers, or the university system. Buses would pick people up in a central location in their neighborhoods and transport people to work or to school. Thus, prewar, people had impersonal trust in their respective public institutions to provide them with a means to travel to and from work and the university.

Additionally, before the war twenty-two of these thirty informants also used private taxis operated by Iraqi citizens. Our informants described the common practice of "going to the garage" (an area where taxis congregate) and simply getting into a taxi. They did not fear or feel threatened by other Iraqis when traveling, and over time they had come to rely on these methods of travel.

Following the war, however, many people no longer felt safe operating their own vehicles (although many still did), and institutionally-organized transportation systems were no longer available to some because of the breakdown in infrastructure. This stemmed from several interconnected reasons. For example, our informants reported that they no longer felt safe when traveling, or simply going outside, because of the threat of bombs.

Furthermore, our informants have reported that they no longer trust public methods of travel because both interpersonal and impersonal trust has eroded for various reasons; previous rules governing interactions in the public sphere between people and between people and institutions are no longer reliable. First, the government no longer provides reliable public transportation services. Second, our informants claim they do not know if the driver of a bus or a taxi is a "bad guy," who will kidnap them or deliver them to a militia for a profit. Third, our informants report that many bombs are exploded on buses, and they do not wish to confine themselves to a small space with strangers who can be potentially life threatening. Fourth, the various militias and insurgent groups, the rise in sectarian violence, and the fake checkpoints make it difficult to trust others, especially when traveling. Lastly, for those people who began working for U.S.-based organizations, militias and insurgents had targeted many of their Iraqi-born colleagues because they work with "the enemy."

Twenty of our thirty informants developed a new ICT-based collaborative practice to rely on those with who they have interpersonal trust in order to maintain travel practices. These are members of their private kinship networks with whom they have a shared history. Technology, e.g. the mobile phone and Instant Messenger, enabled them to make links with these people irrespective of distance, as well as to extend those links via recommendations. In other words, through transitivity they created weak ties [13] with individuals with who they could have interpersonal trust for travel purposes. Thus, though impersonal trust was lost in the public realm, people used technology to rely on those with who they had interpersonal trust to help them negotiate the public space.

One informant, for example, after describing the various travel obstacles in Iraq, explains this new collaborative behavior of building a trusted travel arrangement as "phone hopping":

Well, today I now have at least 5 phone numbers of taxi drivers I trust… these are people I knew from before the war… I wouldn't pre-arrange my pick-up times because it was difficult to say when I would need to leave work… but I would use cell phone hopping… What's phone hopping? Well, I would call one of the people, and if that person was not available, I would move on to the next person until one of my drivers was available.

Another informant, a translator working for the American military, felt as if he was constantly being followed. He reported that he did not trust the taxi drivers in Iraq, and relied on people in his kinship network who operated taxis to pick him up from the "garage." With his mobile phone, this informant developed a new collaborative practice in order to restore trust in daily travel:

…[Travel] was not easy, so what I did was I had made a deal with a friend who has a taxi [and I] was calling him to come pick me up. I don't trust any people, especially the people who come as a taxi driver close to the base, they were maybe...bad people and they may do something bad to you.

Furthermore, like other informants in our sample, this individual was in constant communication with his driver. This informant insisted that due to his status as an American employee he was constantly being "watched" or "followed." To mitigate his fear, he flexibly negotiated his drop-off and pick-up locations on a daily basis. He felt that if he changed where his driver picked him up and dropped him off on a daily basis, he would avoid detection by those who he considered to be life threatening. On the one hand, he was able to create trust in travel by relying on a member of his trusted network for transportation. On the other hand, however, similar to the earlier cases we described of using ICTs to maintain a public identity, he was able to create the illusion that he was following the new norms of interaction in the public sphere. He did so by managing his interactions with others (or in this case, those who he felt were "watching" him) by making them think he was not in fact working for the Americans. He used his phone strategically to have his driver pick him up and drop him off from several neutral locations that were not associated with his workplace.

Seeking "trustworthy" jobs

Before the war, our informants reported that Iraqis felt safe working in Iraq. They had positive expectations of their employers as well as their colleagues, and did not feel the people they worked with would be a source of potential vulnerability or harm unless they discussed politics. As such, our informants who worked before the war felt safe both inside and outside the workplace. Additionally, before the war, Iraqis enjoyed job security. Most of the informants in our sample who were employed pre-war worked in one place for their entire lives leading up to the current conflict, and people had the expectation that jobs would be available when they graduated from college.

In the current situation, our informants have expressed several problems with respect to working in Iraq. First, many people had to find new jobs following the war, as people now find the current Iraqi government to be incompetent and unable to provide the Iraqi population with employment opportunities–-negative impersonal trust has developed with respect to job availability. Also, our informants have described what is now a "new professional suffering." Not only have Iraqis had to find a job following the war, but also the current jobs available are mostly contract-based and last short periods of time. In our new sample of twenty Iraqis, people have worked, on average, for five different employers since the beginning of the war in March 2003. In this case, negative attitudes with respect to job longevity have developed.

Additionally, as a result of now having to find employment through their own devices, many people have expressed fear in "work in general" as they are concerned that their potential colleagues or employers will have "ties with militias or the insurgency." Our informants have made it clear that it is nearly impossible to simply apply for work with any organization as the new norms governing interaction in the public realm have transferred into the work environment as well; people have developed negative expectations of strangers.

Interacting with distributed colleagues face-to-face before working together can go a long way in building trust [33]. However, it was not possible for our informants to interact with their colleagues face-to-face prior to starting a position. Thus, they could not meet face-to-face and build trust with them a priori. Additionally, some people in our sample even worked in organizational settings with distributed colleagues with whom they could not interact with beforehand as well.

Our informants have developed a new ICT-based collaborative practice to rely on those with whom interpersonal trust is still positive in order to seek jobs with

organizations and people they felt would also be trustworthy. Again, these are members of their private kinship networks with whom they have shared experiences and histories. People now believe that "finding a job is impossible without the Internet." However, unlike countries where people can apply for jobs online or use services such as Monster, in Iraq, kinship members are acting as *trust brokers* between family and friends, and their employers. By using ICTs, e.g. the mobile phone, Instant Messenger and e-mail, people contacted those with who they had interpersonal trust to seek employment opportunities, to receive recommendations of employer contacts, and to build trust in their new colleagues. Thus, individual contacts brokered trust between other people as well as organizations, allowing people to gain a sense of certainty in an otherwise uncertain situation.

Due to the fact that many people in Iraq had to find new jobs, many Iraqis helped people they knew acquire positions in their organizations. Furthermore, our informants report that Iraqis are now swapping resumes over e-mail, and helping one another find work. Essentially they are creating an ad-hoc employment system by creating a repository of resumes via e-mail.

One of our informants describes this process. At one point when he was employed, one of his friends sent him his resume to see if he could help him work for the same company. This informant then passed the resume on to his employer with a high recommendation, and his friend was hired. Later, this informant's friend found a position with a new company, and soon after, our informant's contract was up. He then sent his resume to his friend who helped him gain entry into that organization. Furthermore, he and several of his other friends and family swapped resumes over e-mail, and they developed e-mail distribution lists to support job-seeking. Here, people would add one another to the e-mail list, provide one another their resumes, and ultimately help people find employment opportunities.

By finding employment through a trusted contact or recommendations from a trusted source, people in our sample felt they could trust their employer as well as their colleagues because the trust broker could vouch for the new people with whom they were going to interact. More often than not, our informants also worked with more than one of their kinship network contacts at any given time.

Additionally, five of our informants found employment through kinship network contacts in organizations with distributed team members. In this case, for example, our subjects were working from Baghdad or a city in Northern Iraq (i.e. Mosul or Sulaimaniya), while one of their main collaborators, e.g. their boss, was working from the United States or a different city within Iraq. One informant, for example, found a job through a friend. He was working from an office in Baghdad, while his boss was working from the North of Iraq. While he and his boss got to know one another to a certain extent through ICTs, e.g. Skype, e-mail, and Yahoo Messenger, it was through their shared contact (or trust broker) that they began to know and trust one another. As described by our informant:

In order to have a stable relationship, I didn't know her and it's difficult to get along with someone you haven't seen, so I took advantage of my co-worker who would spend sometimes 6 or 7 days under my boss's supervision. It was as if I had met her, she gave me a clear idea about her. She also gave my boss a clear idea about me… she became a connecting link.

DISCUSSION AND CONCLUSIONS

Our goal in this paper was to show how ICTs enable citizens to create a context of trust in their disrupted environment. First, they developed new technology-oriented practices that enabled them to uphold an identity that would not put them at risk, in order to maintain work collaborations. Second, they used technology to determine whom they could trust when interacting in the public sphere. Lastly, they developed new communication practices where, by connecting with people with whom they had interpersonal trust, they were able to maintain travel as well as seek employment. We contend that in creating a new context of trust, people were, in actuality, restoring a sense of *normalcy* in their lives. Here, we will show how ICTs can be used to restore a sense of normalcy, as people were able to follow the new rules and norms in the public sphere, as well as develop new practices that, in turn, enabled them to maintain various daily routines.

Restoring a sense normalcy with ICTs

What is normalcy? Misztal [22] characterizes normalcy by two main components. First, when social situations are *predictable*, *reliable* and *legible,* then people see things as normal. In this view then, the way in which people interact in the public sphere must be in line with established rules and norms for life to be considered normal. Second, when people can rely on *routine* practices, they also view life as being normal.

As was the case in the disrupted environment, people experienced much uncertainty. For example, the social rules and norms that people relied on to manage their interactions in the public sphere had changed. Additionally, trust was no longer in the background of people's interactions; rather, it had moved to the foreground. People were intentionally thinking about the way in which they could interact and with whom they could interact--there was a change in the context in which people invoke safety. Using technology, however, people were able to create a sense of stability for their particular situation. They could not easily determine with whom they could and could not interact, but they could take certain actions that they could rely on amidst the uncertainty to make that determination. The "phone hopping" technique and the ability to maintain an acceptable public identity, for example, were new practices that people used to restore a sense of reliability and predictability in their public lives. At times they even combined these practices.

Giddens [10] makes an important contribution to the conception of normalcy. Ontological security is a sense of order and continuity in regard to an individual's experiences that is produced and re-produced by the individual. If this is compromised, the individual will attempt to re-establish or adapt their lives and viewpoints in order to cope. Similarly, Misztal [22] finds that in extreme environments, when routine conduct is not enough, people often develop "new and self-replicating frameworks" on which they can rely. In other words, when people are able to maintain various practices, or develop new practices in order to adapt to their new context, they can restore a sense that their actions in this new environment are "normal". In previous work, we showed how technology *can* make people resilient in maintaining routines in extreme contexts [20, 21]. However, here we show that technology can facilitate people in maintaining and developing new practices, thus restoring a semblance of normality, which was a degree of trust in the disrupted environment.

Here, we showed how people, in restoring a trustworthy context, were able to adapt in order to maintain various daily routines, such as work and travel. Through this *adaptation*, people were in fact restoring ontological security. Furthermore, they developed "new and self-replicating frameworks," or practices, e.g. phone hopping and background checks, which enabled them to conduct their daily lives. Before the war, people had routines on which they used to rely. For example, people were accustomed to traveling in various ways where they often utilized public transportation such as buses and taxis. The new technologies as well as technology-oriented practices were new tools that they could rely on in their new environment. These technologies and ICT-enabled practices became embedded within the framework of their larger routines. For example, if one were to think of travel as being a type of routine, the practice of "phone-hopping" and the required technologies to enact said practice became embedded within the greater framework of the travel routine. These *embedded technology practices* were then invoked, as they allowed people to create a sense of stability in their extreme situation.

ICTs to manage trust became a way of life for our informants. After successfully using technology, e.g. to maintain a public identity while working in the public sphere or to conduct "phone hopping" for travel purposes, this enabled them to regain a sense of control in their environment. The new ICT-based practices that people developed increased their level of trust in the environment because they could have more predictability in their interactions. When impersonal trust was lost, people relied on interpersonal trust; they transferred a reliance on public institutions to private individuals in the new context who they trusted to deliver. They knew that they could use technology to choose with who they interacted, to determine who they could trust and to seek trustworthy solutions for travel and unemployment. Their use of technology blurred the lines between the public sphere and the private sphere in order to maintain work collaborations. ICTs enable people to extend their reach beyond the possibilities available in their physical, untrustworthy environment. The new tools and techniques at hand became integrated into their daily routines.

A return to context

Earlier, we outlined various definitions of context showing how the definition has progressed over time in use as more of a dynamic construct [14] where context is actively produced throughout the course of interactions [5]. Chalmers [3], in turn, emphasizes how past interactions between people and between people and technology influence how we interact in the present. Here, we wish to provide a different perspective about context.

What if people cannot rely on past interactions with people or with technology in order to influence their present interactions? Our data showed that while people did rely on those with whom they interacted with in the past (their kinship networks) in order to create trust in their new context in some cases (i.e. phone hopping and job seeking), they could not always rely on their past interactions to understand how to interact with individuals in the present. They had to dynamically construct new practices that adhered to the constantly changing and uncertain rules and norms in the public sphere (i.e. maintaining an appropriate public identity with technology).

Furthermore, past interactions with technology did not serve much as a guide for how people could interact with technology in the present. Before the war people feared discussing sensitive subjects over the phone as phone lines were monitored. Today, however, people are using telephones to create a context of trust in various ways. The very tools that they did not trust prior to the war were now enabling them to manage trust in their daily lives. Thus, even if there is little past experience to draw from on who to interact with, or how to interact, and even if past interaction experience is negative (as was the case with how people interacted with technology in the past) our study reveals that the past may not always influence the way people dynamically shape context in the present.

Limitations and generalizability

As a result of not being able to travel to the war zone to conduct observations, we were limited in detailed descriptions of the new rules and norms governing interactions in the public sphere. Also, our results can only be generalized to technology users, and people who come from educated backgrounds. However, our informants were diverse with respect to their occupations, ages and genders.

Though our study setting was unique, we feel that our results can apply to other types of settings. When people encounter new and unfamiliar environments, they can rely on ICTs to help understand how to act. Though an environment may be safe, unlike our research setting, ICTs can still benefit people in unfamiliar settings to help them

adapt, e.g. by relying on strong ties who are remote or by finding weak ties in that setting who can provide assistance. Of course there are many areas in the world that are unsafe and our study illustrates how ICTs can be effective for finding trustworthy people and information in such settings.

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