

Information Communication Technology and Social Media as a Backchannel for Disaster Relief  
and Political Action

Information communication technologies (ICT) are continually evolving and new uses are being created for their services. Social media has grown exponentially in the last decade and it has become easier than ever before for anyone with an Internet connection to publish information on the web. Media is no longer a one-way street. Mainstream media networks are allowing for input from average citizens and anyone has the ability to post content and share information with the web community. Mobile ICT has allowed people with mobile devices to access and create information on the web from any location and at any time. People are using technology to communicate with each other to organize social movements and to respond to crises. Palen and Liu (2007) stated that most first responders in crisis situations are not trained professionals, but local people in the community responding to the event. Local volunteers naturally create groups and work together to help people in need. When mainstream networks do not provide the necessary information or are not accessible, communities come together to find and share the essential information needed. The Internet has become a vital communication tool for grassroots organizations and text messaging has been used in times of crisis and political action.

This paper investigates how ICTs and social media can be used to organize political action and disaster relief. The areas covered are the effects of mobile devices, misleading information, citizen journalism, photosharing, community organizing, and the participatory panopticon. The change of mass media is evaluated along with how each of these technologies has evolved to be used for critical situations. Crisis informatics is used to assess how the exchange of information

during a disaster has changed due to participatory content creation and distribution, and how it is “increasingly playing a critical role in disaster preparation, warning, response, and recovery” (Lui, S.B. et al., 2008, p. 1). Information communication technologies often maintain archives of communication allowing crisis informatics researchers to analyze how people use them during a crisis. By analyzing the backchannels of several events, researchers have discovered how people use ICTs during a crisis. The backchannel is information between peers that does not come from an official or formal source. Backchannel content from ICTs include but are not limited to blogs, text messages, social media, forums, and wikis. These technologies allow the public to be active consumers and producers of information by allowing them to comment and create conversations, contrary to the one-way stream of television, newspapers, and radio (Sutton, Palen & Shklovski, 2008).

Sociologists have studied how people react during times of disaster for many years. Regardless of how they communicate, people tend to improvise and often organize communities in relief activities. People naturally seek out information, and they tend to do so from their family and friends. They enlist their social network to deliver and interpret formal media that is relevant to their situation. With this information, families and neighborhoods make collective decisions about further actions in the time of crisis (Sutton, Palen & Shklovski, 2008).

The communication within the community during a disaster comes about because of the need to be helped and to give help. Depending on the spatial and temporal characteristics of the situation, different forms of communication are used in the time of need. (Palen & Lui, 2007). During disasters people form communities and take on different roles as “informal, unofficial convergers: the returnees, the anxious, the helpers, the curious, the exploiters, the supporters, and the memorializers” (Lui, S.B. et al., 2008, p. 2). People take on roles depending on their

relationship to the disaster. Forms of help can come in many ways, and information communication technologies are allowing for more methods of spreading vital information and lead to communities near and far organizing to solve the problem at hand. Media convergence during crises is changing with social media by combining old and new media and making citizens producers and consumers of the critical information.

The Internet has been used since Usenet as a place where communities could be formed. An early example of ICTs being used in a disaster was after the September 11, 2001 attacks. People used ICTs to find information, organize public action, and to look for emotional support (Shklovski, Palen, & Sutton, 2008). The collapse of the World Trade Center destroyed mobile antennas and took down section of the New York City telecommunications infrastructure. Instead of relying on cell phones, people had to use the Internet to communicate using Voice over IP and e-mail to find and distribute information. The aftermath of September 11<sup>th</sup> lead to citizens communicating by posting flyers and posters all over the city of their missing loved ones, creating an impactful landscape of the city. When people realized it was unlikely they would find the missing people alive, the posters turned into memorials with flowers, stuffed animals, artwork, and poetry to honor the people that were lost. People wrote messages in the dust on buildings and with chalk on sidewalks, displaying their stories for anyone that went by the area. Information communication technologies like social networks and text messaging were not yet widely used in 2001, but people still found ways to share their messages with the surrounding community.

Today, millions of people are members of several online communities and they have extensive online social networks that they communicate with. How can these networks be utilized in a time of need? People with more experience using ICTs have helped the community

around them. Sutton, Palen, and Shklovski (2008) found, “back-channel information providers served in the role of “information brokers” or “technical facilitators” as they assisted in connecting people and information via a number of technology media” (p. 5). These people helped provide and distribute information as well as create visuals to help organize the relevant information. During the 2007 Southern California wildfires, people used Google Mashups to create dynamic maps that showed the locations of evacuated areas, contained burns, homes destroyed, and other relevant information that was available at the time. These mashups were created by volunteer groups in the area, along with reliable news sources like KPBS San Diego, who also sent out Twitter messages to provide the public with updated information.

During a crisis situation, government officials are weary of participatory content because citizens could be sharing misinformation and their claims may not be legitimate (Sutton, Palen & Shklovski, 2008). Traditional public affairs can provide “consistency, uniformity, and a bit of perceived safety,” (Prentice & Huffman, 2008, p. 3) but it often does not give people involved in the crisis enough information to make an informed decision. This information dearth causes the public to seek out more information that is relevant to their situation by communicating with their social networks and communities.

During the SARS outbreak, Chinese citizens communicated information and opinions regarding the virus through text messaging because they were being denied public information. Gordon (2007) reported that text message use in the Guangdong province from February 8 – 10, 2003 had tripled compared to the same time the year before, showing significant activity during over these days. This was because these citizens knew about the SARS before the mainstream media and before the Chinese government reported it to the World Health Organization on February 11<sup>th</sup>. The local media and Internet news sites published information

about the “atypical pneumonia” found in Guangdong starting on February 9<sup>th</sup>, but any content related to SARS was removed on February 14<sup>th</sup> and the virus seemed to never have existed.

Citizens continued to discuss the SARS through text messaging. For example, Gordon (2007) found people sharing information regarding “the location of outbreaks of SARS and possible ways of alleviating the symptoms, in particular by folk remedies, such as teas, herbs, an vinegar” (p. 310). People passed these messages on to their family and friends, acting as citizen journalists by distributing the information across their networks. Unfortunately because there was no public information provided by the government the information passed between people was not always accurate and led to rumors regarding the number of people affected. Mobile phone users also took the opportunity to send humorous messages with parodies and satire to voice their opinions.

After April 20<sup>th</sup> when the Chinese government acknowledged the existence of SARS and it was obvious they had been concealing the vastness of the situation, People shared their apprehension and displeasure for the government and used text messaging to communicate their thoughts. Eventually, in 2003 the Chinese government has used their censorship policy called the Golden Shield to restrict messages on the Internet and ones sent via personal communication devices. They have over 2800 facilities across China that monitor SMS messages. If the topic is considered antisocial in any way, the message is not transmitted (Gordon, 2007). The government has also used the Golden Shield to arrest citizens for content they post online or send through a text message. The Chinese citizens used ICTs as a backchannel when public information was not provided, but the government ultimately restricted the use of these technologies to keep control of the situation.

ICTs have been used very effectively to organize communities in a disaster, and to

organize political actions. Text messaging has enabled people to communicate privately with large groups of people that are in different locations. In 1999, the meeting for the World Trade Organization was heavily protested in the streets of Seattle, Washington. To gather mobs of people in certain areas of the city, organizers shared meeting information through mobile phones and websites. They were able to stop traffic at specific times and locations and then “melt back into the crowd. Seattle police...responded inappropriately attacking innocent citizens while failing to achieve their objective of clearing out demonstrators” (Rheingold, 2008). The protesters were able to organize their efforts without tipping off the local authorities.

The 2004 Kenya elections show a good example of political action organization combined with citizen journalism. The media and Kenya’s electoral commission used SMS to relay news about the polls. People used their mobile phones to report polling and alerted local radio stations how crowded the polls were (Rheingold, 2008). This was also seen in the 2008 US Presidential election. Twitter Vote Report was a website created by volunteers to collect information about polling locations across the United States. People called, texted, tweeted, or entered online information about their polling experience. The backend of the website was able to decode and decoded and aggregated what people submitted regarding waiting times, broken machines, helpfulness, and anything else they surveyed at the area. Twitter Vote Report used social media to spread the word about the website and to recruit voters to participate. During Election Day, over 11,000 reports were collected and visualized on a Google map for users to easily find information in their area.

While mainstream media is still unsure about the credibility and quality of news reported by citizen journalists, photos from camera phones cannot just considered personal snapshots anymore. Media networks have begun to look past the fact that the photographs are personal

accounts and regarding their content as legitimate evidence. Formal disaster agencies are requesting photos from common eyewitnesses and companies like Yahoo! and CNN are taking advantage of these mobile reporters. CNN's I-Report is a website where anyone can upload photos, videos, or text reporting or responding to news. They take the best and most relevant posts and show them live on CNN. One Flickr user stated it well; "the sheer number of people with cameras and Internet access makes it inevitable that many of the best pics will come from normal people" (Lui, S.B. et al., 2008).

People upload photos from their phones directly to the web for the public to see. On January 15, 2009, a US Airways flight heading from New York to North Carolina was forced to make a crash landing in the Hudson River. Janis Krums, a civilian on a ferry going to rescue the passengers, took one of the first pictures of the plane on with his iPhone. Krums uploaded the picture to TwitPic (a mobile photosharing site that posts directly to Twitter) and the message was published online. Within 3 hours of posting the image, it had over 40,000 views and was seen on several national news networks and major newspapers including CNN, the Los Angeles Times, Chicago Sun-Times, and San Francisco Chronicle.

Camera phones have turned every person equipped with one into a photojournalist. The quality of images produced on camera phones is increasing with each generation of cell phones, making the photographs they produce usable in more situations. While people tend to bring their digital cameras with them for special occasions, people carry their mobile phones with them all of the time. They can now capture everyday events and always have the ability to record life around them. Functions like multimedia messaging (MMS) and Bluetooth show how cell phones were built to promote the sharing information (Hjorth, 2006). With today's social media sites like Flickr, Twitter, and Facebook, people are no longer limited to sharing these photos with only

*their* social network.

Mobile technologies have developed the ability to record what we see at any given time and simultaneously stream the data on the web. Rheingold (2002) wonders what the impact of instantly sharing a video like the Rodney King beating with a large peer-to-peer network like Napster would be. In 2000, wearable computers allowed WearComp researcher Steve Mann and his students to capture a violent demonstration during the Ontario Coalition Against Poverty protest. While other journalists and television crews ran for cover, the students with the wearable computers were recording and streaming the violence in real-time.

Photosharing during natural disasters expands much wider than the mobile realm. Since the launch of Flickr, a social photosharing website, in 2004, several events including the 2004 Indian Ocean earthquake and tsunami, 2005 London bombings, 2005 Hurricane Katrina and Rita, and the 2007 Southern California wildfires have created communities on the website that posted pictures in order to aid relief of disaster situations. Flickr allows users to create groups that allow people to socially organize themselves and their photos around a specific topic. Liu et. al (2008) used crisis informatics to analyze the metadata of 29 Flickr groups created for disaster relief. The combination of data collected from digital cameras (time stamping), the Flickr website (number of views), and user input (captions, tags, comments) allowed for extensive analysis of photosharing during disasters.

Liu et. al (2008) found that norms developed in the process of using photosharing in a time of need. People naturally work together for group goals in a disaster, and this was seen in the way groups were used on Flickr. People paid close attention to the group description and attempted to create a formal tagging system for disaster images. The group administrator becomes the natural leader of the cause and often searches photos on Flickr to solicit members to

join the effort. Groups were created for different purposes and tended to educate, provide emotional support, keep track of search efforts, and to inform the rest of the world.

Photographs of disasters span from the initial catastrophe to the aftermath and reconstruction. Depending on the nature of the disaster, people will post photos of the actual disaster if they can do so in a non-threatening manner. The 2007 Southern California Fires yielded photographs of the actual fires which were labeled “impact” and photographs of smoke and burnt houses from a distance showing the “threat” of the fire (Liu, S.B. et al., 2008). Other disaster such as the London bombings and the Minneapolis bridge collapse recorded images of the aftermath and rescue efforts. These photos helped keep people updated on the situation and showed people that came together onsite to help with the recovery efforts.

After Hurricane Katrina, people worked together to find missing people using photographs. People uploaded pictures of their loved ones that they could not locate and tagged them “katrinamissing.” They also tagged photos with “katrinafound” and “katrinaokay” for people that were later found or who had evacuated. In events like Hurricane Katrina or the London Bombings, it can be very difficult to photograph the disaster as it is happening, but the aftermath can be even more important (Liu, S.B. et al., 2008). People can document what has been destroyed, the recovery process, and the rebuilding efforts. In many situations the sharing of photographs lead to an increase donations and contributions to the disaster.

Another unique way Flickr was used in disaster relief was to display information visualizations created surround the event. People uploaded screenshots they took of map mashups. This was seen in mashups created of the buses involved in the London bombings and of locations of the Southern California Wild Fires. Liu et al. (2008) found that students involved in the Virginia Tech shootings took screenshots various media to show the flow of information.

Students uploaded Facebook search results, YouTube search results, and screenshots of a Virgin Tech Memorial that was created in Second Life. This shows the convergence of social media across several online networks. With Flickr's mapping API and other mashup tools it is now possible to aggregate and select photos by reviewing metadata. This can be used to create map mashups visualizing the locations of photos posted during disasters, allowing for a more interactive view of the crisis at hand.

While citizen journalism and photosharing have proven to be helpful in disaster situations, they have the possibility of turning everyone that participates into government watchdogs. People carry their phones with them at all times, and are often recording what is going on around them. The term "participatory panopticon," created by Cascio, describes "a voluntary form of *sousveillance*- society in which individuals are generating audio and visual content which could lead towards a new quality of a hyper-surveillance society" (Kramer, Reponen, & Orbist, 2008, p. 576). Panopticon refers Jeremy Bentham's 19<sup>th</sup> century design for prisons, asylums, hospitals, schools, and factories that allowed for all people to be watched at any moment. The purpose was that the inmate would know they were always being watched, taking power away from the individual and putting it in the hands of the observer. Mobile devices allow citizens to create user-generated media that can be seen as participatory journalism, but it could turn into constant surveillance of the world around us that will be archived and available for sharing over the Internet. People are constantly observing each other and almost always have a device that can record one's actions. What will motivate someone to record this type of data? Rheingold (2002) predicts that "pervasive computing is converging with ubiquitous surveillance, providing the totalitarian snoop power depicted in Orwell's 1984" (p. 185). BBC News predicted that in 2002 the average urbanite was caught on surveillance cameras

300 times a day. Also in 2002, Motorola announced a technology created that law enforcement could utilize that would bring instant facial-recognition to mobile devices. What is this technology became available on all cell phones? A face could be scanned and run through the Facebook database to find the profile of the individual. This could also lead to everyone on the look out for fugitives or anyone that has been “flagged” somewhere on the Internet. If this type of surveillance technology becomes mainstream, people will find ways to communicate and transfer information for positive and negatives purposes.

The future of backchannels for crisis is yet to be determined. Will officials and mainstream media come to accept the user-generated reporting? The backchannel has helped create many grassroots efforts to organize communities in times of need. How can officials work with this back channel to become even more effective? Governments should be monitoring information online not for surveillance reasons, but to see how they can utilize the information people are providing when a call to action needs to be made. Technology is advanced enough to be able to create an expansive network of contributing individuals, but right now it is only being utilized at the bottom level. When government agencies start to accept web 2.0 and use it to create a dialogue with the people, communities will become stronger and citizens will have their voices heard. People have created communities and social networks without ICTs for hundreds of years, and ICTs are helping us reach new heights. But will it go too far? Will people be making citizen’s arrests via their mobile devices when they see someone jaywalking? An increase in mobile Internet use will allow more people to connect to each other, but it will also give the government more information about everyone’s whereabouts. While this could be utilized in a crisis, is it taking away privacy and civil rights?

Information communication technologies are continually evolving and people will continue

to find new ways to utilize the services available. As the technologies evolve research will need to continue to evaluate how citizens use ICTs to communicate during crisis. With further investigation and organization, infrastructures and programs can be set up to take advantage of ICT backchannels during a disaster. If governments utilize the information people provide during a time of crisis and take the necessary steps to aggregate, organize and archive the information, research be done to evaluate the scenario and prepare for future similar situations. Unfortunately ICTs are not fail-safe, so it will be important to create backup plans as well because the technologies may not be reliable in a catastrophic event. Even so, research shows that communities form around times of crisis, and the ability to utilize ICTs and social media as a backchannel will aid the relief effort in most situations.

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