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EMPOWERING PROTEST THROUGH SOCIAL MEDIA

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Abstract

Advances in personal communications devices including smartphones, are enabling individuals to establish and form virtual communities in cyberspace. Such platforms now allow users to be in continuous contact, enabling them to receive information in real time, which allows them to act in support of other members of their network. This paper will discuss some of the capabilities afforded by social media to protest groups focused on civil disobedience. Direct action protests are now a common sight at gatherings of world leaders, most notably the meeting of the World Trade Organisation (WTO) in Seattle in 1999, the G20 meetings in Melbourne in 2006 and Toronto in 2010. Facebook and Twitter are becoming recognised as key mediums from which to drive change, exert influence and strategically and tactically outmaneuver conventional police deployments at protests. Police charged with managing protest activity now need to operate in both the physical and cyber worlds simultaneously.

Keywords

Facebook, Twitter, Social Media, Protest, Hacktivist, Smartphone, Geotagging.

INTRODUCTION

Social media is continually evolving and it is becoming the primary communications medium within some segments of the community. The pervasiveness of the Internet and ready access to such has resulted in the formation of networked communities in cyberspace. According to Boyd & Ellison (2007) social networking sites enable participants to effectively portray their existing social networks in cyberspace. This paper uses the term 'social media' to describe any web based platform that meets the criteria assigned by Boyd & Ellison (2007, p.1) that enables participants to, "construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system".

These platforms include but are not limited to, Facebook, Twitter, online chat rooms, blogs, Internet relay chat (IRC) and Windows Live Messenger. One such platform is Facebook, which currently provides for a global forum whereby in excess of 750 million users are actively participating and sharing information, some 250 million of these are accessing it via mobile devices (Facebook, 2011). The social networking juggernaut created by Mark Zuckerberg has permeated all strata of contemporary society. People are communicating more openly and frequently than any time in our previous history. The opportunities provided by social media are well understood by protestors, who are using it at an unprecedented level.

This paper will discuss some of the inherent challenges created by social media due to its adoption by direct action protest groups, focused on civil disobedience in pursuance of their objectives. Facebook and Twitter are now becoming recognised as key mediums from which to drive change, exert influence and strategically and tactically outmaneuver conventional police deployments at protests.

LAWFUL PROTEST & ACTIVISM

Gelber (2009) asserts the pivotal role of peaceful protest in an open and democratic society, as crucial to the expression of free speech and the involvement by the individual in the democratic process. A recent review of public order policing by the Her Majesty's Inspectorate of Constabulary (HMIC) in the UK reinforced the role of the police to provide safety and maintain the peace (HMIC, 2009, p.5). According to Gelber (2009, p.1) a protest is defined as, "a politically expressible, collective gathering in a public place". Such gatherings are protected under Article 21 of the International Covenant on Civil and Political Rights, to which Australia is a party. Article 21 states:

> The right of peaceful assembly shall be recognised. No restrictions may be placed on the exercise of this right other than those imposed in conformity with the law and which are necessary in a democratic society in the interests of national security or public safety, public order (ordre public), the protection of public health or morals or the protection of the rights and freedoms of others (United Nations, 1966, p.6).

Whilst this covenant clearly recognises the importance of lawful protest and asserts the rights to participate in such, it also expressly provides for the maintenance of public order and safety. Clearly the inference could be made that the United Nations (UN) was of the view that both could co-exist. The legal right to protest contains inherent restraints designed to provide for the safety and welfare of all (HMIC, 2011). Protest action of varying degrees is now a common sight at most gatherings of world leaders, however some are becoming increasingly violent and confrontational. According to Sharp (2003, p.7) protestors using non violent tactics can be classified into three groups, the first is those carrying out protest activity in a lawful manner in order to gain publicity for their cause in an endeavor to effect change. This can include dressing in a certain manner, distributing material or participating in marches or rallies. The second group utilises noncooperation and ceases contact with existing networks, or establishes new ones in pursuance of their goals. The last group undertakes direct action whereby they engage in conduct designed to affect the operations those they target. Tactics can include, blocking access to office space, occupying the space itself, interfering with traffic flow and attaching themselves to equipment. Sharp (2003) strongly advocates that adopting a non violent methodology does not translate to a lack of action, but that any that is undertaken is done so within that framework.

One of the more visible groups emerging from the meeting of the World Trade Organisation (WTO) in Seattle in 1999 is the anarchist movement. The 'Battle in Seattle' as it is often referred to was event that some protest groups still use as a benchmark and template for future activities. According to material taken from the pro anarchist website Jura, anarchists assert their right to direct action, which they define as, "...action taken by everyday people to cause immediate problems for the rulers of our lives. This might include striking, sabotaging forestry equipment, or damaging property" (Jura, 2011). Anarchist elements damaging property belonging to multi national corporations and conducting acts of violence are often the focus of police attention and action at protests. Scenes of confrontation with police were broadcast globally from the Group of Twenty (G20) meetings in Melbourne in 2006 and Toronto in 2010. Due to police surveillance of these anarchists by CCTV and other means, they now seek to disguise themselves whilst participating in criminal acts, clearly believing this minimises their chances of prosecution due to their identity not being readily discernable.

The WTO, G20 and G8 protests are now a regular focus of the most violent of the anarchist entities, including the group referred to as the Black Bloc. The activities of the Black Bloc are not always condoned by other protesters and can lead to significant tensions within the loose amalgamation of interests represented. During the Battle in Seattle in 2009, there are divergent views and the Black Bloc (N30) complained to other activists via a communiqué issued on the 4th December 1999 about the, "racism of privileged activists" (N30 Black Bloc, 1999, p.2). N30 attempted to minimise their culpability, espousing the view that any action taken by the police was not linked in any way to their actions. N30 also stated that the acts undertaken by their members were more productive than, "any giant puppets or sea turtle costumes" (N30 Black Bloc, 1999, p.2) would ever be.

ADOPTION OF TECHNOLOGY

Protestors are recognised as early adaptors of technology. They have embraced the use of social media sites like Facebook and Twitter, drawing upon the ability of these platforms to amplify their voices and organise their activities. Inherent risks of this approach identified by Papic and Noonan (2011) include the loss of control and direction of the movement by the protest leadership and the potential to loose older members and their experience, as they are not as technically adept as the newer younger members. According to Rawlinson (2009) the use of social media by protestors continues the tradition of embracing new technology to broadcast their message, and it is seen as a platform from which to drive change. Groups can now interact and assemble at levels never before achievable. Rawlinson (2009) identifies the challenges facing police adopting a defensive posture, against groups utilising a networked highly flexible structure.

Advances in technology now provide access to social media platforms to anyone with a smartphone capable of accessing the Internet. The anonymity afforded by the Internet empowers individuals and groups to promote

worldviews and actions, inconsistent with the norms of civil society. The ubiquity of smartphones including the Apple iPhone 4 provides ready access to social media via an intuitive interface. Increasingly capable integrated cameras embed geographical data into photos prior to their uploading into websites. Valli and Hannay (2010) have identified that this GPS data is now embedded in digital images and social media updates by default. The data embedded in the file image includes the latitude and longitude data located within the Exchangeable Image File Format (EXIF). Whilst sites like Facebook strip the EXIF data from photos uploaded to that site, those posed on blogs or emailed often still contain this information. Whilst it can be retrieved from the mobile phone or sim card at a later stage by law enforcement, it enables protestors to geographically tag material they film, edit and upload to social media sites.

In order to gain the requisite media coverage protestors understand they need to create situations that will produce newsworthy footage. To achieve this they study the tactics used by police and the physical environment where the protest will occur. Protestors may utilise communications mediums like Twitter in an endeavor to outmaneuver police and rapidly mobilise at specific locations to achieve set objectives. This ability to maneuver allows them to concentrate their greatest numbers at the areas where the police cordons are the weakest. Once protesters identify weaknesses in police formations this information can be sent to all other activists involved, allowing for rapid mobilisation and penetration of the police lines.

Police resources are often deployed to restrict access to venues, and key ingress and egress routes. Once the protesters identify these routes they seek to disrupt them and attempt to engage in lock on type activities, whereby they seek to immobilise delegates vehicles or close key intersections and draw out police resources into direct confrontation. In order to achieve this protestors require numbers, a challenge identified by Sander (2011, p.1) who acknowledges that there is a significant difference between cyber protests where discussion ensues and communities are formed, to the physical attendance at a protest. The ability to put people out in the street in sufficient numbers to achieve their aims is crucial to protest organisers. According to Risley (2010) this is where the true value of Twitter resides, as it provides the ability to instantly draw upon the collective power of others by reaching out to them though cyberspace.

RISE OF THE HACKTIVIST

The use of social media by activists is subject to discussion by Kahn & Kellner (2004), who detail its use to promote networks and facilitate the management of large scale events. They further advocate that it can be used to address oppressive oversight by governments, thereby allowing for the creation of new relationships and systems of government to form.

The pubic now have access to information previously only accessible to governments, intelligence agencies, and multi-national corporations. Kahn & Kellner (2004) assert that this is leading to a culture of cyber activists, empowered by the tools provided to them by the hacker counter culture. The synthesis of hacker and activist has resulted in the coining of the term 'hacktivist' and it is these individuals or groups who compile and provide open source code and software to enable activists to mobilise, and communicate. The resultant networks of interconnected activists are able to access and instantaneously share information with others, regardless of their physical location. Smartphones provide video editing and upload capability directly to sites like You Tube, enabling activists to broadcast their message to a potentially global audience in real time. This link can then be broadcast by Twitter and Facebook and if picked up can surpass conventional media entities in terms of reach and influence (Salmond, 2010, p.98).

Kahn & Kellner (2004) posit that the government will attempt to monitor the activities of activists, citing acknowledged U.S. government programs including Carnivor and Echelon as proof. They are highly supportive of the hacktivist endeavors to negate this intrusive surveillance through the provision of tools to enable private communications remain just that. Activists with journalistic skills can utilise these tools to promote their cause via online blogs, advocating their views as free of restriction and corporate imposed limitations. The use of blogs allows like minded individuals to gather in cyberspace and discuss issues relevant to them in real time. Debates are no longer restricted by accessibility and people can form global communities to address key issues. Salmond (2010, p.90) identifies that social change is often facilitated by an increase in technology. Whilst he also cautions against its use as a tool for restricting personal latitude, he acknowledges that increases in interconnectivity are facilitating momentary communities to form. He postulates that such gatherings result from

a uniting of common desires or achievements. Such a movement could be subject to monitoring were it not utilising hacktivist technology tools to limit its discernable signature and interception in cyberspace (Salmond, 2010, p.90).

The ability for policing agencies to access real time information and discern future intentions of protestors is recognised by Apps (2011), who asserts positive outcomes if undertaken correctly. These would include the ability to identify unrest and engage in dialogue prior to any protest or direct action being undertaken. Police operating under intense scrutiny seek to utilise technology and develop tactics to address the operational challenges inherent in unlawful protest. The legitimate rule of law may be brought into question by the adoption and implementation of tactics that can be perceived as provocative or unlawful. In 2011 the tactics adopted by the police during the G20 protests in London included containment areas, where protestors were enclosed by police lines and prevented from moving or leaving. These tactics are referred to as 'kettling' and have resulted in public debate regarding their actual or perceived lawfulness. Protesters have adapted to this shift in police tactics by developing a software platform called SUKEY (2011), that enables protesters to share and access information regarding police tactics and deployments in real time via their smartphone.

The use of the SUKEY platform was well reported in the UK media (Kingsley, 2011) including screenshots showing the disposition of police assets including, horses and dog teams utilising Google maps in real time (Student Protesters, 2011). SUKEY is not a completely automated system and is reliant upon a core group of protestors utilising a number of open source feeds to assess data transmitted from the incident scene. This is then validated prior to transmission, in an endeavor to negate misinformation being disseminated. This platform was devised in the UK and was originally configured for London, but the writers have indicated their intention to release the source code (Sukey, 2011). Once released local hacktivists will be able to modify it to suit any geographic area of protest and this will provide them with the potential capability to dominate the protest space by out maneuvering the police, because unlike open source feeds like Twitter this platform is designed to defeat attempts at monitoring (Sukey, 2011).

When interviewed about the challenges police face in responding to protester's use of social media by *The Guardian,* the president of the UK Association of Chief Police Officers (ACPO), Sir Hugh Orde stated that it brings, "a whole new dimension to public order" (Hill, 2011). Orde also identified that police struggle to keep pace with the speed of events facilitated via the Internet. Protests that used to take two months to organise can now be mobilised within 48 hours, presenting significant challenges for the police who need to adjust staffing levels in time to meet the operational demands for the event, whilst maintaining business continuity.

Stagg and Warren (Stagg & Warren, 2002, p.290) identified the capability of individuals or cells to synthesise their capabilities in an asymmetric manner when confronting adversaries. This approach is well understood by the hacktivists who recently responded to arrests of members of the hacker collective, 'Anonymous' by Spanish police. They conducted a Distributed Denial of Service Attack (DDoS) on the Spanish police server rendering it unable to be accessed. This was reported via various mainstream media entities including *The Australian* (News Core, 2011) citing a police source as confirming the event. A key theme emerges from the Anonymous collective in a posting claiming responsibility for this attack:

> DDoSing is an act of peaceful protest on the Internet. The activity is no different than sitting peacefully in front of a shop denying entry. Just as is the case with peaceful protest… Arresting somebody for taking part in a DDoS attack is exactly like arresting somebody for attending a peaceful demonstration in their hometown. Annonymous believes this right to peacefully protest is one of the fundamental pillars of any democracy…. (Anonymous, 2011).

It can clearly be discerned from this posting that the hacktivist collective view their activities and subsequent culpability akin to those who partake in non violent physical protests. According to media reports including *The Sydney Morning Herald* (Moss & Grubb, 2011) a splinter group has emerged from Anonymous called Lulzsec, who claim to have taken down a number of high profile websites, including one associated to the Federal Bureau of Investigation (FBI) and the public website belonging to the Central Intelligence Agency (CIA). Other attacks by the group have focused on law enforcement including the UK's Serious and Organised Crime Agency (SOCA). Lulzsec have posted details of these attacks on their website (http://lulzsecurity.com/). *The Australian*

newspaper reported that Australia's major telecommunications provider Telstra was reticent to implement an Internet filter, due to concerns that it could make the organisation a target for the group (Colley, 2011).

The potential exists for protesters to synthesise these cyber capabilities with their physical protests and target either an organisation or event from multiple fronts simultaneously. Software platforms like SUKEY have demonstrated an innovative approach to countering police public order tactics during protests. Whilst these platforms do not yet possess an offensive capability, it is possible for policing operations to be significantly disrupted by the active targeting of police networks and servers. Groups like Lulzsec seek to raise their profile by conducting attacks on highly visible oranisations. The threat is that the policing organisations endeavoring to manage protests could be actively targeted. The majority of contemporary policing agencies are reliant upon web based command and control software, which could be adversely effected by a reduction in network connectivity and availability. Stagg and Warren (2002, p.290) illuminate the inherent risks created by the continued integration and reliance upon cyber based command and control elements, and the growing sophistication of the adversaries who seek to exploit them.

EMPOWERMENT

The technology embraced by protesters provides them with a significant operational capability. According to material from protest websites (@ndy, 2010) a network based approach to planning, sharing information and ideas was adopted prior to the WEF protests in Melbourne in 2000. Sullivan and Elkus (2009, p.2) expand upon the work of Dr Robert Bunker (1998) identifying the multi-dimensional nature of the operational space police now operate within. The most overlooked of these according to Sullivan and Elkus (2009, p.2) is cyberspace, which whilst temporal in nature can have significant impact in the real world. It is thus a highly sought, but often misinterpreted aspect of modern policing. Operational command and control of contemporary police deployments is achieved via cyberspace (Sullivan & Elkus, 2009, p.3) and is therefore susceptible to attacks against networks, adversely effecting cogitative decisions made by police commanders. It could be argued that this capability enables the protestors to effectively get inside the police decision making loop, thereby enabling them to outmaneuver the police and retain the initiative. This decision making loop was developed by Colonel John Boyd a former fighter pilot with the U.S. Air Force, who used it to explain the success rate of American fighter pilots during the Korean War (Brehmer, 2010). The initial loop is simply referred to as the OODA loop and refers to Observe, Orient, Decide and Act. Boyd later enhanced this loop and expanded by adding key influences that related to each area. The strategy of Boyd sought to inhibit the decision making process of the adversary, by seeking to operate inside their cognitive processes.

According to Harland, Shanahan and Bewick (2004, p.2), "The future network enabled force will be composed of highly responsive, well integrated and flexible joint force elements that possess the ability to conduct effects based operations". It could be argues that the modern activist seeks to operate within this space. This is supported by Salmon (Salmond, 2010, p.95) who asserts that this new momentary community is a form of smart mob and, "can be seen to be issue based, idealistic and ultimately intelligent". The synthesis of thought across traditional physical boundaries allows these activists to remain connected and informed via social media groups. This results in a flatter more decentralized structure where power is vested in the individual, which makes the group significantly harder for police to deal with, as there is no discernable leadership. This intelligent network can also adapt to changing police tactics and rapidly dissipate and reform where and as required to achieve a specific purpose. This provides them with the capability to outmaneuver a reactive police element attempting to monitor their activities.

Sullivan and Elkus (2009, p.5) concur with Heal (2010) that any police commander attempting to operate purely in the physical space will render themselves vulnerable to attacks originating from cyberspace. The police commander is tasked with negating risks and physical protection of a venue or individual, whilst simultaneously facilitating lawful protest activity. The defensive nature of this role results in their posture being highly visible to an adversary, who can attempt to discern their strategy based upon their deployment. This supports Boyd's assertion of the importance of obtaining insight into the mind of your adversary and disrupting their thought process by denying them the opportunity to gain or regain the initiative.

Papic and Noonan (2011) also identify the elevation of social media by political commentators in facilitating contemporary unrest. They posit that the prevailing view is one of difficulty for dictatorships to retain control of

a networked and informed community. Whilst social media enables protestors to compete with governments and coordinate and mobilise at very low cost, such medium is dependent upon a technically astute leadership, who can transfer online involvement into physical commitment in the real world. Protests that go beyond activism and directly challenge the ruling government like Egypt can disseminate their message by social media in an effort to counteract the usually government controlled or influenced conventional media. Messages regarding protests and timings can be rapidly transmitted with minimal warning for government security forces to react. Papic and Noonan (2011, p.2) detail the numbers attending the 28 January 2011 protest in Egypt taken from that group's Facebook page as 89,250.

The resultant shut down of the Internet by the Egyptian government illustrated the gravity of the perceived threat and the tacit acknowledgement of the inherent power that resides within social media. This decision however did not stop the protest, which it could be argued had already reached critical mass and only served to further antagonise the population. In addition it denied the government an extremely valuable intelligence opportunity as the communications medium had to be open to reach everyone and therefore information pertaining to planned activities could be accessed, evaluated and countered. Papic and Noonan (2011, p.3) posit that the arrest of some of the leadership group in Egypt could be attributed to their involvement in the Facebook site. Evangelista (2011) identifies the nexus between those who organised the protests in Egypt and their understanding of the capabilities of social media. According to Evangelista protesters involved in the uprising in Egypt have attributed their success to the ability to organise and broadcast their message via Facebook.

CONCLUSION

The widespread adoption of social media by the protest community has enabled it to become a significant platform from which to challenge the status quo. It provides protestors with the capability to broadcast their message to the wider mainstream community in a manner not previously possible. In addition protestors can now organise events with minimal lead time, thereby challenging policing agencies tasked with managing their activities. Decisions to limit the Internet or to deny access completely like those taken by the Egyptian government carry significant corporate risk, as most commercial and public sector entities are dependent upon web based communications. The inherent challenge for policing organisations identified by HMIC (2011, p.9) is to assimilate the knowledge from major events and apply it to the rapidly changing operational environment. This needs to be achieved in a timely manner to ensure it remains relevant and effective.

REFERENCES

@ndy. (2010). Reflections on S11 and AWOL Retrieved 10 February, 2011, from http://slackbastard.anarchobase.com/?p=20103

Anonymous. (2011). Spain: Anonymous takes down National Police website #OpPolicia Retrieved 15 June, 2011, from http://anonops.blogspot.com/2011/06/spain-anonymous-takes-down-national.html

Apps, P. (2011). Should spies spend more time on Twitter? Retrieved 8th May, 2011, from http://www.reuters.com/article/2011/02/08/us-technology-protest-spies-idUSTRE71726I20110208

Boyd, D., & Ellison, N. (2007). Social Network Sites: Definition, History and Scholarship. *Journal of Computer-Mediated Communication, 13*(1).

Brehmer, B. (2010). The Dynamic OODA Loop: Amalgamating Boyd's OODA Loop and the Cybernetic Approach to Command and Control Retrieved 10 March, 2011, from http://www.dodccrp.org/events/10th_ICCRTS/CD/papers/365.pdf

Bunker, R. (1998). Five-Dimensional (Cyber) Warfighting: Can The Army After Next Be Defeated Through Conplex Concepts and Technologies? Retrieved 12 June, 2011, from http://www.google.com.au/search?client=safari&rls=en&q=five+dimensional+battlespace+robert+bunker&ie=UTF-8&oe=UTF-8&redir_esc=&ei=czASTuGKDefHmAX0nqDfDQ

Colley, A. (2011). Hackers put Telstra in filter bind Retrieved June 25, 2011, from http://www.theaustralian.com.au/australian-it/hackers-put-telstra-in-filter-bind/story-e6frgakx-1226081618113

Evangelista, B. (2011). Facebook, Twitter and Egypt's upheaval. from SFGate.com http://articles.sfgate.com/2011-02-13/business/28532426_1_social-media-facebook-and-twitter-facebook-ceo-mark-zuckerberg

Facebook. (2011). Facebook Statistics Retrieved 10 May, 2011, from http://www.facebook.com/press/info.php?statistics

Gelber, K. (2009). *The right to protest and Australian political culture*. Paper presented at the Australian Political Studies Association, Sydney. http://ssis.arts.unsw.edu.au/staff/katharine-gelber-1109.html

Harland, S., Shanahan, P., & Bewick, D. (2004). Agile Command Capability: Future Command In The Joint Battlespace And Its Implications For Capability Development Retrieved 10 January, 2011, from http://www.dodccrp.org/events/2004_CCRTS/CD/papers/136.pdf

Heal, S. (2010). Five-Dimensional Battlespace. *The Tactical Edge, Spring,* 60-62.

Hill, A. (2011). Police could use more extreme tactics on protesters, Sir Hugh Orde warns Retrieved 14 February, 2011, from http://www.guardian.co.uk/uk/2011/jan/27/hugh-orde-police-protest-tactics

HMIC. (2009). Adapting To Protest - Nurturing the British Model of Policing Retrieved 10 June, 2011, from http://hmic.homeoffice.gov.uk/SiteCollectionDocuments/Individually Referenced/PPR_20091125.pdf

HMIC. (2011). Policing Public Order: An overview and review of progress against the recommendations of Adapting to Protest and Nurturing the British Model of Policing Retrieved 10 June, 2011, from http://www.hmic.gov.uk/SiteCollectionDocuments/PPR/PPR_20110209.pdf

Jura. (2011). Why Anarchism: What might an Anarchist society look like Retrieved 12 June, 2011, from http://jura.org.au/about

Kahn, R., & Kellner, D. (2004). New media and internet activism: from the 'Battle of Seattle' to blogging. *New Media and Society, 6*(1), 87-95.

Kingsley, P. (2011). Inside the anti-kettling HQ Retrieved 25 February, 2011, from http://www.guardian.co.uk/uk/2011/feb/02/inside-anti-kettling-hq

Moss, A., & Grubb, B. (2011). 'There is no security': hackers take down CIA site Retrieved June 20, 2011, from http://www.smh.com.au/technology/security/there-is-no-security-hackers-take-down-cia-site-20110616-1g4om.html

N30 Black Bloc. (1999). A Communique From One Section Of The Black Bloc Of N30 In Seattle Retrieved 10th May, 2011, from http://depts.washington.edu/wtohist/documents/black_bloc_communique.htm

News Core. (2011). Hackers take revenge on Spanish police for Anonymous arrests Retrieved 13 June, 2011, from http://www.theaustralian.com.au/news/breaking-news/hackers-take-revenge-on-spanish-police-for-anonymous-arrests/story-fn3dxity-1226074543969

Papic, M., & Noonan, S. (2011). Social Media as a Tool for Protest 03 February 2011. Retrieved 10 March, 2011, from http://www.stratfor.com/weekly/20110202-social-media-tool-protest

Rawlinson, L. (2009). Protesters always early adopters of technology. *CNN World* Retrieved 20 February, 2011, from http://articles.cnn.com/2009-03-31/world/g20.activists_1_campaigners-mobile-technologies-internet-technologies?_s=PM:WORLD

Risley, D. (2010). The Twitter Manual. Retrieved from http://www.davidrisley.com/reports/twittermanual.pdf

Salmond, M. (2010). The Power of Momentary Communities: Locative Media and (In)Formal Protest. *Aether: The Journal of Media Geography, V.A.*(March), 90-100.

Sander, T. (2011, 10th May). Twitter, Facebook and youTube's role in Middle East Uprisings. Retrieved from http://socialcapital.wordpress.com/2011/01/26/twitter-facebook-and-youtubes-role-in-tunisia-uprising/

Sharp, G. (2003). There Are Realistic Alternatives Retrieved 08 July, 2011, from http://www.aeinstein.org/organizationsbc25.html

Stagg, V., & Warren, M. (2002). *Asymetric Scalability: The Unfair Advantage of Information Warfare*. Paper presented at the Protecting the infrastructure : proceedings : 3rd Australian Information Warfare & Security Conference 2002, Perth, Western Australia, 28 & 29 November 2002, Perth. http://www.deakin.edu.au/dro/view/DU:30004843

Student Protesters. (2011). Student protesters use Google Maps to outwit police Retrieved 23 March 2011, from http://www.metro.co.uk/news/849973-student-protesters-use-google-maps-to-outwit-police

Sukey. (2011). Sukey - Keeping demonstrators safe, mobile & informed Retrieved 11 May, 2011, from http://sukey.org/

Sullivan, J., & Elkus, A. (2009). Police Operational Art for a Five-Dimensional Operational Space Retrieved 23 January, 2011, from http://smallwarsjournal.com/blog/2009/07/police-operational-art-for-a-f/

United Nations. (1966). International Covenant on Civil and Political Rights. Retrieved from http://www2.ohchr.org/english/law/ccpr.htm

Valli, C., & Hannay, P. (2010). *Geotagging Where Cyberspace Comes to Your Place.* Paper presented at the The 8th Australian Information Security Management Conference, Perth.