Bridging the Virtual and Real: The Relationship between Web Content, Linkage, and Geographical Proximity of Social Movements

By

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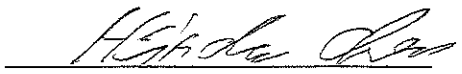

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Abstract

As the Internet becomes more widely adopted, the virtual space has advanced to closely represent aspects of the real world from which it was created. Due to this trend, researchers of various disciplines have become interested in studying relationships between real world phenomena and their virtual representations. One such area of emerging research seeks to study relationships between real world and virtual activism of social movements. In particular, social movements holding extreme social perspectives are often studied due to their tendency to have robust virtual presences in order to circumvent real world social barriers. However, many previous studies are limited in scope as they utilize manual data collection and analysis methods; they also often fail to consider the real world aspects of groups that partake in virtual activism. We utilize automated data collection and analysis methods to identify significant relationships between aspects of social movement group virtual communities and their respective real world locations. Our results demonstrate the existence of relationships between the real world aspects of social movement groups and their virtual communities. These observations provide insights into the behaviors of social movements within virtual environments, and suggest that virtual communities are closely related to their real world counterparts.

Introduction

As the Internet continues to become more widely adopted, particularly due to the development of Web 2.0, the virtual space has advanced to closely represent aspects of the real world from which it was created. Internet users have become empowered and encouraged to create and distribute their own content as opposed to acting solely as the audience, a role undertaken in more traditional forms of media. Increases in online content publication have caused researchers of various disciplines to take interest in studying the relationships that have formed between real world phenomena and their representations in the virtual space. For example, social psychology researchers have found that the Internet offers individuals a domain to explore different aspects of their personalities that are not readily exhibited in the real world (Bargh, 2002). This insight demonstrates a paradigm shift concerning the importance of behaviors and actions that occur in cyberspace; a relationship exists between how individuals represent themselves and interact within the virtual world and their real world self and existence.

In a similar pursuit, the virtual representations of social movements have been examined by researchers in an effort to understand more about how these movements function in the real world. Observations made in past studies detail how social movements view and actively utilize the Internet as a viable method for reaching their audience (Brunsting & Postmes, 2002). The virtual space has become a platform from which social movements successfully launch many of their campaigns that promote activism and help further achieve movement goals. The significance of this finding has led researchers to extend their work to explore the actual ways that social movements leverage the Internet in order to promote and coordinate activism in the real world.

Many characteristics of individuals and social movements must be studied when comparing the relationships between the real and virtual. Social psychology research has commonly observed individuals with varying beliefs and personality traits to possess different online behaviors (Turkle, 1997). This finding may be of specific interest to social movement researchers, as every movement has a unique social perspective and may act differently in order to reach its goals. Among these online behaviors, relationships and links with others are often explored. Social network analysis can often reveal unique characteristics concerning individuals or groups within a social network, particularly the behaviors and relations which link different members to each other (Diani, 2000). The content discussed and shared among members is often another target of scrutiny. Content analysis generally reveals information which can be used to better characterize the behaviors of individuals. In the context of social movements, content analysis can often describe the perspectives and ideal of a social movement.

Such information gleaned from the Internet is useful for identifying relationships between the real world and virtual space. Gerstenfeld et al (2003) found that the Internet may often be

utilized by social movement groups to further advance their perspectives. For example, observations made through social network analyzes may reveal relationships between groups and collaboration of real world activism between those that are geographically nearby. Additionally, content analysis can reveal the specific ideologies of social movement groups and how they choose to present their ideals. Groups may intentionally form relationships with those that provide a physical or ideological advantage that allow for more successful activism. The virtual space allows social movement groups to carefully craft their image to best achieve real world goals.

In particular, social movements advocating extreme social perspectives have been widely studied due to their tendency to have robust and ideologically rich virtual presences. Social barriers inhibiting extreme groups and their ideas from advancing in the real world can be circumvented by using the Internet, encouraging many groups to develop pronounced virtual identities (Qin et al, 2007). Investigating this phenomenon, further research has revealed many interesting characteristics that demonstrate the Internet's synergistic effect towards how extreme groups achieve their goals. Perspectives gained from these studies have revealed that members of groups with extreme ideologies form strong, cohesive relationships in the virtual space (Perry & Olsson, 2009). The ability to form enduring relationships between members is important to these groups, as they rely heavily on participation to conduct their activism and propagate their social perspectives. Furthermore, a prevalence of strong relationships and trust between group members leads to a higher rate of information dissemination and acceptance. By becoming part of a virtual community that vindicates socially extreme perspectives, individuals are able to more easily influence one other and reinforce existing beliefs; in some extreme cases, members have been observed using the Internet as a vehicle to incite deviant behavior in the real world, including

violent actions (Glaser et al, 2002). Virtual communities appear to become an integral part of operational and strategic planning by extreme movements. The Internet is an asset often leveraged to promote activism in the real world. Such previous findings help draw conclusions concerning the significance of virtual interactions within extreme social groups, making them ideal subjects for investigating the relationship between real world and virtual representations.

Literature Review

To form a basis for this research, literature is reviewed from three areas: the relationship between real world phenomena and their virtual representations, how social movements manifest the Internet, and what research method have been used when conducting studies on virtual communities. Insights borrowed from previous studies that investigate these areas provide a more adequate understanding of the phenomenon this research intends to study. Specifically, a familiarity with past research observing the relationships between the real world and the virtual space illustrates how the two are known to be interconnected, and what previous studies have done to observe existing relationships. Further, knowledge of how social movements represent themselves on the Internet provides a basis for understanding how they function within the virtual space and the significance of their online behaviors and representations. Past studies that have conducted research on virtual communities aide in formulating a systematic method of studying the virtual representations of social movements. Additionally, a familiarity of past studies reveals what gaps exist in current literature and research.

Real World Phenomena and their Virtual Representations

Many previous studies investigating the relationship between real world phenomena and their virtual representations have analyzed individuals through perspectives and methods of social psychology. Past research has concluded that the Internet is an environment in which individuals are comfortable in allowing for natural, real-world habits and personality traits to manifest within their online behaviors (Phang et al, 2009). Real world elements appear to commonly influence how individuals act within the virtual space. Additionally, this also implies that users with differing real world experiences may express themselves uniquely on the Internet. Parallel to this observation, other investigations have found that users also treat the Internet as a social laboratory, where they often experiment with expressing different forms of their self (Turkle, 1997). Personality aspects not normally revealed by an individual may be further explored on the Internet; particularly, behaviors and perspectives which may be deemed as socially deviant or inacceptable are investigated. Events that occur within the virtual space are profoundly influenced by the real world, as the online actions of individuals often originate from their actual personalities.

Other social psychology research has focused on identifying whether experiences that occur within the virtual space affect real world behaviors, essentially studying the opposite direction of the effect described by Phang et al (2009) and Turkle (1997). McKenna and Bargh (2000) found that Internet users who become part of an online community may experience deindividuation, a phenomenon where individuals become so immersed within a group that they lose their sense of individuality. This phenomenon is often witnessed in mobs, riots, sporting events, armies, and other social experiences where diffused responsibilities and groupthink override individualism. On the Internet, virtual communities can often become places where

members experience deindividuation, allowing for social movements to have the opportunity to more easily promote deviant behavior through a virtual presence (Freilich et al, 1999). In particular, extreme social groups would benefit from deindividuation as it allows for much easier propagation and adoption of social perspectives. Internet users participating in virtual communities are more susceptible to the influence of social movement groups, thus making them more likely to internalize promoted behaviors and ideals. The unique characteristics of the Internet allow for links between the virtual and real to become manifested within individuals.

Social movements and the Internet

Past studies observing the virtual manifestations of social movements have found many interesting behaviors that attest to a high proficiency of leveraging the Internet to accomplish movement goals. Information propagation is one of the primary functions of any social movement; according to McDonald (1999), social movements have a wide range of sophisticated tools and methods at their disposal in attempt to influence individuals and further advance movement perspectives. Chen et al (2008) observed such techniques being commonly employed to spread propaganda and promote real-world activism. Many opportunities for information propagation appear to be made available through use of the Internet. Virtual communities are often successful ventures in cultivating influence over individuals and helping achieve movement goals and social positions (Spears et al, 2002). The virtual space is one of the richest environments for propagating socially deviant perspectives.

With the ability to influence the perspectives of individuals, social movements are able to accomplish their recruiting goals through the virtual space. Josey (2010) found that social movements successfully use their online presence to recruit new members to subscribe to their

cause. Additionally, while many recruitment campaigns may be explicit, previous studies have observed and detailed proficiency in covert operations; Schafer (2002) observed that movements have become adept at targeting unsuspecting Internet users and baiting them to further investigate movement social perspectives. Exposure to social movement virtual communities appears to have real world implications, as individuals become susceptible to adopt a particular movement's social perspectives and become activists.

In addition to propagating information to recruit new individuals, a social movement will also utilize its virtual presence to cultivate loyalty and staying power among members. Wellman and Gulia (1999) found that the Internet can be used to successfully form and maintain strong, supportive community ties among members of a group. Virtual communities promote interactions between members that reinforce group norms and strengthen group influence (Spears et al, 2002a). As individuals become increasingly familiar with other members of a social movement group, trust begins to resonate within relationships between members. The members are likely to have a greater impact upon each other, with influence potentially permeating into the real world as members promote deviant perspectives and calls for activism. These communities appear to serve as hubs where individuals share their views, disseminate knowledge, and encourage each other to support social movement social positions (Bowman-Grieve, 2009). The loyalty building aspect of virtual communities helps create cohesiveness within groups, which can cause members to be more susceptible to social movement propaganda. Such members may be more easily encouraged to voice their activism in the real world. Virtual communities appear to be used quite extensively to perform operations that affect both the virtual and the real.

Virtual communities are especially important to social movements holding extreme perspectives. Social barriers preventing extreme groups and ideas from advancing in the real world can be circumvented online (Perry & Olsson, 2009). Extreme social movements typically have robust and ideologically rich virtual presences, which they use as a tool for information dissemination, persuasion, loyalty building, and member recruitment. Many variables that would prevent the propagation of extreme social perspectives in the real world are bypassed on through virtual communities; there is a strong link between the real world goals of an extreme group and its online activities. These groups benefit immensely from managing a virtual presence, as these groups are able to conduct their activism outside public scrutiny and societal disapproval that they would face in the real world.

Research into Virtual Communities

To aide in the development of a research design, past literature concerning virtual community studies was reviewed. Previous studies have outlined effective means for conducting research to gain insight into virtual communities; methods developed for the analysis of virtual communities follow traditional research methods from sociology (Li, 2004). For example, when studying a social movement in the real world, the relationships between movement participants are often scrutinized. Wellman (1996) explains that on the Internet, hyperlinks can be viewed as "ties" between groups. Additionally, social movement publications and dialogues are often scrutinized to understand the perspectives of a particular movement. On the Internet, content analysis of websites and forums is useful in understanding the ideals and perspectives of social movements.

To be able to perform analysis on virtual communities of social movements, collections of content from these communities must be built. Qin et al (2007) identified the virtual communities of several social movement groups belonging to a social network, and then employed an automated approach to download the web pages of the communities. In essence, the authors were able to download a snapshot of the social network intended for study. This snapshot can be dissected and analyzed in a multitude of ways, providing additional context to the profile of a particular social network.

The web pages that compose the downloaded snapshot can be used for both hyperlink analysis and content analysis. Hyperlink analysis can reveal deeper knowledge about the behavior patterns of virtual communities (Hu et al, 2009; Chung, 2006). Linkage behavior between social movement groups can reveal relationships and collaboration that may occur between individuals or groups. Web page content can be analyzed to provide additional insights concerning the nature of a web site. Demchak et al (2000) used a form of content analysis to measure the openness of information on multiple government websites. Zhou et al (2005) adopted Demchak et al's approach to analyze the differences of webpage content and activism levels of websites belonging to multiple socially extreme groups

Research Gaps and Questions

Researchers have been interested in the relationships between individuals in the real world and their virtual representations, but few inquiries have focused on observing these relationships within groups. Further, the online activities of social movements is an actively studied and emerging area of research, but most studies are often limited in scope as they generally utilize manual data collection and analysis methods. Additionally, many studies often

fail to take into account the real world aspects of groups that take part in virtual activism. Given the state of current research, we pose the following research questions:

1. How do the virtual manifestations of social movement groups relate to their real world presences?

2. Does a social movement's ideological identity have an effect on the relationships between the virtual and real?

In this study, we analyze relationships between aspects of the real world and virtual representations of socially extreme movements. A suite of automated data collection and analysis techniques is used to discover how the real world and virtual space are interconnected. Attributes of each social movement groups' virtual identity will be compared to physical characteristics in order to determine relationships between the real world and the virtual space. Additionally, the various ideologies and social perspectives of groups will be used to compare differing virtual representations.

Research Test Bed

The Southern Poverty Law Center (SPLC) is an established legal advocacy group that tracks many American social movement groups that advance socially deviant ideals. Founded in 1971 during the American Civil Rights movement, the SPLC has purposed itself to expel hate, bigotry, and social injustices. It has routinely filed successful lawsuits against violent, socially extreme groups that seek to discriminate and exploit vulnerable members of society. Further, the

SPLC is often recognized as a prominent force in continuing the fight against institutional racism.

The SPLC releases a quarterly publication listing all domestic groups they track, along with additional commentary and information concerning studied organizations. Data on the social movements was acquired from the SPLC Spring 2009 Intelligence Report, which is comprised of a collection of 771 groups that promote their extreme social perspectives through real world activism in the United States, who also maintain strong virtual presences and participate in virtual activism.

Ideological Class	Subclasses	Description	# of Groups
Patriot	militia, media, ministries, publishing, support, vendor, political/citizen groups, and sovereign/common law/jural	opposed to the 'new world order' or advocates extreme antigovernment doctrines	141
Hate	Ku Klux Klan, neo-Nazi, white nationalist, racist skinhead, Christian identity, neo-confederate, black separatist, and general hate	advocate extreme prejudice or violence on the basis of race or religion	630

Figure 1 – SPLC Spring 2009 Intelligence Report Dataset

Figure 1 summarizes the SPLC dataset according to group ideological affiliations and categorizations. All groups rest in one of two subsets, hate or patriot groups. Hate groups are generally those that promote discrimination and social injustice against peoples of different ethnicity, religion, and other reasons. For example, white supremacist groups would be classified as hate groups under the SPLC categorizations. Patriot groups tend to hold deviant perspectives

concerning societal structure and governmental organizations. Separatist and counter-culture groups would be classified as patriot groups by the SPLC. Both categories have several, more specified subcategories for further group classification.

The data set also provides the web addresses of official group virtual communities and geographical locations of group headquarters. Since the study is focused on evaluating the virtual relationships between these groups in relation to their physical proximity in the real world, groups in the SPLC report without a listed geographical location were omitted. Additionally, since some groups change the web addresses of their virtual communities, not all of the websites specified in the report could be accessed for collection (as of Summer 2009). Figure 2 summarizes our final SPLC collection compiled after filtering out groups that did not have the necessary attributes for this study.

Final SPLC Collection			
Web Pages	**Patriot Groups**	**Hate Groups**	**Avg. Pages per Group**
23,243	**29**	**74**	**225**

Figure 2 - Final SPLC Collection

To better understand the significance of where and why hate and patriot movements manifest, we refer to past political science studies. Hate groups are seemingly concentrated in conservative areas with large minority representation; states with an overall conservative perspective tend to have more hate groups (McCann, 2010). As conservative areas are more resistant to social changes and modernization, they hold on to older, socially prejudice beliefs that encourage deviant and malicious behavior against minorities. For example, hate group

activity is found to increases in conservative areas where African-Americans have a strong representation in local government (Fording & Cotter, 2007). Due to stronger minority representation, some individuals may feel vindicated to join hate groups or carry out hate group activities.

Figure 3 - Geografaphic Distribution of Hate Groups

Previous research also reveals the origin of patriot groups, which emerge from communities experiencing social instability and where public attitude expresses a lack of faith in government. These characteristics that can lead to the formation of patriot groups seem to precipitate mainly from the loss of jobs and social disorganization within a community (Freilich & Pridemore, 2005). Dyke and Soul (2002) found that areas experiencing social restructuring also encourage patriot groups to form. These groups tend to be more dispersed than hate groups, as areas with growing social instability and transformation can be found anywhere, while hate groups generally congregate within conservative regions.

Figure 4 - Geographic Distribution of Patriot Groups

Research Design

Our research design (Figure 5) consists of seven stages: website collection, hyperlink extraction, linkage calculation, content extraction, content similarity calculation, geographical distance calculation, and correlation analysis. Insights borrowed from previous research aided us in developing a research design that would effectively capture the relationships between aspects of the real world and the virtual representations of social movements. The methods we employ allow us to quantify aspects of both the virtual and real, which are then used in various correlation analyzes that are restricted to varying ideological scopes.

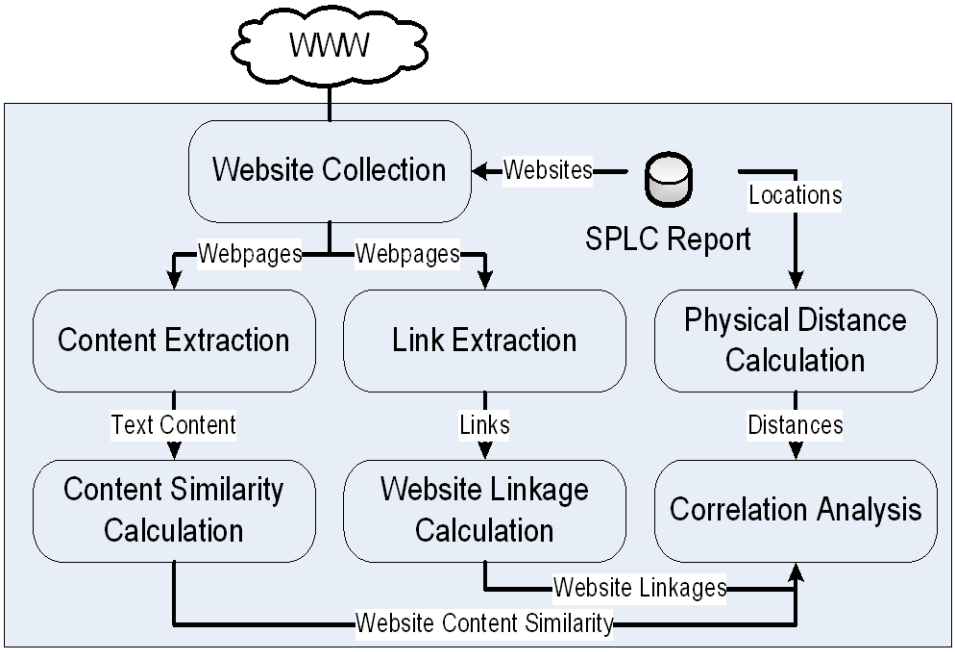

Figure 5 - Research Design

Website Collection

Web pages from the virtual communities of social movement groups were collected in an automated fashion using a spidering system. The top three domain levels were collected as a representative sample of the community. All web pages were collected in a short time span as to take a snapshot of the virtual communities in an instance of time. This collection of websites will be run through a series of analyzes in order to better understand the relationships between the real world and virtual space.

Link Analysis

Hyperlinks were analyzed to measure the intensity of the virtual relationships established between any two groups in the data set. Linkage between two groups was defined as the total number of links from all pages within either website domain pointing to the other domain. Strong linkages between groups may be indicators of collaboration of activism in the real world, while weak linkage may be inferred as sparse or non-existence of collaboration. We extracted

hyperlinks from the collected web pages of each website to represent the linkages a virtual community maintains to other websites.

$$Website\ Linkage_{(i,j)} = Links_{(i \rightarrow j)} + Links_{(j \rightarrow i)}$$

$Links_{(i \rightarrow j)}$ = *Number of hyperlinks from Website 1 pointing to Website 2*
$Links_{(j \rightarrow i)}$ = *Number of hyperlinks from Website 2 pointing to Website 1*

Content Analysis

Content analysis provided a method for comparing the perspectives advanced between different groups. Textual content of websites were extracted after HTML code and function words were filtered. Websites with limited and sparse content were excluded from analysis as they would unfairly skew the correlation analyses. To compute content similarity, word vectors were created from each groups' website text to represent the content of their discussion and social position. The similarity of discussions and content publication between two groups within the data set was defined as the cosine similarity of their website word vectors. Stronger similarities may be an indicator of shared social perspectives and ideologies. Weaker similarity suggests a greater difference in ideals and focus.

$$\text{sim}(\sigma_{1,}\sigma_{2}) = \frac{\sum_{j=1}^{|D|} \upsilon_{\sigma 1}(j) \bullet \upsilon_{\sigma 2}(j)}{\| \upsilon_{\sigma 1} \|_2 \bullet \| \upsilon_{\sigma 2} \|_2}$$

σ = *Website*
v_{σ} = *Website word vector*
j = *Word vector element*

Geographical Distance Calculation

Utilizing the locations of the headquarters of the groups, the real world distances between any two groups were also calculated. Locations of group headquarters provided by the SPLC were transformed into latitude and longitude coordinates. Geographical distance was defined as the Euclidean distance between the two latitude and longitude coordinates. The amount of distance between two groups may have implications on relationships existing within the virtual space.

$$Geographical\ distance_{(1,2)} = \sqrt{((X_1 - X_2)^2 + (Y_1 - Y_2)^2)}$$

X_1 = *Group 1 Latitude*
Y_1 = *Group 1 Longitude*
X_2 = *Group 2 Latitude*
Y_2 = *Group 2 Longitude*

Correlation Analysis

Virtual linkage intensities, content similarities, and geographical distances of the social movement groups were compared through several correlation analyses. Geographic distance is used as a real world attribute in order to measure differences between the virtual aspects of groups. In essence, distance may have an influence upon the strength of relationships between the virtual representations of social movements groups. Correlations were performed at varying levels of ideological homogeneity as defined by SPLC categorizations. Analysis at multiple levels allows us to measure whether the ideologies of social movement groups affect aspects of their virtual communities. Three levels of ideological homogeneity were considered: the overall collection, the patriot and hate group ideological level, and the patriot and hate subclass ideological level. Analysis at varying levels of ideological homogeneity is intended to reveal if the similarity of ideologies between groups affects certain aspects of their communities and

relationships in the virtual space. Additionally, differences may be revealed in how certain types of groups utilize the virtual space. A log transform was applied to the linkage intensities prior to analysis, and also to geographical distances when correlated with linkage. The log transform was implemented to reduce statistical skewness and to provide a more fair representation of the relationships between the virtual and real measures.

Research Hypothesis

Based upon the literature, several expectations are established regarding the relationship between linkage intensity, content similarity, and geographical distance. We believe that the real world aspect we observe, which is each group's geographic location, will have an influence on the virtual behaviors of groups. Previous literature suggests that certain social movement groups are often founded within specific geographical locations, which would inherently place the group among others that share similar social perspectives (McCann, 2010; Dyke and Soul (2002). Thus, groups that are geographically near each other may share social perspectives and subsequently may have stronger linkages and content similarities. Additionally, as ideological homogeneity becomes more restricted, stronger relationships are expected to form between the real and virtual aspects due to a higher similarity in social perspectives. The following research hypotheses are developed:

H1: Significant correlation will be observed between virtual linkage intensity and physical proximity among the social movement groups

H2: Significant correlation will be observed between content similarity and physical p proximity among the social movement groups

H3: Significant correlation will be observed between content similarity and virtual linkage intensity among the social movement groups

H4: Correlation analyses at varying degrees of ideological homogeneity among the groups will reveal distinctive relationships between the virtual aspects of the groups and their physical proximity

H5: The correlation observed will increase in significance as ideological homogeneity increases among the groups included in the analysis

Results

Several analyses correlating the virtual and real comparative measures of social movement groups were performed on our test bed at varying levels of ideological homogeneity as defined by the SPLC categorizations. As expected, different levels of analysis produced unique correlation analysis results. Figure 6 summarizes our findings:

Correlation Analysis Results		Linkage Intensity	Physical Distance
All Groups	**Linkage Intensity**	**1**	**-0.07983**
	Content Similarity	**0.00817**	**-0.14658****
Patriot Groups	**Linkage Intensity**	**1**	**0.10477**
	Content Similarity	**-0.00238**	**0.16441**
Hate Groups	**Linkage Intensity**	**1**	**-0.11824**
	Content Similarity	**0.01295**	**-0.17526****
Patriot – Within Subclass	**Linkage Intensity**	**1**	**0.10816**
	Content Similarity	**0.06384**	**0.43886***
Hate – Within Subclass	**Linkage Intensity**	**1**	**-0.23593*****
	Content Similarity	**0.05622**	**-0.18753****
Note: *p<0.1; **p<0.05; two-tailed test			

Figure 6 - Correlation Analysis Results

The first analysis included all relationships identified among all social movement groups in the data set. The observed negative correlation between content similarity and geographical distance implies that groups closer to one another in the physical world were found to have more similar content. The correlation is statistically significant, suggesting that groups that are close geographically discuss similar topics and may be collaborating in real-world activism. This finding supports H2. Additionally, this correlation can be explained by previous literature which suggests that hate groups, the majority ideology in our dataset, are geographically clustered and may collaborate in real world activism.

A second round of analyses was performed at the patriot and hate group level in order to determine differences between how certain groups utilize their virtual communities to promote activism. At this level of ideological homogeneity, the patriot groups exhibit no significant correlations between the virtual and real measures. Unlike hate groups, patriot groups are not bound to spring from socially conservative areas; they can form anywhere that social instability occurs. Further, the reasons for social instability may differ from geographic region to region, and thus patriot groups may all focus their efforts on differing causes (Freilich and Pridemore, 2005). Conversely, hate groups that are physically close to one another appear to have strong content similarities; this supports findings of previous research by suggesting that collaboration of real-world activism occurs, further supporting H2. Interestingly, linkage intensity was related to geographical distance with opposing directions, although at levels that were not statistically significant. It appears that patriot groups link with other groups that are far, perhaps to span geographical distance barriers, while hate groups have strong linkage with other physically nearby groups, implying collaboration of real world activism may occur. Correlation between the virtual measures remains at levels that are not statistically significant; the scope of ideological homogeneity may be too broad at this level of analysis.

The third group of analyses further restricted the focus to relationships that groups held with other members of their own respective ideological subclass. The correlation between patriot group geographical distance and content similarity is positive and significant; the results suggest that there are patriot groups dispersed across the U.S. with similar social perspectives and ideologies. This finding also supports H2, H4, and H5. Linkage intensity was also related to geographical distance in a positive direction, although at levels that were not statistically significant. Patriot groups link to other groups that are far in geographical distance, perhaps to

span distances. Additionally, these groups may wish to interconnect with others that share similar social perspectives, but they may avoid forming ties with physically near groups. This behavior may indicate competition between groups to recruit future members, a behavior observed in Zhou et al's study (2005). Without linking to others that are physically near, a group has the potential to recruit more individuals from the local population.

Analysis of hate groups within subclasses also revealed interesting relationships. Content similarity and geographical distance remain strongly correlated for hate groups in a negative direction. Groups closer to one another in the physical world were found to have more similar content. The relationship between linkage and geographical distance is significant when the analysis is restricted to ideological subclasses. Previous literature has found that hate groups coordinate real-world events to unite members and promote similar messages. They do so to recruit new members, promote propaganda, and attract publicity (Brower, 2009). This may be interpreted as evidence that hate groups use the Internet to coordinate real-world activism, and their ideologies are not as geographically dispersed as patriot groups. This supports H1, H2, H4, and H5.

Counter-intuitively, virtual linkage intensity and content similarity were not found to be significantly correlated at any level of ideological homogeneity. Intuition would suggest that significant correlations would be discovered between the two virtual aspects of the social movement groups. Upon further investigation of some of the relationships existing within our dataset, we found that interconnected groups may link to each other because they share similar social perspectives, but that their actual content discussed different, yet related concepts. For example, two heavily interconnected groups, the "Church of the sons of YHVH" and "Aryan Nations," both share white nationalist ideology. However, one group devotes a large portion of

its content on propagating anti-Jewish sentiment, while the other group's content tends to cover more political concepts and events.

To better understand the social movement groups, we further investigated our analysis results through illustrative examples. In our examples, the markers on the map represent different social movement groups. The group with a green marker is used as a case study; other social movement groups with relationships to the case study group are featured within our visualizations. Other groups specifically mentioned in our text are denoted with blue markers, and are numbered in the order that they appear in text. The lines between groups are illustrations of discussed relationships, with line thickness denoting the relationship's strength. Patriot groups have significant correlations concerning content similarity and geographical distance, while hate groups have significant relationships concerning both virtual aspects when correlated with physical proximity.

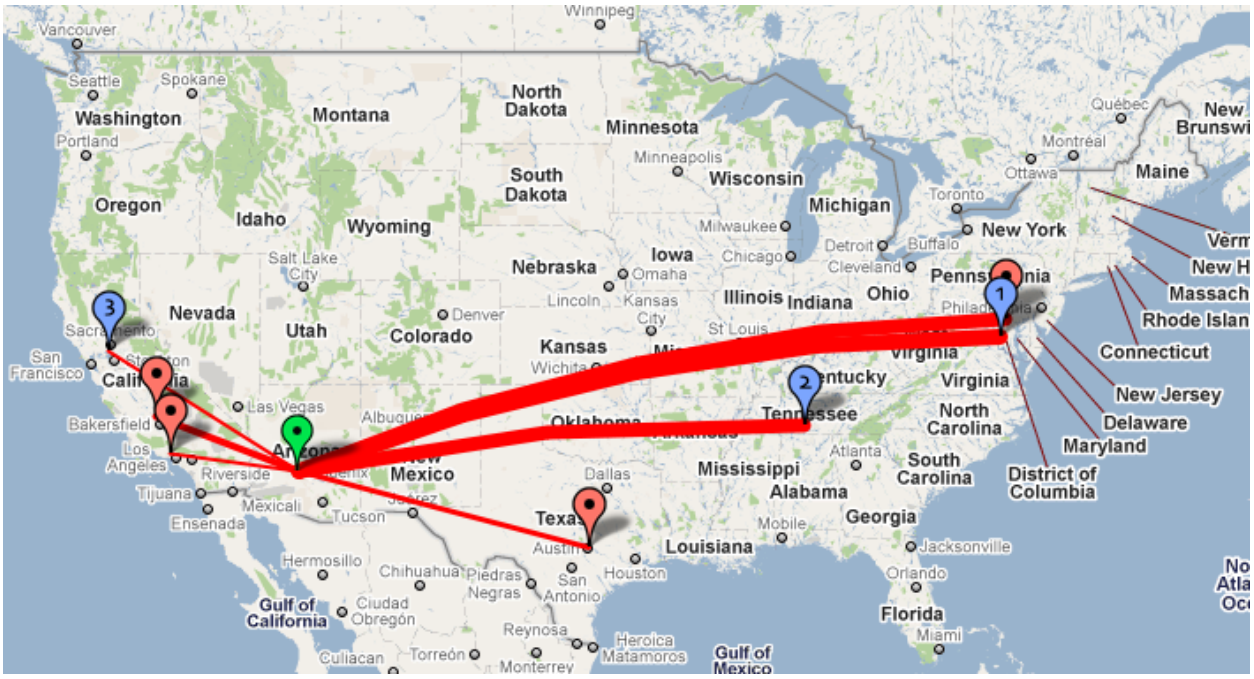

Figure 7 - Content Similarity of American Patriot Friends Network, Phoenix, AZ

Figure 7 demonstrates the Content Similarity of the American Patriot Friends Network within the patriot group ideological level. The American Patriot Friends Network (APFN) characterizes the "American patriot" as an individual who upholds the American constitution and is skeptical of the American government operating within the legal bounds of the constitution. It has strong content similarities with other groups who share constitutionalist perspectives, and weak linkages with groups that make focus their activism on other causes. One strong instance of content similarity exists between the APFN and the Conservative USA(1). Both of these groups share similar perspectives in referencing the constitution as the highest authority in America. This behavior is again observed between the APFN and the Lawful Path group (2). The Lawful Path group is dedicated to ensuring that the United States government abides by the constitution, an interest shared with the AFPN. However, the APFN has much weaker content similarity with groups that refer to constitutional authority, but actually focus on different topics. For example, the Liberty Gun Rights(3) group focuses their efforts on advancing gun rights, and only use the constitution as a small justification of why gun ownership should be unregulated; the APFN has weak content similarity with this group.

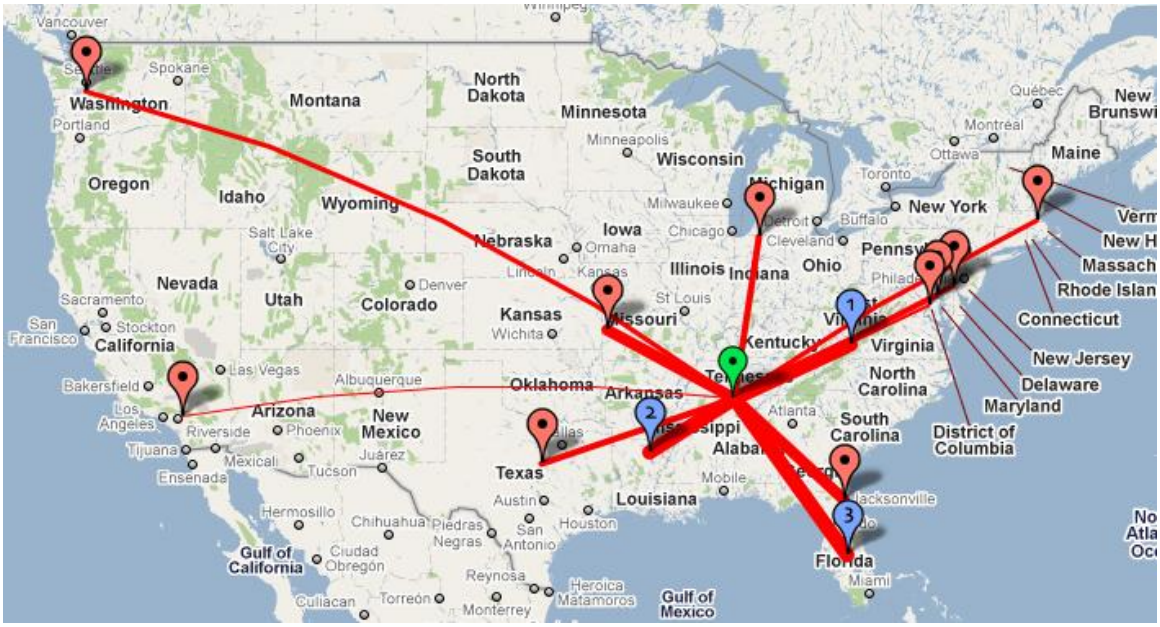

Figure 8 - Content Similarity of League of the South, Killen, AL

An example of content similarity within the hate group ideological level can be seen in Figure 8. The Alabama League of the South, in Killen, AL, has stronger content similarity with groups that are nearby as opposed to groups that are physically distant. Furthermore, League of the South has relationships with nearby groups take pride in American Civil War Confederate perspectives; the strongest content similarities are with the Virginia League of the South(1), the Louisiana League of the South(2), and the Florida League of the South(3). All groups are local chapters of an umbrella organization. This type of relationship between groups is expected, as previous literature states that hate groups are generally geographically constrained to regions holding conservative social perspectives (Fording & Cotter, 2007). The League of the South is limited by this geographical constraint, and thus chapters of the organization are inherently physically near to each other. Conversely, the Alabama League of the South has weak relationships with other American nationalist organizations that do not hold a Confederate identity.

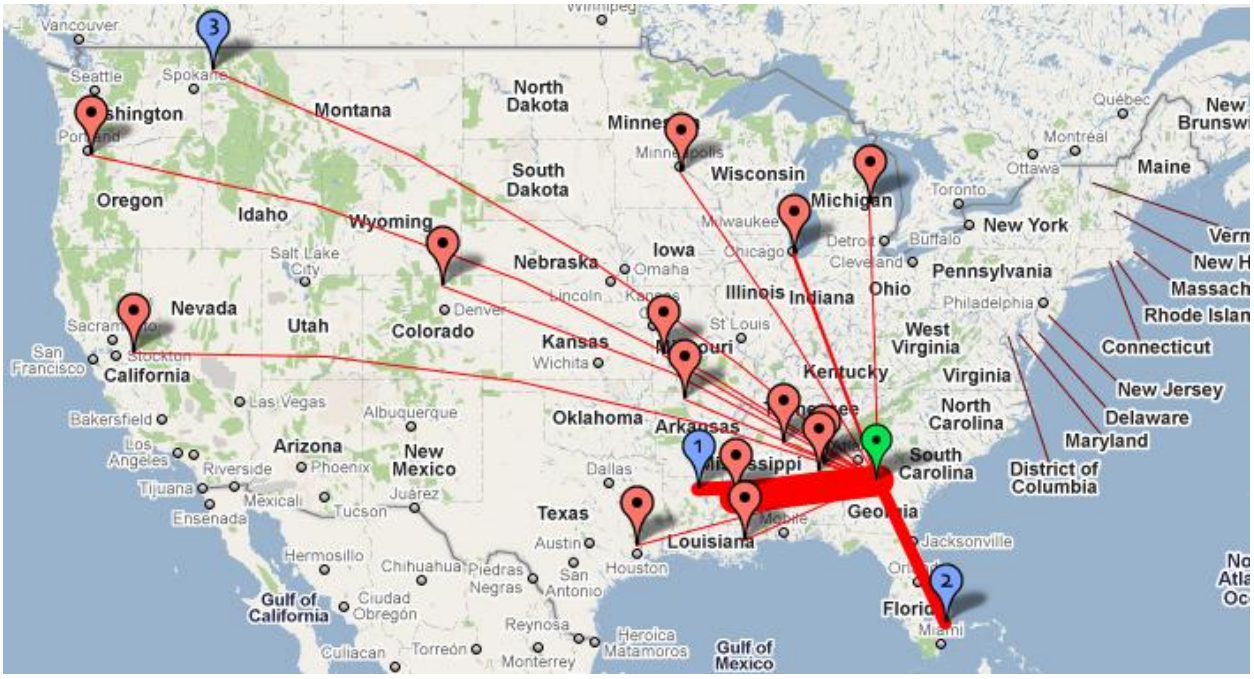

Figure 9 - Virtual Linkage Behavior of Covenant People's Ministry, Brooks, GA

Figure 9 demonstrates some of the observed virtual linkage behavior within the hate group ideological level. The Covenant People's Ministry (CPM), in Brooks, GA, has stronger virtual linkage with groups that are physically nearby while possessing weak virtual linkage with groups that are further away. Within this relationship between linkage and distance, CPM has strong linkage intensities with other groups that claim to be upholding Christian values while propagating white supremacist agendas, such as the Church of the Sons of YHVH(1) and StormFront(2). Christian groups that lacked a white supremacist ideology, such as the America's Promise group(3), had much weaker linkage with CPM.

Conclusion

As the Internet continues trending towards greater adoption and usage, researchers have become increasingly interested in relationships between real world phenomena and their virtual manifestations. In this research, data from the SPLC Spring 2009 Intelligence Report was used to examine extremist social movements and how they exist online and in the real world. This dataset was selected for study due to its information concerning ideologies and geographical locations of groups. Such data enabled us to gain insight into the behaviors of social movement groups in bridging real and virtual environments. Relationships between content similarities, virtual linkages, and geographical distances were explored in this study at different levels of ideological homogeneity. Significant correlations between the virtual and real were observed, specifically when relationships were restricted to within ideological class and subclass.

Patriot and hate groups exhibited distinctive characteristics in their virtual behaviors; patriot groups are more widely dispersed across the United States, while hate groups tend to be clustered in specific geographic regions. Results indicated that Patriot groups dispersed across the United States share similar social positions, but that they may not necessarily be interconnected. This may be due to findings outlines in previous studies that observed patriot groups discuss topics concerning social instability, but that their focus is on a geographically local level or a specific aspect of societal structure (Dyke & Soul, 2002). Additionally, results showed that patriot groups are more likely to have weaker content similarities with other groups that are nearby as opposed to those that are geographically far. Physically near groups that share a local population from which to recruit new members from may purposely focus their content on differing social issues to avoid competing over future members (Zhou et al, 2005). Patriot groups may have stronger content similarities with geographically far groups due to this lack of

competition; however, due to the focus on local area, there may not be an interest in connecting to far away groups despite shared ideologies.

Hate groups located near one another geographically were tightly interconnected virtually. Relationships are particularly significant when analysis is restricted to hate groups of the same subclass. This may indicate coordination between physically nearby groups in conducting real world activism driven by mutually held ideologies, supporting the conclusions of previous studies. Virtual linkage and content similarity were not found to be significantly correlated at any level of ideological homogeneity. Manual scrutiny of content revealed that many groups discuss similar topics but in different contexts, perhaps explaining the lack of correlation.

This research provides a framework for future analyses of the relationship between virtual and real world aspects. The correlation of linkage intensity and content similarity with geographical distance is unique to this study. Additionally, this research provides insight in understanding social movements; in particular, results reveal how social movements' online behaviors are influenced by real world social and geographical positions.

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