Cooperative Networks in Interorganizational Settings: Analyzing Cyber-Collective Action

Serpil T. Yuce*, Nitin Agarwal*,
Rolf T. Wigand*⁺

*Department of Information Science
*⁺Department of Management
University of Arkansas at Little Rock
Little Rock, Arkansas 72204, USA
{sxtokdemir, nxagarwal, rtwigand}@ualr.edu

Rebecca Robinson
Consortium of Science, Policy and Outcomes
School of Social Transformation –
Justice and Social Inquiry,
Arizona State University
Tempe, Arizona 85280, USA
Rebecca.Robinson@asu.edu

ABSTRACT
As evident in the mass protests during the Arab Spring and the Occupy movements, social media based platforms tremendously helped the protesters spread messages, organize, and mobilize support for their campaigns. The emergence of these cyber-collective movements has driven much attention and frequently made headlines in the news. These instances of collective actions are documented as mere journalistic accounts and are often extensively discussed and debated. However, very little research is devoted to deepen our understanding of this phenomenon. In this research, we study the transnational nature of cyber-collective actions through the lens of interorganizational cooperative networks. We study interaction and support mechanism between the networks of two women's rights movements, i.e. 'Women to Drive' (primarily in Saudi Arabia) and 'Sexual Harassment' (a more global effort). The analysis is done using blogs collected from 23 different countries authored by female Muslim bloggers. The proposed methodology extracts the social networks for each campaign, studies the interactions among the actors common to these two networks, and performs sentiment analysis on the observed interactions to provide better understanding of the support mechanism. The broader goal of the study is to understand the dynamics between the movements, as they are not isolated instances. There is a common context, which is the awareness and collective actions against inequitable women's rights. We envision the contributions would further help in better understanding of the factors contributing to the mobilization for social movements in the age of digital activism or *Hashtag Activism*. Thus we are hopeful that this paper makes a substantial contribution to comprehend the role of cooperative networks in cyber-collective actions.

Categories and Subject Descriptors
CCS → Human-centered computing → Collaborative and social computing.

CCS → Information systems → Information systems applications → Collaborative and social computing systems and tools.

The ACM Computing Classification Scheme (CCS): http://www.acm.org/about/class/2012

General Terms
Experimentation, Human Factors, Verification

Keywords
Collective action, interorganizational networks, methodology, social movements, Women to Drive, sexual harassment, female, Muslim, blogs.

1. INTRODUCTION
The Internet, social media specifically, has inarguably played an important role in transforming the ways people share information and communicate. As evident in the mass protests during the Arab Spring and the Occupy movements, social media based platforms tremendously helped the protesters spread messages, organize, and mobilize support for their campaigns. The emergence of these cyber-collective movements has driven much attention and frequently made headlines in the news. In addition to blogs, Facebook, Twitter, YouTube and the plethora of other social media sites, crowdsourcing platforms (e.g., Ushahidi[1]) have elevated citizen journalism to a whole new level. People self-report incidents of crime and harassment, and even pot holes. One such effort, known as the HarassMap (www.harassmap.org) [6], helps people report cases of sexual harassment in the Middle East and Northern Africa region. These forms of collective actions intend to help improve governance through a conscientious citizen engagement.

These instances of collective actions are documented as mere journalistic accounts and are often extensively discussed and debated. However, very little research is devoted to deepen our understanding of this phenomenon. In this research, we analyze multiple social movements while seeking to understand the underlying processes and developing a rigorous methodology contributing towards the advancement of theoretical underpinning of cyber-collective actions. More precisely, we examine the transnational nature of collective actions by studying the cooperation between the networks observed for the different movements. The overarching questions include: Can cyber-collective actions be autonomous from national constraints in

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[1] Ushahidi (http://www.ushahidi.com/) is a platform for information collection, visualization, and interactive mapping.

terms of discourses, strategies, and resources?; Can we observe how cyber-collective actions evolve across multiple cultures?; Can the shifting scale (from local and national to global and transnational) also bring about a change of culture and identity of these actions?

In this study, we analyze two women's rights movements, viz., 'Women to Drive' and 'Sexual Harassment' that have leveraged social media for mobilization. While 'Women to Drive' is a social movement predominantly organized by the female Muslim community of Saudi Arabia opposing the driving ban, the sexual harassment movement is a more global effort opposing this crime against women. These scattered instances of collective actions are not completely isolated events. There is a common context, which is the awareness and collective actions against inequitable women's rights. Although the 'Women to Drive' movement is specific to the Saudi Arabia's inequitable laws for women, the support for this movement is worldwide. The transnational support for the 'Women to Drive' movement and the inherent global nature of the sexual harassment movement lend a strong platform to study the nature of cooperation between the networks of the two movements.

This research analyzes blogs authored by female Muslim bloggers from 23 different countries. We study the female Muslim blogosphere because: First, while research shows that three of four females online are active social media users [5], there is very little research attempting to understand social, cultural and political roles of female bloggers and collectivity among female social groups. Second, the domain epitomizes an important contrast deserving attention between socio-political systems where women are frequently denied freedom of expression and active political uses of social media by female Internet users. Female Muslim bloggers find the blogosphere as a digital recourse to exercise their freedom of speech if compared to their physical and repressively controlled spaces. More details on the data collection are provided in Section 5.

The following contributions are made to our understanding and the literature through this work,

1. A set of methodologies is presented to systematically study cyber-collective actions and the underlying transnational dynamics,

2. A set of computational methods are defined to observe and map the social network of the activists involved with the movement through social media,

3. A methodology is developed to extract and depict the cooperation network between the different movements,

4. A sentiment analysis based approach is developed to further content-analyze the interactions observed from the interorganizational cooperation network to understand the support mechanism of the movements, and

5. Real-world blog data for two social movements is collected that could be made available upon request to the authors.

The rest of the paper is organized as follows – the related literature is discussed in Section 2. The two movements considered in this study are briefly described in Section 3 to provide a better understanding of the issues and the activists' efforts to the readers. Section 4 discusses the proposed methodologies and data collection efforts. Results and analysis are presented in Section 5. We present the conclusions and envision directions for future work in Section 6.

2. RELATED WORK

Considering the novelty of social media, only few studies have attempted to map collective social dynamics in cyberspace [7]. The first one is the map of the American political blogosphere of the 2004 U.S. elections [8]. The authors studied linking patterns and discussion topics of political bloggers to measure the degree of interaction between liberal and conservative blogs and to uncover differences in the structure of the two communities. The American blogosphere reflected the polarization theory [9]. Similarly the Iranian blogosphere was observed to be clustered along ideological lines [10]. Both studies show that most bloggers tend to read, write about and link to similar things, usually sources that reinforce their own views. This supports the view that homophily [11] has a strong influence on the organization of social networks. However, the homophily principle alone, while useful, does not help in fully explaining how and why a cyber-collective action comes into being and, especially in this research, how two separate collaborative movement may support each other interorganizaitonally. Further, there is a need to rigorously study cyber-collective actions from a transnational perspective, especially in this connected age of social media, emphasizing the cooperation within the various campaigns of a movement and across different movements. These studies would advance our understanding of the support dynamics between different movements and ultimately their success or failure. In order to build a strong theoretical framework for the proposed research, in the following section, we will revisit three relevant theoretical domains – collective action, social network analysis, and interorganizational cooperation and coalition formation.

### 2.1 Collective Action in the Age of Internet

Collective action can be defined as all activity involving two or more individuals contributing to a collective effort on the basis of mutual interests and the possibility of benefits from coordinated action [12, 13]. Theories of collective action are integral to explanations of human behavior. Perspectives on collective action have been useful in explaining diverse phenomena, including social movements [14], membership in interest groups [15, 16], the operation of the international alliance [17], establishment of electronic communities [18], formation of inter-organizational relationships [19], formation of standards-setting organizations [20, 21], and even bidding behaviors [22]. This range of actions accounted by collective action perspectives illustrates the centrality of this body of theory to social science. Traditional collective action theory dates back to 1937, when Ronald Coase sought to explain how some groups mobilize to address free market failures. Yet even when Mancur Olson began updating the theory in 1965 to explain "free-riding" the high-speed, low-cost communications now enjoyed were not imaginable [23]. New information and communication technologies (ICTs), especially the Internet, have completely transformed the landscape of collective action. Lupia and Sin [24] explain that the burden of internal communication is no longer a hindrance to collective actions, so larger groups are no longer more successful than smaller ones (at least not by virtue of their size). E-mail, chat rooms, blogs, and bulletin boards enable efficient communication, organization, and even deliberation within collective actions of any size [24].

2.2 Social Network Analysis

With the rise of collective action facilitated by online social network media, it is natural for social scientists to embrace the concept of social network in collective action analysis. In analyzing collective actions, social networks can be presented as

mutual recognition and realization of certain values and norms. In this process, organizations are evolutionary formations which emerge, exist and change for the realization of their common goals(s).

Aldrich [29] describes two perspectives, i.e. the information and
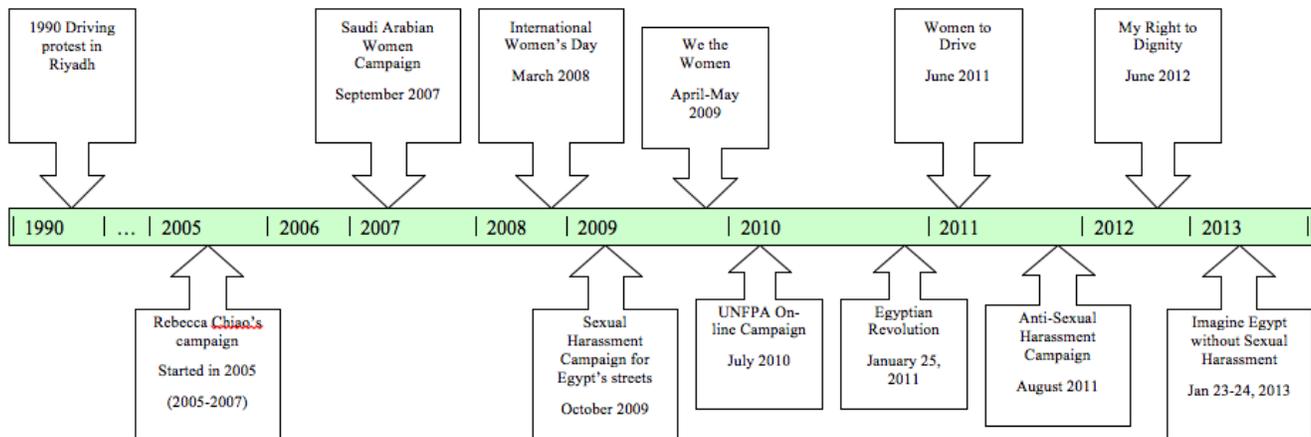
Figure 1. Timeline for the 'Women to Drive' and 'Sexual Harassment' movement ([1-4]). The events/campaigns related to the 'Women to Drive' movement are depicted above the timeline and the events/campaigns related to the 'Sexual Harassment' are depicted below the timeline.

networks of individuals. Social networks thus contribute extensively and substantially to individual participation. Here, prior social ties operate as a basis for recruitment and established social settings are the locus of movements' emergence. Social network analysis (SNA) has emerged as a set of methods geared towards an analysis of social structures and investigation of their relational aspects [25, 26]. SNA studies social relations among a set of actors assuming a varying degree of importance of relationships among interacting nodes representing individuals, groups, organizations, etc. Growing interest and increased use of SNA has formed a consensus about the central principles underlying the network perspective. In addition to the use of relational concepts, we note the following as being important [27]: (a) actors and their actions are viewed as interdependent rather than independent autonomous units; (b) relational ties (linkages) between actors are channels for transfer or flow of resources (either material or non-material); (c) network models focusing on individuals and view network structural environments as providing opportunities or constraints on individual actions, and (d) network models conceptualize structure (social, economic, cultural, political) as lasting patterns among actors. Computational SNA (CSNA) helps in the utilization of SNA concepts by providing a rich set of methodologies to examine and summarize large information networks to observe and explain characteristic patterns including: community extraction, expert identification, information diffusion, preferential attachment, and the small-world phenomenon.

2.3 Interorganizational Cooperation and Coalition Formation

Blogs may be seen as social systems, i.e. systematic ensembles of interdependent, interhuman activities attempting to achieve joint objectives by coordinating joint efforts of a group of people following a predetermined program of conduct [28]. A complex of roles is formed in such social systems, here blogs, and is constituted by individuals and groups linked together in their

the resource perspective. In this contribution we focus on the information perspective which is reflected within several disciplines concerned with organization theory. The work of Burns and Stalker [30] probably exemplified the view of sociologists best favoring the information view.

We follow here an Information Model that considers the environment as a source of information. Within this environment the blogs described above operate and exchange information. This information perspective then is pertinent to interorganizational settings because interorganizational structures evolve and form to handle information flows and exchanges.

Wahba and Lirtzman [31] have formulated and utilized a theory of organizational coalition formation. Accordingly, organizational coalition formation may be seen within certainty and uncertainty conditions within and between organizations. Organizations, in turn, consider their expected utility of a coalition for each member as well as the organization as a whole as well as the probability of coalition success that can be calculated. The authors posit that coalitions are formed to maximize the expected utilities. We believe that our two blog networks and their coalition formation expressed in the form of mutual support, information exchanges, etc. can be seen in the light of this theoretical discussion of interorganizational cooperation and coalition formation.

3. THE MOVEMENTS
3.1 Women to Drive

Saudi women face some of the most inequitable laws and practices when compared to international standards, including the prohibition of driving motorized vehicles. On November 6, 1990 47 Riyadh women staged a remarkable protest against this prohibition. Protesters were imprisoned for a day, had their passports confiscated and some of them even lost their jobs. After more than a decade, in September 2007, Wajeha al-Huwaider and Fawzia al-Uyyouni submitted a 1,100-signature petition to King Abdullah asking for women's freedom to drive. On *International*

Women's Day in 2008, Wajeha al-Huwaider filmed her driving and posted the video on YouTube, which garnered international media attention. As a follow up to those actions, in 2011, a group of women, including Manal al-Sharif, started the Facebook campaign supporting women's driving rights in Saudi Arabia. The following months of the campaign, al-Huwaidar filmed al-Sharif driving a car and posted the video on YouTube and Facebook. The consequences were inevitable; she was arrested the following day. Although she was released on bail, there were intolerant conditions, including a ban on driving or talking to media. During the following days, several Saudi women protesters posted their videos while they were driving in reaction to al-Sharif's arrest. In

@harassmap tweets during the commemoration of the one year anniversary of January 25, it was found that the initiative called upon women to "expose the pervert" to the crowd immediately in order to solicit assistance from others in the crowd. Crowds are often problematic for women as men can assault women with anonymity. In the 1960s, crowds would shave the heads of men who were harassing women, thus, perhaps exposing the pervert component of the campaign is aimed at resensitizing the population to the problem and calling upon them to intervene because law enforcers seem incapable of enforcing the already stringent laws against sexual harassment and are themselves culprits of sexual harassment in some instances. The idea has
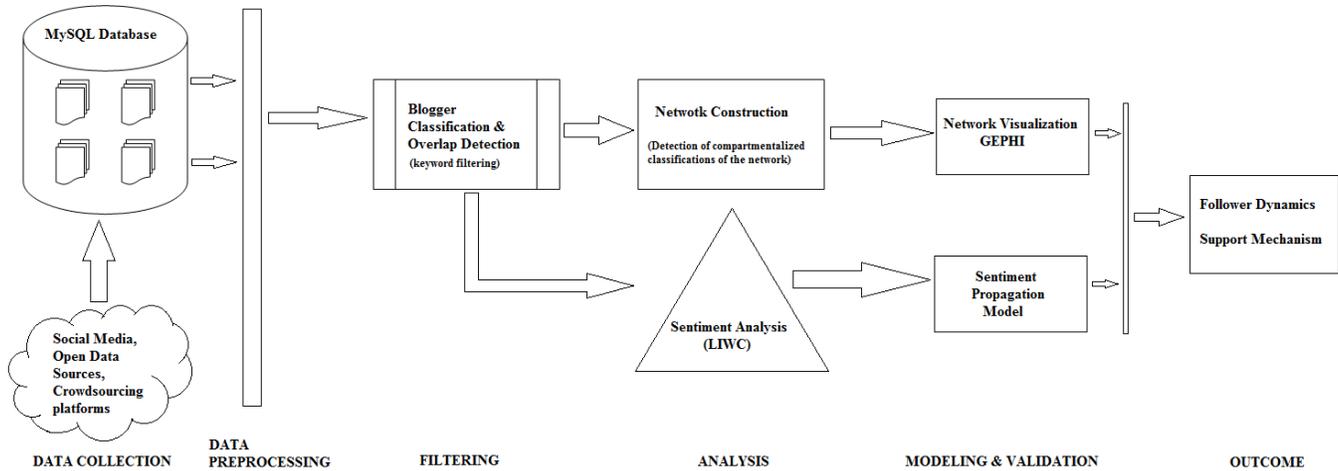
Figure 3. Research methodology to study the effects of the interorganizational cooperative networks on cyber-collective actions.

June 2012, to celebrate the anniversary of the June 2011 driving campaign, a member of the *My Right to Dignity* women's right campaign drove her car in Riyadh. Figure 1 illustrates the timeline of the *Women to Drive* campaign depicting various events during the movement.

3.2 Sexual Harassment

HarassMap is an initiative to promote the public safety of Egyptian women through SMS mapping of instances of sexual harassment and assault (including catcalls, stalking, ogling, touching, indecent exposure, comments, and facial expressions).[2] Its mission centers on "Ending the social acceptability of sexual harassment,"[3] which is epidemic in Egypt, particularly on the streets of Cairo. The mapping system alerts women and law enforcement of sexual harassment "hotspots." The initiative was spearheaded by Rebecca Chiao and Engy Ghozlan who were previously staff members of the sexual harassment campaign for the Egyptian Center for Women's Rights (ECWR). In addition to warning women of hotspots where women are most vulnerable to sexual aggression, it offers self-defense classes and community education for both men and women. As of 2010, the organization had over 500 volunteers (half of which are men) who were working with locals near hotspots to encourage the communities to have a presence in the streets to speak out against sexual harassment toward preventing it.[4] Through looking at

caught on in other parts of the world. India and Bangladesh make use of similar systems known as "Fight Back"[5] and "Bijoya" (victory),[6] respectively. Other countries, such as Indonesia, Pakistan, Palestine, Canada, Turkey, the United States, have requested advice from HarassMap on implementing similar technology.[7]

4. RESEARCH METHODOLOGY

The web, including blogs, can be mined to track information and data about emerging trends and behaviors in almost any area. Moreover, such data may also demonstrate and reveal information about precisely how ideas diffuse and how trends develop and take hold. We explore evolving individual opinions and their respective development into the transnational nature of cyber-collective actions through the broad perspective of inter-organizational collaborative networks, and in so doing delineate the challenges and propose research methodology. The objective of this paper is to study two women's rights movements, i.e., 'Women to Drive' (primarily in Saudi Arabia) and 'Sexual Harassment' (a more global effort) by analyzing the female Muslim blogosphere. Specifically, we study the interaction between the members of the two movements to understand the cooperation and support dynamics. By following the research methodology in Figure 2, we,

[2] http://www.wikigender.org/index.php/HarrassMap
[3] http://blog.harassmap.org/
[4] http://thegoodnewschronicle.com/ts201201071.asp

[5] http://phonearenaindia.com/493/whypoll-launches-women-safety-app-forsmartphones
[6] http://blog.ushahidi.com/index.php/2012/04/25/bijoya-bangladesh/
[7] http://www.bikyamasr.com/47259/harassmap-launches-new-anti-harassment-campaign-as-its-services-are-requested-globally/

1. Collect data for the women's rights movements,

2. Preprocess and filter noise,

3. Perform blogger classification to identify activist bloggers involved in the movements, viz., 'Women to Drive' and 'Sexual Harassment',

4. Construct networks for the movements and visualize,

5. Observe if there is any interaction between the networks of the movements, and

6. Observe the polarity of sentiments contained in the interactions to understand whether the interactions are supportive or not.

Facilitated by the transnational nature of the movements and the underlying common context (i.e., the awareness for the women's rights issues), the methodology described here helps us to study the effects of the interorganizational cooperative networks on cyber-collective actions.

Next, we explain each individual component of the methodology in detail.

blogospheres of the various countries. These could be "bridge bloggers" (McKinnon, 2005; Zuckerman, 2008), a term used to refer to bloggers who blog in a second language to reach out to people outside of their cultures. The bridge bloggers are important for our analysis as they provide a more global exposure to their campaign efforts, thereby affording a transnational perspective for cyber-collective action. Other available demographic information, such as nationality, current residence, and screen name, is also included. Since these blogs are updated with frequency varying between two to three blog posts per day to one blog post per month, a crawler (viz., *Web Content Extractor*, www.newprosoft.com/) was configured with the above mentioned nuances that runs constantly to automatically collect, parse, and index the data.

The crawler allows us to store the extracted data in a variety of formats, including CSV, TXT, HTML, XML or directly to a relational database. Collected data includes the title of the blog post, blog post content, timestamp when the blog post was created, follower's reactions in the form of comments, and the category/tags of the blog post, which could be system-defined or user-defined. We preferred a relational database to store the data due to reliability, scalability, platform independence, and, most
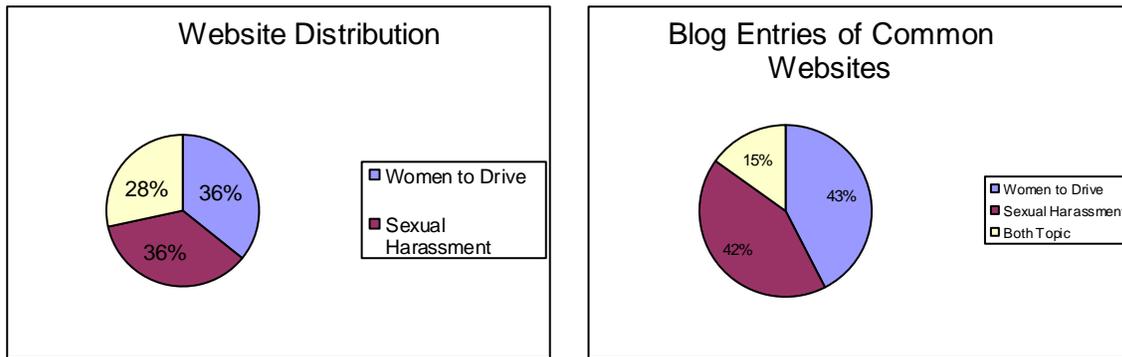

Figure 3. Distribution of the bloggers between 'Women to Drive' and 'Sexual Harassment' movements.
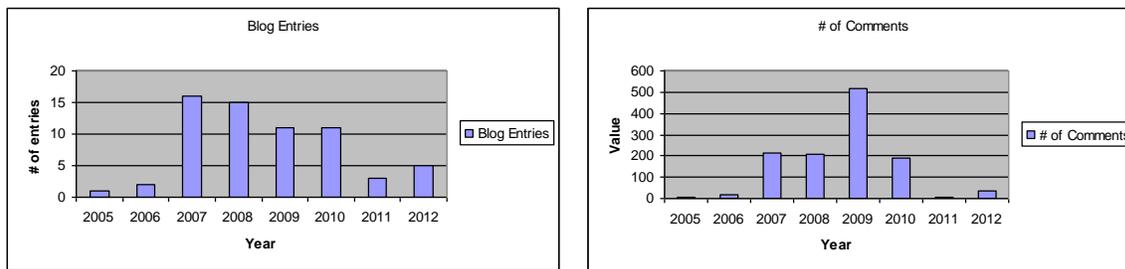

Figure 4. Volume of blog posts (left) and comments (right) for 'Women to Drive' and 'Sexual Harassment' movements.

4.1 Data Collection and Preprocessing

300 blog sites from 23 different countries were collected. Bloggers are included based on three shared characteristics: they are women over the age of 18, they are Muslim (verified through their self-identification or through references in their postings, e.g., by mentioning Islamic holidays, by use of hijab, etc.), and they primarily blog in English. Given that the bloggers blogged in English, they are not necessarily the most popular ones within the

importantly, fast indexing to handle large numbers of records. From the crawled blog sites, 111 blog sites consisting of 1380 blog posts were discussing 'Women to Drive' or 'Sexual Harassment' movements at different time periods. 73 out of these 111 blog sites were discussing 'Women to Drive' and 'Sexual Harassment' campaigns in different posts, and 26 bloggers were discussing both the movements in same posts. The charts in Figure 3 illustrate the distribution of the blog sites and entries.
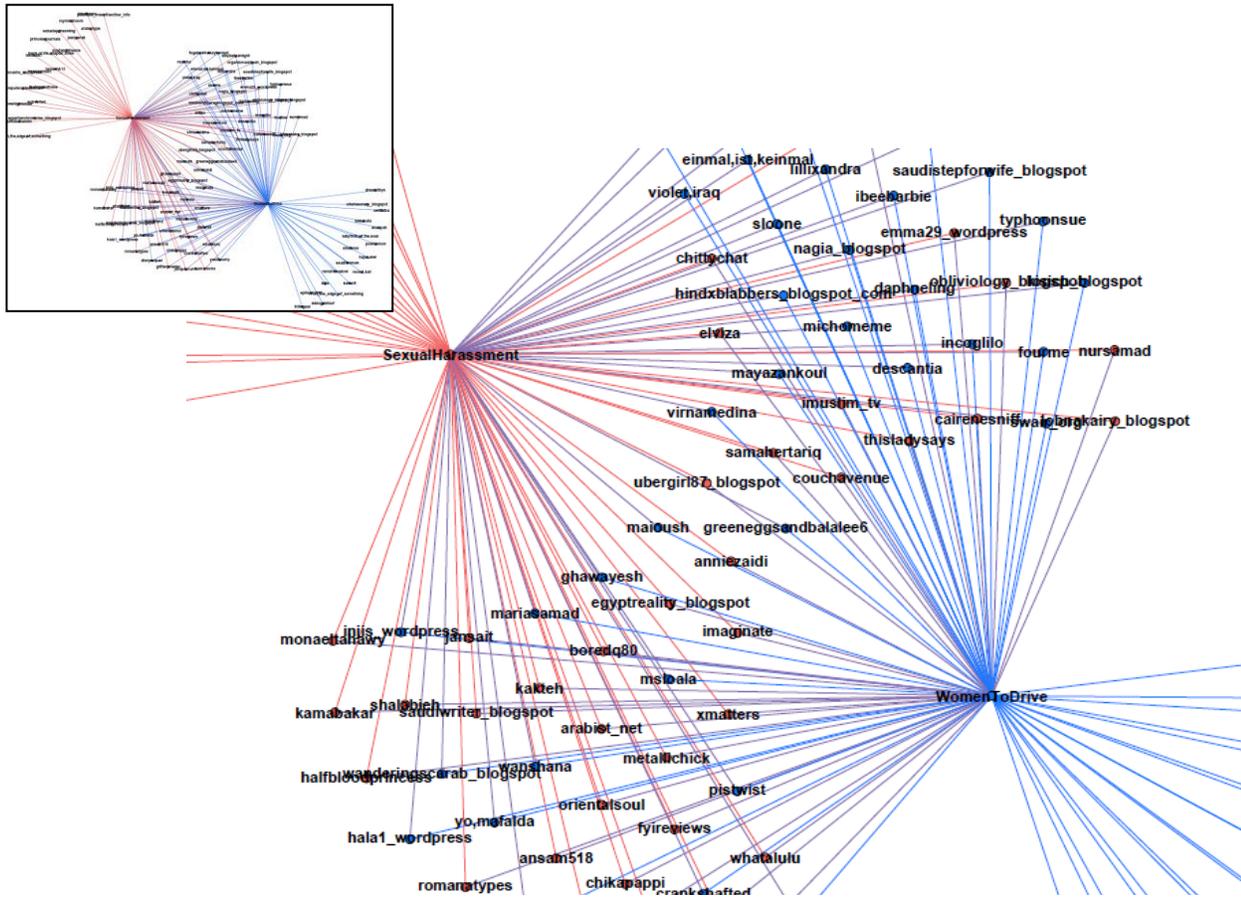
Figure 5. Network of 'Women to Drive' and 'Sexual Harassment' bloggers.

4.2 Blogger Classification and Overlap Detection

We filtered the indexed crawled blog entry contents by performing keyword search that are related to "Women to Drive" and "Sexual Harassment" movements. Our first aim was to focus on the entries those have 'women', 'drive', 'women to drive', etc. keywords for the 'Women to Drive' movement and 'sexual harassment', 'sexual abuse', etc. keywords for the 'Sexual Harassment' movement. As a second filtering we added the entries that are labeled with user defined or system defined tags, which include the same keywords as well. We realized that users do not always necessarily tag their entries by specific keywords although they are talking about it. Since our crawled data includes blogger information, we created the network classes for both events by grouping bloggers under 'Women to Drive' and 'Sexual Harassment' result sets. The result sets were compared to identify the common members to both the movements.

4.3 Network Construction and Visualization

The classification result set was analyzed by Gephi to study their structures and visualize the relationship of members within the respective movement. We measured the modularity of the network to detect and study the compartmentalized classifications of the network. The method consists of two phases. First, it looks for "small" communities by performing local optimization of the modularity. Second, it accumulates nodes of the same community and builds a new network across the communities. These steps are

repeated iteratively until a maximum of modularity is achieved. Figure 4 shows the network of the 'Women to Drive' and 'Sexual Harassment' movements. The overlapping set of members is further enlarged for better readability.

4.4 Sentiment Analysis

After we have collected the blog posts, sentiments were extracted using LIWC (www.liwc.net) software, in order to study the transformation of individual opinions to collective sentiments. LIWC provides an efficient and effective method for studying various emotional cognitive and structural components present in individuals' written forms of communications. LIWC outputs approximately 80 variables. The variables include 4 general descriptor categories, 22 standard linguistic dimensions (e.g., percentage of words in the text that are pronouns, articles, auxiliary verbs, etc.), 32 word categories tapping psychological constructs (e.g., affect, cognition, biological processes), 7 personal concern categories (e.g., work, home, leisure activities), 3 paralinguistic dimensions (assents, fillers, nonfluencies), and 12 punctuation categories (periods, commas, etc.). We have mainly focused on affective processes under psychological processes. The affective processes include 406 positive emotion words (e.g., love, nice, sweet, etc.) and 499 negative emotion words (e.g., hurt, ugly, nasty, etc.). The negative emotions are further categorized into anxiety, anger, and sadness feelings. Scores for positive and negative emotions were obtained from LIWC for the blog posts and the associated comments. Next, we will discuss the analysis of

the results from the proposed methodology on the blog data for the two movements.

In LIWC's external validity and internal reliability measures (Cronbach's alpha) report highly correlated results. Validity judges reflect simple correlations between judges' ratings of the
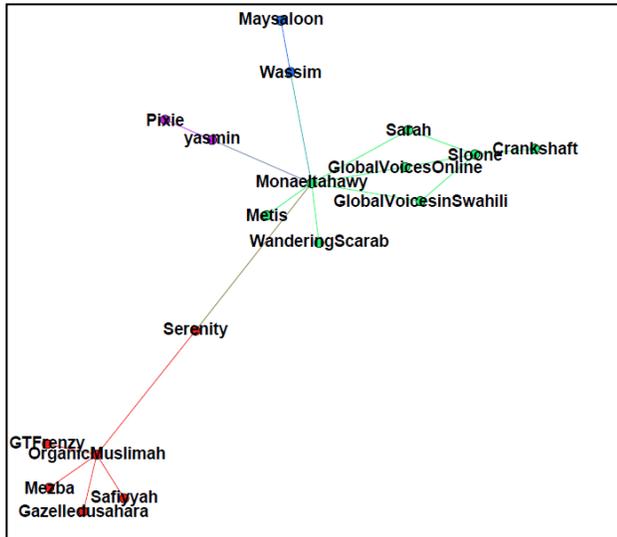
Figure 6. Interactions in the interorganizational cooperative network between the members common to both movements within the larger blogger network.

category with the LIWC variable (Pennebaker & Francis, 1996). Using LIWC output and judges' ratings, Pearson correlational analyses were performed to test LIWC's external validity. Results reveal that the LIWC scales and judges' ratings are highly correlated ($\bar{x}$ = .45). These findings suggest that LIWC successfully measures positive and negative emotions, a number of cognitive strategies, several types of thematic content, and various language composition elements. The level of agreement between judges' ratings and LIWC's objective word count strategy provides support for LIWC's external validity. Cronbach alphas for the internal reliability of the specific words within each category were calculated by LIWC yielding a $\bar{x}$ of .83 for 64 terms.[32]

5. ANALYSIS AND RESULTS

In our study, we focused on those blog entries that talk about 'Women to Drive' and 'Sexual Harassment' movements together as shown in Figure 3. Figure 4 shows the distribution of blog entries and follower comments related to both movements that occurred between 2005 and 2012. Based on the filtered posts and comments, activist blogger networks were constructed. These networks help us in identifying the common set of actors between the two movements, i.e. those that span both boundaries, thereby extracting the interorganizational cooperative network, as discussed next. The cooperative network is further studied to understand the support mechanism and the transnational dynamics of the cyber-collective actions for both movements.

5.1 Cooperative Interorganizational Network

To show the interaction and support mechanism between networks of two women's right movements, we focused on the

bloggers belonging to both 'Women To Drive' and 'Sexual Harassment' network classifications as shown in Figure 5. We eliminated the entries of those users who discuss only one movement. From our resulting set, we filtered all followers along with their comments who also belong to members, common to both classifications. Figure 6 shows a sample of the interactions in the cooperative network between the members common to both movements within our larger blogger network. The results indicate that there is a strong presence of interorganizational network between the two movements. As hypothesized earlier, the two movements are not isolated events. There is a common context, which is the awareness and collective actions against inequitable women's rights. Next we analyze the sentiments observed among the interactions to study the transnational aspects of the support mechanism between the two movements.

5.2 Sentiment Analysis and Support Mechanism

We ran LIWC on the text data obtained from the interactions observed in the cooperative network. The interactions include comments exchanged by the members between the posts or the text around the blog links. Individual blogger sentiments are identified for the specific movements. The results are shown in Figure 7. Figure 8 shows the detailed distribution of the emotions for the comments among the bloggers.
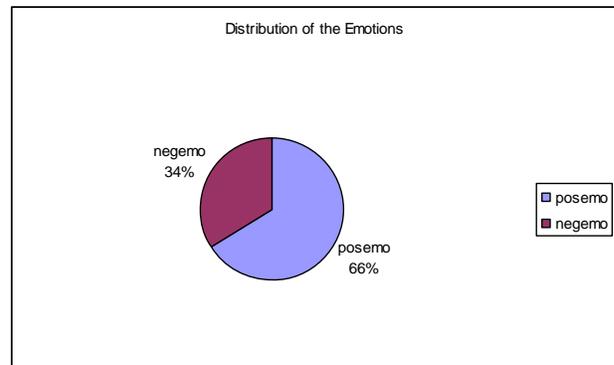
Figure 7. Distribution of positive and negative emotions for the interactions observed in the cooperative network.

As seen from Figure 7, followers' sentiments about 'Women to Drive' and 'Sexual Harassment' campaigns were largely positive, indicating there is cooperative support and interaction within the members of the blogger network for the campaigns. This indicates a sense of solidarity among female Muslim bloggers for the campaigns as well. Below, we present some samples of those comments made by the bloggers common to both networks.

GTFrenzy's comment on OrganicMuslimah's entry:
    "Just read it and I love it! I couldn't agree with you more…."

Mezba's comment on OrganicMuslimah's entry:
    "I fully agree. I say leave the judgement to God…"

Safiyyah's comment on OrganicMuslimah's entry:
    "As Salaamu Alaikum Dearest Organica: Alhamdulillah; such a nice post. I especially like the last line, "forgive us.""

Sarah's comment on Sloone's entry:
    "super blog… Love it!!!"

Serenity's comment on Monaeltahawy's entry:
"Thank you so much for writing this, Mona! Thank you for speaking up for those of us who are too cowardly to do so (at least yet!), Mona! God bless you and give you more courage and strength!"

Yasmin's comment on Pixie's entry:
"I have to agree with what you have to say…"

According to our results from LIWC, we observe that there was indeed online collective action among the female Muslim bloggers for the 'Women to Drive' and 'Sexual Harassment' movements. The strong positive emotions indicate that the members of the two networks are extremely supportive of each other's campaign efforts. Further, the interorganizational cooperative network helps sustain the cyber-collective actions of the two movements.
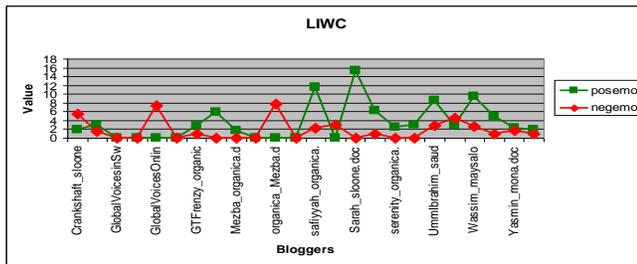

Figure 8. Distribution of the emotions for the comments among the bloggers

6. CONCLUSIONS AND FUTURE WORK

This research demonstrates how new insights and understanding may be garnered by applying novel research methodology (incl. social network analysis, sentiment analysis, text mining, content analysis and others). Our findings provide a better understanding of how we may mine information and data of emerging trends and behaviors. From these efforts we can also demonstrate and reveal information about how ideas and information diffuse and how trends and behavioral patterns develop. In this research we examined how individual opinions evolve and find traction in interorganizational collaborative networks. This is shown along two women's rights movements: 'Women to Drive' and 'Sexual Harassment' by analyzing the female Muslim blogosphere between 2005 and 2012.

Our findings depict the transnational nature of both movements and the underlying common context. This, in turn, allows us to examine the effects on and diffusion within joint interorganizational cooperative networks utilizing various support mechanisms and resulting in cyber-collective action as well as coalition formation.

Our focus on blogs primarily written in English could be considered as limitation. Although these bloggers (also known as bridge bloggers) blog in a second language to reach out to people outside of their cultures. The bridge bloggers are important for our analysis as they provide a more global exposure to their campaign efforts, thereby affording a transnational perspective. Our plan for future research in this area will focus on additional analyses of social networks, diffusion patterns, information flow as well as the demonstration of actual collective action behavior and coalition formation within social movements. We plan to evaluate our methodology in multi-cultural populations by snowballing our data collection to include blogs from other communities interested in these and other topics.

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