Explaining Offline Participation in a Social Movement with Online Data: The Case of Observers for Fair Elections

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EXPLAINING OFFLINE PARTICIPATION IN A SOCIAL MOVEMENT WITH ONLINE DATA: THE CASE OF OBSERVERS FOR FAIR ELECTIONS*

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This article investigates to what extent activity of a social movement on a social networking site is related to participation in offline collective action. This research contributes to a broader theory of effective communicative structures of social movements. We use the data from seventeen online groups representing the branches of the Observers for Fair Elections movement in districts of St. Petersburg, Russia, and compare their online properties to offline participation of movement members as electoral observers. We find that while prediction of individual offline participation with this online data is of limited power, association between district participation rates and online group features is very strong. Large, more inclusive and evenly connected networks, where people engage in high-threshold online activities, produce more offline participants; weak individual-level prediction, combined with strong group-level prediction, suggests either the presence of the "network effect" or of third factors—e.g., prior contentious experience or the leaders' effect.

For more than two decades, researchers from various fields have been exploring how new forms of information and communication technologies (ICTs) influence politics, government, political participation and—especially—various manifestations of contentious politics. It is now widely accepted that the most prominent citizens' political campaigns and social movements of the current decade, such as the so-called "Arab Spring" or Occupy Wall Street, were born in the digital world (Anduiza, Gallego, and Cantijoch 2010; Tufekci and Wilson 2012). But social movement scholars are still looking for reliable evidence to test these claims in wider contexts. They seek to understand how digital media affects dynamics of mobilization for protest events, recruitment of new supporters, organizational structures and coordination of activism (Bennett 2003; Earl and Kimport 2011; Earl, McKee Hurwitz, Mejia Mesinas, Tolan, and Arlotti 2013). In line with this, since mass protest erupted in Russia in 2011 and 2012, researchers have tried to answer questions on the causes, dynamics and outcomes of this mobilization (Gladarev and Lonkil 2012; Litvinenko and Bodrunova 2013).

Much less is known about the role of deliberate online activity and participation in these social movements outside of sustained periods of mass street protests and mobilization waves. Meanwhile, the lion's share of effort by social activists falls within these seemingly "silent" periods, when it is barely visible but when most of the cumulative impact of social movements on society is likely to be produced. Throughout these periods, social movements struggle to maintain the interest of the public in their activities, often utilizing social media as the most affordable channel. However, they often lack the resources to estimate whether these efforts are efficient and are worthy of their time.

This article aims to fill the gaps in our knowledge about the influence of deliberate online activity by social movements on outcomes that are not mass street mobilizations. The most efficient theoretical approach to reach this goal, as we show throughout this article, is to regard social movements as communities or social networks, an approach which opens up the possibility of tracing how a movement's observable structure and online activity is related to its

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offline participation, both on the individual and group levels. Additionally, we explore the online features of the movement's leaders and inquire whether both offline and online participation rates may be positively impacted by leader activity. For these purposes, we focus on the case of the Observers for Fair Elections movement in St. Petersburg, Russia. This movement emerged online during the protest wave in the national electoral cycle of 2011-2012 as a network of district groups, before transforming into an established social movement organization with branches in all city administrative units. Examining the Observers' online and offline activity during the 2014 gubernatorial elections, using unique comparative data obtained from all seventeen districts, we seek to understand what has driven high participation in some and low participation in others. Districts of the same city and time period represent relatively similar socioeconomic entities, and this similarity is especially high in St. Petersburg, where administrative boundaries are not related to social stratification. However, the movement's district group pages on the social networking site Vk.com are dramatically different, and we seek to determine if this is related to offline participation rates. In particular, we aim to answer the following questions: How are the properties of online communities, as maintained by a social movement, related to the offline turnout of its members at polling stations in the capacity of observers? How does an individual's activity or position in a movement's online community affect his/her offline participation? And finally, are offline social movement leaders more manifest online than ordinary participants and can either the offline or online size of their communities be attributed to their presence?

The article proceeds as follows: first, we outline the main theoretical and empirical findings of other researchers on the role of social networks—and online social networks in particular—in social movement activity. Second, we describe our case study and the data used for the empirical research; we then present our analysis on the role of the seventeen online district communities in individual participation within offline activities and participation on the district level, as well as exploring the role and the features of the Observers' leaders. Finally, we discuss our findings and draw conclusions.

SOCIAL MOVEMENTS AND SOCIAL NETWORKS

Social movements have traditionally been difficult to differentiate from interest groups and NGOs, on the one hand, and collective actions and behavior, on the other (Snow, Soule, and Kriesi 2007: 6-11). A general conceptualization of social movements is given by Snow et al., who view them as "collectivities acting with some degree of organization and continuity outside of institutional or organizational channels for the purpose of challenging or defending extant authority…" (2007: 11). While not all researchers would insist on a contentious component as inherent to the concept of social movements (Tarrow 2011), most agree on their informal character, making it difficult to define their borders. This borderless nature of social movements, with their varying levels and modes of membership, is usually captured with either the concept of networks or communities.

Diani defines social movements directly as networks consisting "of formally independent actors who . . . bear specific identities . . . and pursue specific goals . . . , but who are at the same time linked through . . . cooperation and/or mutual recognition in a bond which extends beyond any specific protest action, campaign, etc." (Diani 2003: 301). Likewise, Staggenborg describes social movements as communities, which "encompass all actors who share and advance the goals of a social movement" (Staggenborg 1998: 182). The concept of community, especially in the Internet era, does not necessarily imply a territorial dimension, but involves interpersonal relations that can be maintained through social networks, rather than a physical locale (Staggenborg 1998: 182; Wellman, Boase, and Chen 2002).

Lack of formal institutionalization does not mean that social movements are free of any social structure; on the contrary, network and community approaches allow us to account for the fluid structures of social networks via the measuring of different network parameters—such as density or centralization—and via the concept of informal leadership. Both leaders and community/

network features have been found to influence individuals' probability of participation in social movements, and later in this article we seek to determine whether this applies to online communities. In the rest of this section, we summarize the findings of studies of the "offline world."

The role of leadership in a movement's emergence, strategic development and outcome is reviewed in Morris and Staggenborg (2004). Ganz (2000) shows specifically that the success of social movements lies in the strategic capacity of its leaders while the latter increases with closer connections to other environments. In line with this, van Dyke and Amos (2017) conclude that involvement of "bridge leaders" with ties to various organizations and communities, increase the longevity of social movements.

The internal network structure of social movements is, likewise, often found to be related to a movement's performance. Thus, dense networks have proven to be linked to increased solidarity, self-sacrifice and mutual support, something particularly important for engagement in social movements and, above all, high-risk activism (Coleman 1988; Crossley and Ibrahim 2012; Gould 1991, 1993). Dense networks are also found to strengthen collective identity and the definition of values shared by movement participants (Coleman 1988; Krinsky and Crossley 2014). Shared values, a sense of community, shared group identification, perceived group-based injustice, and beliefs about group efficacy have all been proven to influence participation (Welzel and Deutsch 2012; Kavada 2015; Klandermans, 2014; Van Zomeren, Postmes, and Spears 2008).

Welzel and Deutsch (2012), in particular, find that if a person sharing a certain value observes a high prevalence of the same value in his/her community, the probability of that person acting according to this value—e.g., to protest—will be higher. They call this an "ecological effect," in which an individual's environment (in this case, related to values) influences his/her behavior. A similar influence of connecting structures, either surrounding the individual or prevalent in his/her group, may be termed the "network effect," which is what we expect to find in our case.

INTERNET AND ONLINE SOCIAL NETWORKS FOR SOCIAL MOVEMENTS

The Internet has fundamentally altered offline social movements by permitting citizens to organize without organizations (Earl et al. 2015) and by producing both Internet-only movements and those that combine online and offline activities (van Laer and van Aelst 2010). Among all Internet resources, social networking sites (SNSs) are of special importance. It is perhaps not coincidental that such online resources are denoted by the same term by which sociologists refer to systems of connections between humans. SNSs are not equivalent to human social networks as such, but they give them new opportunities to emerge, be maintained, develop and, uniquely, to be publicly manifested in a way never possible before. Given the importance of network structures for social movements, it is not surprising that social movements are relying increasingly on online social networking sites (SNSs). However, the precise effects of these on various aspects of social movement functioning have not yet been determined.

Due to the fluid nature of social movements and their unclear boundaries, the usage of SNSs and the Internet in general is often measured during certain contentious events, such as outdoor protest campaigns when the performance of a movement is the most visible. Therefore, the majority of studies are devoted to movements that involve mass mobilization, such as Occupy (Vasi and Suh 2016), anti-G8 protests (Della Porta and Mosca 2005) or even regime change, such as the so-called "Arab Spring" (Lim 2012; Tufekci and Wilson 2012) and Post-Soviet "color revolutions" (Kyj, 2006; Lysenko and Desouza, 2010; Lysenko and Desouza, 2012). Some of these studies find strong positive relation between SNSs and protest emergence, while others describe different roles that SNSs and other information technologies played during those events, including: coordination and optimization of protest events, reduction of costs of such coordination, brokerage, recruitment of new members, and request for resources (Caren and Gaby 2011; Enikolopov, Makarin, and Maria Petrova 2017; Flesher-Fominaya, 2014; Lim 2012; Vasi and Suh 2016). Simultaneously, researchers point out the limitations of SNS or Internet influence on

protests: Enikolopov et al. (2017), for instance, find audience fractionalization between Facebook and Vkontakte in Russia has a negative effect on protest participation, and Wolfsfeld et al. (2013) even find a negative correlation between internet penetration and the share of protesters in the Arab world. Moreover, some scholars suggest that other factors are much more important for protest emergence, including corruption, economic failures and religious cleavages (Allagui and Kuebler, 2011; Tsirel, 2012). The only effect that so far has been proven quantitatively and across multiple protests is the information effect of SNSs and the Internet in general (Theocharis et al. 2015; Tufekci and Wilson 2012; Volkov et al. 2012). A recent study by Kirkizh and Koltsova (2018) generalizes these findings by proving a positive effect of online news consumption on protests across 55 countries. However, literature often studies the effects of SNSs and other Internet resources jointly and doesn't address possible network effects of SNS within statistically verifiable research designs.

The focus of the majority of studies on mass street protests at the expense of other forms of social movement participation outside periods of mass mobilization, is understandable. They attract more public attention and are relatively easy to measure, while participation in a social movement is a problematic category, as has already been noted. Ultimately, participation is usually measured through involvement in distinct movement activities that possess a contentious component, such as offline gatherings, petition signing or money donations, and we generally follow this approach in our research.

De Zúñiga et al. (2012) measured participation with an index that included group membership, attending public hearings, writing, calling and talking to public officials and relevant others. They found that the informational use of social media, especially for political expression, correlated with offline (and online) participation. Nah and colleagues defined participation in relation to a certain issue—the US-based movement against the war in Iraq in 2003 (Nah et al. 2006). They included such activities as demands addressed to media to express alternative views, banner displays at home, petition signing, money donations, protest/rally participation, among others. TV use was found to be negatively related to political participation, while newspaper and internet use were related to it only indirectly, through the production of offline and online political discussion, which, in turn, influenced participation. Walgrave et al. (2011) examined three different types of online activity in which the internet was used for the following aims: obtaining political information; engaging in action (e.g. petition signing, money donation etc.); and forwarding e-mails about upcoming actions. While these factors produced mixed effects in different social movements, all of them were significantly and positively related to multiple engagement—that is, participation in multiple protests and social movement organizations.

This narrow stream of literature, focuses on individual online engagement and movement participation, while the group level, of online communities and networks, has received even less attention. One survey (Jensen et al. 2007) found that engagement in online political communities was significantly related to offline and online political participation. Crossley (2015) has shown that online feminist communities and activist online networks nourished their offline networks, expanded recruitment bases and provided logistical support for offline mobilization across space. However, another case study of a social movement found that the Internet only helped in increasing visibility and establishing external links for a cohesive community that had been already in place, with no visible impact of online social networks on participation observed (Ruiu and Ragnedda 2017). Thus, to date, empirical research into the impact of SNSs for on social movements has produced mixed results. Based on existing research of the relation between the Internet and social movements, as well as rich research on the significance of network and community structures for participation, we can expect that features of a social movement's online community must be related to offline participation in the respective movement. At the same time, we do not expect them to be related directly on an individual level; instead, we tend to think that online communities might have a network effect. We also consider a possibility that both features of online communities and offline participation rates might be produced by something else, for example strong leadership or its absence.

CASE DESCRIPTION

The social movement, Observers for Fair Elections in St. Petersburg, is a bright manifestation of the concept of "monitorial citizens" who monitor their governments using new technologies (Zuckerman 2014). This movement emerged during the mass protests against alleged fraud at the national parliamentary elections in Russia held on December 4, 2011, and in anticipation of the presidential elections that were to be held on March 4, 2012. During this period, the movement managed to mobilize around 3,000 volunteers that acted as observers at voting stations and collected vast data describing what activists perceived as the methods of electoral fraud.

The movement of the Observers in St. Petersburg started on Russia's most popular social networking site Vk.com (otherwise called VKontakte, akin to Facebook). An Observers for Fair Elections online group was established on December 4, 2011. During the first week, people only shared their stories and experiences and called for the mass actions to make the parliament dissolve. They expressed their frustration through photographs, cartoon pictures and even statistics that they had collected on polling stations.

On December 12, the group administrator reported great membership growth: from a few hundred to more than five thousand in less than one week. Simultaneously, district groups were established in seventeen out of eighteen city districts, and they quickly started coordinating their actions. Research confirms that social media, online newspapers and blogs constituted the core of the media diets of protest activists (Bodrunova and Litvinenko 2013). Although the independent observation did not have any direct effect on the electoral outcome in 2012 or later, the movement has been developing ever since. Aside from organizing regular observation campaigns, it has given rise to various grassroots initiatives that deal with issues of urban planning, housing services monitoring, migrant integration, volunteering and educational programs, amongst others.

As prevention of electoral fraud has turned out to be an unrealistic goal, the movement's main output in the sphere of observation has been informational, or "monitorial." It includes analysis of results and public dissemination of reports on the scale of manipulations and (negative) court decisions on cases initiated by the Observers. According to the Observers, the main method of fraud at the 2012 presidential election was distortion at the stage of vote count by district counting committees, not at the stage of vote collection. After the presidential elections, the movement was particularly successful in promoting its members into counting committees; however, this led to only limited outcomes during the next joint gubernatorial and municipal elections of St. Petersburg on September 14, 2014. The movement reported that the main source of fraud in this case was pre-term voting, which amounted to 10-15% of the overall vote and produced only pro-incumbent votes. Each new election brought about a new dominant method of fraud, however, the very issue of election fairness has since 2012 taken a firm place in the public agenda and has become a regular question in public opinion polls.

At the same time, the Observers have reported experiencing increasing pressure since the beginning of their activities and some of the movement's founders have been forced to migrate abroad. The high level of perceived risks for the movement's members has made the community very closed and reluctant to share the data and to let researchers conduct field research. Thus, several attempts to organize offline polls were unsuccessful, although researchers were ultimately able to use some records from the volunteer database (without personal and contact details).

DATA

As our data include both large-scale downloads from an SNS and information about offline participation matched together, our data collection procedure has been informed by recent debates on the ethics of big data, social media and social movement research (Metcalf and Crawford 2016; Milan 2014; Moreno, Goniu, Moreno and Diekema 2013; Zwitter 2014). The big data debate acknowledges the contradiction between the inapplicability of traditional ethical norms to data-driven research—such as informed consent—and the need to protect human subjects from

potential harm. The literature does not provide any single set of ethical guidelines to solve this contradiction. In our research, we followed two major principles. Firstly, we did everything in our power to prevent identification of any of the persons studied. Secondly, as suggested by Milan (2014), we did everything in our power to avoid unilateral use of the Observers' trust for our ends only. One of the researchers has been a movement activist with the Observers since 2013; moreover, our research intentions have been disclosed and agreed upon with movement leaders prior to the start of the project.

Online data were retrieved from group accounts of each of the seventeen district branches of the movement in VK.com with the VKMiner software. The eighteenth was the city-level group of Observers that linked to all its district branches. None of the Observer groups were protected by privacy settings, and were thus open for legal downloads; additionally, all individual data was anonymized after being matched with offline data. Eleven downloads were performed weekly, before and after St. Petersburg gubernatorial and municipal elections (September 14, 2014), and included all publicly available demographic data, group membership, friendship ties, comments, likes and posts in groups produced by group member and nonmember VKontakte users.

Multiple downloads were made to trace the process of mobilization before the upcoming elections, but no substantial change in group composition or structure was found. Therefore, a cross-section analysis was performed based on the download from September 23, 2014.

We thus investigated activity of 12,778 participants from seventeen district groups who had been active in district groups (leaving likes, comments or posts) and/or members of at least one of these groups. A member is defined as a person who has formally registered in a group, whether or not s/he has produced any content. A contributor is a person who has left at least one post, like or comment in one of the seventeen groups, regardless of him/her being a member. Both categories are termed participants. In total, 9,544 people out of 12,778 contributed to at least one district group, while only 6,030 were members of at least one group. The two sets intersect, with 2,794 people who were both group members and contributors to at least one of the district communities (see figure 1). A considerably lower number of members were active and/or shared membership of two or more district communities (see figure 2). This complex structure and absence of clear criteria for defining group membership has become a serious obstacle for using multi-level multi-membership regression (at which we initially aimed) and such limitations led us to analyze each level separately.

Altogether, local groups users generated 2,326 posts, 11,249 comments and 33,375 likes during the entire period of the group's existence (December 2011 to September 2014). We also collected data on friendship links within each of the eighteen groups (including the all-city group), and between all 22,494 participants of those eighteen groups.

This data was supplemented by information on offline movement members who attended the voting stations in the role of observers, counting committee members and other independent roles (contact authors for a full list of roles). In total, 909 individuals expressed their intention to act as observers by providing their names and contact data to the movement headquarters prior to the elections. They were instructed to contact the headquarters once they were to arrive at a voting station. On the election day (September 14, 2014) the Observers' call-center volunteers, including one of the authors, succeeded in contacting 510 individuals through either in-coming or outgoing phone calls; of them, 474 confirmed their presence at either a poll station or the movement's headquarters in one of the above-listed roles. The latter group is considered offline participants in this research. At the next stage they were manually matched with their VKontakte accounts: 257 offline participants, including seventeen headquarters activists, turned out to be members of one or more online Observers groups. To help with the interpretation of a network analysis that "hardly derives straightforwardly from network properties" (Diani 2002), we conducted ten expert interviews with the movement's district leaders and core members who were acquainted with the movement from the time of its formation.

The descriptive features of online groups deserve a brief mention. In total, 74% of those 89% group members who indicated their city claimed to be from St. Petersburg, while age and

Figure 1. Active Participants and/or Shared Membership.

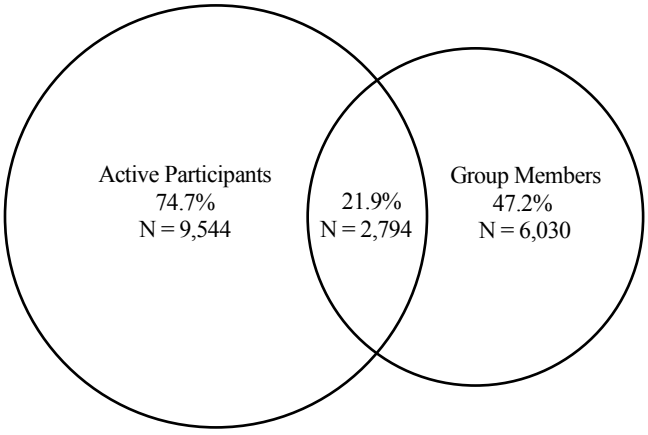
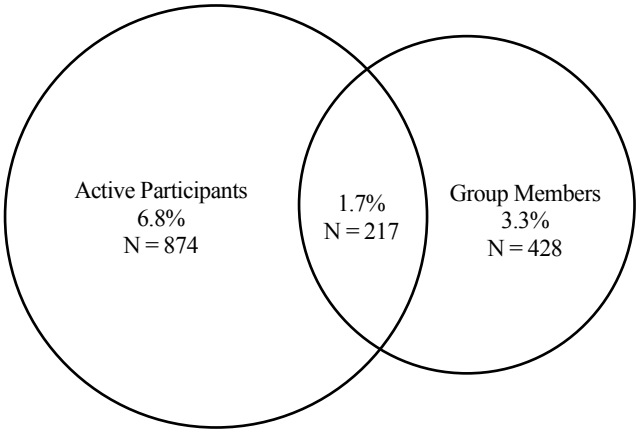


Figure 2. Active Participants and/or Shared Membership of Two or More District Communities.



Note: Participants active in or belonging to ≥2 groups (N = 1085), among all participants (N = 12,778).

gender distribution did not differ from the overall VKontakte distribution. Deleted accounts, which usually are banned by VKontakte administration, were virtually absent, which indicates the "true" nature of the community. The groups visibly differ in size: from 37 to 535 (mean = 285.5, st. dev. = 138.1), excluding Pushkin district (n = 2,000); Pushkin also differed manifestly, with a much lower proportion of multi-group members (10% against 52-72%). In the overall network of friendship, it formed a distinct cluster, while all the others belonged to an unstructured core. Unlike all the rest, that experienced a visible decrease in the number of messages right after the presidential elections in 2012, Pushkin was much more active than even the all-city group throughout the entirety of 2012 and 2013. As was learnt from the group content and interviews, the group of observers in Pushkin (a satellite town of St. Petersburg) was renamed "Citizen Pushkin" shortly after elections in 2012 and immediately started addressing a broad range of local ecological and town-planning problems. This means that that structural difference of the online "Citizen Pushkin" group was an indicator of the off-line features of this particular submovement. Therefore, Pushkin was excluded from further analysis as an outlier, leaving us with sixteen districts.

ONLINE AND OFFLINE PARTICIPATION AT THE DISTRICT LEVEL

As already mentioned, influence of the Internet on the group-level participation is less studied, yet important, especially when individual-level influence is hard to trace. In this section we examine how the properties of the district online groups of the Observers movement are related to its district offline participation rates. We measure the participation rate as the number of individuals from a given district who reported to have attended a voting station in one of the activist roles (observers or some other) per 10,000 of the district population. To get insights on what could explain offline participation at the district level, we use 51 variables that can be divided into four major groups: (1) absolute numbers (e.g. number of members or likes in a group, seventeen variables); (2) the same numbers weighted by the offline district population (17 variables); (3) numbers weighted by the online group size (e.g., posts per user, ten variables); and (4) network metrics such as density and modularity that also contain some weighting on group size (nine variables). The full list of variables is given in table A1 in the appendix. As the number of observations is small, we use Pearson correlation, cluster analysis and T-tests.

According activist interviews and the literature (Gladarev 2013), we expect to find more contentious activity in downtown districts. The dormitory areas are expected to be more passive, being inhabited by youth and newcomers who do not feel strong connection to the city. Additionally, downtown districts have had strong movements for the protection of the historical sights and people have thus acquired competences necessary for the activism.

We find that the offline participation rate has a strong association with many features of online groups. Firstly, it is highly and positively related to the weighted group size ($r(16)= .906$ $p\leq 0.000$). Secondly, it is also related to such network features as the normalized number of friendship links between users ($r(16)= .925$, $p\leq .000$), modularity ($r(16) = -.539$ $p\leq .038$), share of isolates ($r(16)= -.789$ $p\leq .000$) and the average number of friends per user ($r(16)= .866$, $p\leq.000$). However, the relation to density ($r(16)= -.398$, $p\leq .127$) is not significant. Thus, we can see that larger groups with more links are associated with higher offline participation, although cohesiveness is not so important. What is important is the low share of isolates and the absence of a well-defined cluster structure—meaning that loose but even-connectedness is more relevant for offline participation than tightness of online friendship network.

The offline participation rate is also positively related to certain indicators of group activity weighted by the size of a district population, for instance, the number of posts authored by individual users, but not group moderators, ($r (16) = 0.805$, $p \leq .000$) and to the number of comments ($r(16)=.505$, $p\leq.046$), but not likes. It is possible that likes do not express a group's devotion to offline participation, while content that demands more involvement does. Also, as is known from qualitative-text analysis, it is in comments and user-authored posts that political discussion takes place, whereas posts by moderators are mostly announcements and news. Therefore, user-authored content might be an indicator of a vivid community, while moderators' posts might just reflect their efforts to attract audience or build a community but not the results of such efforts.

It is important to note that most explanatory variables also correlate with each other. It is hard to single out one variable that would be the "cause" of the rest but, as expected, bigger, more connected and more feedback-rich groups seem to produce more offline participation. We therefore performed cluster analysis to see if the districts with higher participation rates would, indeed, fall together in one cluster and also demonstrate higher values of some other variables.

To obtain a series of cluster solutions, we used the four sets of our 51 variables (features), as described in the Data section, as well as combinations of those sets. We also examined distributions of each variable over districts separately, finding that most of them fell monotonously but some had clear thresholds. Since our hypothesis was to find an "active" minority cluster and a "passive" majority cluster, we concentrated on examining two-cluster solutions. We define the "active" cluster as one that includes observations with higher values of variables involved. Initially, we expected three downtown districts—Admiralteysky, Petrogradsky and VO—to fall into this cluster as they clearly differed from others by the number of offline participants weighted by the district population, as well as a number of other variables.

However, our cluster analysis paints a more complex picture (see table 1). Dots denote those districts that were assigned to the active cluster in the respective solution. Starting from solution 3, influence of absolute numbers, such as group size, is eliminated; and the best solution (6) employs a selection of variables that have the best thresholds in their distributions over districts. It is obvious that the cluster solutions are sensitive to variable composition which means that the space of our 51 features cannot be easily cut to separate two groups of districts both of which would have clearly different values of most features. That is, although most variables are related to offline participation and to each other, districts are more likely to form a continuum than clusters. At the same time, downtown districts seem to have a stronger tendency to appear in the active cluster than the rest. A series of t-tests confirms that the downtown status of a district is associated with both a higher offline participation rate and a larger weighted online group size (t-test sig.<0.01), as well as with higher levels of some friendship-related variables. We can thus definitely conclude that higher deliberate movement activity in online communities is related to higher offline activity, but that both may be determined by prior social movement experience accumulated in respective districts.

Table 1. "Active" Cluster Composition in Different Solutions (K-means)

District (shortened name)	**Type**	**Solution 1**	**Solution 2**	**Solution 3**	**Solution 4**	**Solution 5**	**Solution 6**
		Groups of Variables Present in Solutions					
		1, 3, 4	1, 3	2, 3, 4	2, 3	2	2*
Admiralteysky	Downtown	•	•	•	•	•	•
Centralny	Downtown	•	•				•
Frunzensky	"Dorm"						
Kalininsky	"Dorm"						
Kirovsky	"Dorm"	•	•				
Kolpino	Suburb						
Krasnogvardeysky	"Dorm"						
Krasnoselelsky	"Dorm"						
Kurortny	Suburb						
Moskovsky	"Dorm"						
Nevsky	"Dorm"	•					
Petrodvorzovy	Suburb						
Petrogradsky	Downtown						
Primorsky	"Dorm"	•	•				
VO	Downtown	•	•	•	•	•	
Distance to centroids		1794400	1793600	4438.9	4426.9	3573	978.69
Intercluster distance		2840.6	2840.6	222.81	222.45	221.44	110.95
Silhouette		0.47	0.47	0.61	0.61	0.59	0.62

*Solution 6 uses a selection of variables from group 2 that have the best thresholds in their distributions over districts.

INDIVIDUAL PARTICIPATION IN ELECTIONS MONITORING

The group-level association can be considered a cumulative consequence of the individual level if individual online and offline participation is strongly related at the group level. However, if the former is much weaker, then we can assume the presence of the network effect—that is, the ability of online activists to produce offline participation of other persons. In this section, we show that the activity and/or embeddedness in the local online community of the Observers is related to individual participation in offline election monitoring but not so much as at the aggregate level.

Variables in this analysis can be divided into three categories, indicating: (1) how active an individual is in online discussions; (2) how much feedback he or she receives online; and (3) how strong her or his connection with the online community is (see table 2). The correlation analysis showed strong and meaningful relations among some variables (e.g., between the numbers of a user's comments and likes. See table A2 in appendix). As the share of offline participants among online participants is small (2%), we ran several binary logistic regressions with penalized likelihood, including those with backward elimination. In these models, the dichotomous dependent variable "offline participation" was predicted through different combinations of variables from the three aforementioned types, so as to avoid multicollinearity, plus the two available control variables: gender (male or female); and city of residence (St. Petersburg or not).

Table 2. Individual Participation Indicators

		Min	*Max*	*Mean*	*SD*
Personal Activity	Sum of posts	0	69	0.18	1.341
	Sum of comments	0	821	0.88	9.232
	Sum of likes	0	2357	2.61	24.886
Received feedback	Sum of received comments	0	67	0.2	1.873
	Sum of received likes on posts	0	25	0.08	0.781
	Sum of received likes on comments	0	20	0.02	0.29
Embeddedness in a community	Activity in groups	0	17	0.89	0.938
	Membership in groups	0	17	0.54	0.829
	Friendship links in groups	0	705	2.67	14,792
	Mean friendship links in groups	.000	143	1.631	4,622

Notes: Total N = 12778 participants; observers N = 257; online-only participants N = 12521

We show the best models in table 3. Since all interval variables were normalized to the same scale prior to modeling, their regression coefficients are directly comparable. Standard errors are reported in parentheses under regression coefficients. Models 1 and 2 indicate that a person's online activity is negatively related to their offline participation, while the amount of feedback has no influence at all. Comparison of models 1 to 4 also show that the strongest predictors for offline participation are the number of friendship ties in district communities, as well as the number of district groups in which a user is a member, especially in which s/he has shown some activity (i.e., posts, comments or likes).

This means that the individuals producing more content in the movement's online communities are not those who are most likely to take part in offline electoral observation. However, a high number of online friendship connections in these communities indicates that they are more likely to be offline activists. Thus, embeddedness in the community is more important than online communication. At the same time, the variation between online-only participants is

Table 3. Regression Analysis of Individual Participation

	Model 1	*Model 2*	*Model 3*	*Model 4*
Intercept	-6.605*** (0.328)	-6.620*** (0.329)	-6.622*** (0.329)	-6.741*** (0.321)
Sum of posts	-0.053 (0.037)	-0.076* (0.036)	—	—
Sum of comments	-0.002 (0.025)	—	—	—
Sum of likes	—	-0.263* (0.091)	—	—
Sum of received comments	—	—	—	0.1067*** (0.031)
Sum of received likes on posts	—	—	-0.0024 (0.041)	—
Sum of received likes on comments	0.0046 (0.054)	—	—	-0.135** (0.080)
Active in groups, No	0.252*** (0.046)	0.334*** (0.049)	0.208*** (0.040)	0.231*** (0.040)
Member of groups, No	0.137*** (0.035)	0.142*** (0.036)	0.138*** (0.035)	—
Total friendships links	—	—	—	0.085*** (0.033)
Mean friendship links	0.202*** (0.033)	0.220*** (0.033)	0.197*** (0.033)	—
Gender	0.900*** (0.136)	0.895*** (0.136)	0.906*** (0.136)	0.957*** (0.135)
City	1.416*** (0.243)	1.422*** (0.225)	1.429*** (0.243)	1.527*** (0.245)
Nagelkerke's pseudo R^2	0.117	0.122	0.115	0.098

dramatically high and all models, although significant, are of modest explanatory power. This means that individual offline participation of online group members is determined by other factors, not available from the online data. This may also indicate the existence of the network effect, or ecological effect (although matching together the individual and the district levels without multilevel modeling is, of course, difficult). Specifically, large group size, and even connectedness and high in-group activity, indicate large numbers of offline participants in their their districts, but those participants are definitely not those who are more active online and not necessarily those who are more central. It may mean that the group's activity on the whole—not the person's activity—produces higher offline participation rates. This means that individuals who finally go to the voting stations to participate in observation may be inspired to do so not by their own online activity, but by the overall activity, size and connectedness of their district group.

However, causality may also be the opposite: in districts with certain hidden properties (e.g., prior experience of protecting historical sites or Strategy 31 actions), high offline participation emerges that also gives rise to online activity—in particular, among those who do not go to the poll stations themselves. Interviews seem to support the second assumption on causality, although not in relation to the downtown status of the districts. As informants tended to report, in instances where a group of active and tightly connected leaders had formed soon after the movement's emergence, online activity was sustained throughout the period. In the next section, we describe a preliminary test of the informants' assumption about the roles of leaders—given the available data for this—and the general online features of the movement's leaders.

LEADERSHIP THEIR ROLE IN GROUP OFFLINE PARTICIPATION

The concept of social movement leaders, given the uninstitutionalized character of their status, is not easy to operationalize. As suggested by Diani, leaders can be defined directly through their network positions (2003). However, it may be argued that, ultimately, leaders are those who are recognized as such (and who shape their movement's activities), while their network positions may just be indicators of, or proxies for, leadership. In this research we have adopted a nomination approach to leadership and proceeded as follows.

First, we formed a list of candidate leaders from informal examination of the online data (this was used as a sanity check only). Then, a movement leader was identified by independent offline sources (mostly by researchers). Next, the leader identified a list of all-city and district leaders, according to their subjective knowledge, after which this person was then asked to name formal district coordinators. While coordinators had been elected at the latest meeting of the movement's members, and thus presented "objectified" leadership, nomination was completely subjective. Both approaches have their advantages and limitations. Defining leaders through elections limits subjectivism. However, it is unclear how well these persons fulfill their leadership duties, if at all. This type of leadership may be regarded as "formal." Nomination, on the other hand, may capture real reputation, but it does not tell us who really influences behaviors. Furthermore, it may be based on a person's online visibility. This ultimately may lead to self-fulfilling predictions. This alternative type of leadership may be regarded as "informal" or "perceived" leadership.

Two "intuitive" lists—by researchers and by the offline leaders—were highly correlated (a Spearman and Kendall coefficient = 0.8, $p < .01$ obtained from the list of all group members divided dichotomously into leaders and nonleaders). This means that the researchers had guessed most of the judgments of the nominator. Both intuitive lists correlated to the formal leaders list with $r = .580$, $p < .001$. This may indicate difference between formal and informal leadership. We then sought which online properties best explained informal leadership. It turned out that leaders are much more active in online communication than rank-in-file activists or online group members and are located at the center of friendship networks in online communities (see table 4). In addition, they receive up to three times more attention and feedback to their online entries than regular participants. Furthermore, table 4 confirms our conclusions from the previous section on the individual activity: offline participants tend to produce less online content but on average have more friendship ties.

To test the informants' views about the role of leadership, we had to detect which districts had formed active and cohesive leadership teams at the initial stages of their existence. This was difficult to do directly, but we assumed that if a district coordinator or a formal leader was, at the same time, an informal leader, it could be one possible indicator of this district's strong leadership. T-tests show that districts coordinated by strong leaders produced somewhat higher offline participation rates and larger online groups, although this difference from the other districts is in-

Table 4. Mean Online Activity of Group Members According to their Status

	Posts	*Comments*	*Likes*	*Received Comments*	*Received Likes on posts*	*Received Likes on comments*	*Active in N Groups*	*Member of N Groups*	*Edges*
Informal leaders N = 21	4.81	32.14	65.67	5.05	3.00	0.33	6.62	6.62	23.96
Offline Elections Observers N = 244	0.02	0.13	0.27	0.02	0.01	0.001	1.54	1.15	4.34
Online Participants Only N =12,513	0.17	0.79	2.45	0.18	0.07	0.02	0.87	0.52	1.54

significant, unlike the diff erence between downtown and "dorm" districts. We thus cannot claim that leadership plays a role in raising offline participation rates, but we should refrain from completely denying this role, as an absence of significance might be an effect of the small sample size, measurement limitations or a specific feature of the studied case.

What we can claim is that, first, offline leaders can be predicted with some accuracy from analysis of their activity in online movement groups and from their network positions in these groups. Second, results suggest that online community features might be indicators rather than causes of offline participation rates. If so, in the case of the Observers, factors that those features might mediate are related to previous contentious activities, rather than to local leadership.

DISCUSSION AND CONCLUSION

Our research shows that although an individual's offline and online participation are related, this relation is weak. This may sound disappointing for social movement activists and indeed, at first glance, if individual participation is predicted in isolation from group participation rates, the role of the movement's online activity is negligible. However, offline participation at the group level is strongly related to the online features of the respective groups. This means that although online and offline participants may not necessarily be the same persons, the online features of groups can be reliably used as indicators of participants' future offline activity. This information can help movement leaders to alter their online strategies prior to offline events for which offline mobilization is needed.

As has been argued, both online and offline volumes of participation may be produced by some third factor, such as prior experience (confirmed in our case) or strong leadership (not confirmed). The format of a case study and the amount of the current data do not allow us to give an unequivocal answer to this question. Nonetheless, we believe it is highly unlikely that online group size and activity may be purely a by-product of this third factor—a by-product that has no adverse effect on offline participation. It is much more plausible that a group's online trace is a factor that mediates offline efforts or features. For instance, a strong leader through personal networks may at first produce a devoted offline core of activists that would launch an active and relatively large online page, which would later in turn attract more offline participants. This causal model is something that calls for testing in future research.

Meanwhile, our current results have their own implications both for social movement theory and practice. We have shown that higher offline participation is observed in districts with a specific network structure—namely, where friendship networks are inclusive, evenly connected and do not fall into clusters. A practical conclusion from this is that an important component of social movement community building, both offline and online, could be the deliberate avoidance of cleavages and the purposeful connection of disconnected subgroups and individuals. We have seen this in the case of Pushkin, the district that formed a distinct cluster, which separated from the *Observer* movement and pursued a different agenda.

In the sphere of online activity, similarly, only a particular type—namely, high-threshold activity (comments and user posts)—is associated with higher offline participation rates. Therefore, it is this type of activity that could be deliberately stimulated in order to increase such rates. This is consistent with the earlier research showing that it was online political expression and discussion that was most associated with participation, albeit at the individual level (Nah et al. 2006; de Zúñiga et al. 2012). We can therefore conclude that these findings are the first steps toward a broader theory of effective communication structures of social movements.

APPENDIX

Table A1. District-Level Variables

	Minimum	*Maximum*	*Mean*	*SD*
Total Offline Participation	.00	62.00	29.625	17.651
Members	37.00	535.00	285.500	138.103
Posts in Group	183.00	1338.00	572.625	336.585
Posts by Users	.00	547.00	216.187	160.670
Isolates	18.00	187.00	89.125	41.782
Edges	.550	19.403	5.312	5.458
Connected Vertices	19.00	370.00	196.750	100.024
Connected Components	22.00	199.00	92.625	45.312
Multi-Vertex Connected Components	2.00	12.00	6.125	3.284
Vertices in Max Connected Component	11.00	339.00	184.062	94.705
Edges in Max Connected Component	32.00	3647.00	1383.625	1023.309
Single group members	14.00	291.00	111.312	71.575
Multi-group members	23.00	271.00	165.062	71.181
Multi-group members excluding all-city	16.00	123.00	72.062	29.356
Posts	261.00	1645.00	788.812	363.960
Comments	9.00	1975.00	660.312	550.990
Likes	17.00	3971.00	1024.937	1088.816
Members weighted to population	5.09	23.60	10.387	6.070
Posts weighted to population	8.96	84.55	31.841	21.762
Posts in Group weighted to population	5.42	64.39	22.933	17.608
Posts by Users weighted to population	.00	31.67	8.909	8.183
Isolates weighted to population	1.86	6.07	3.151	1.275
Edges weighted to population	5.51	194.03	53.419	54.696
Connected Vertices weighted to population	2.62	18.12	7.246	4.855
Connected Components weighted to population	1.40	6.63	3.321	1.438
Multi-vertex connected components weighted to population	.09	.57	.235	.153
Vertices in Max Connected Component weighted to population	1.51	17.89	6.775	4.728
Edges in Max Connected Component weighted to population	4.40	193.80	52.740	54.31157
Total Offline Participation weighted to population	.00	3.59	1.066	.955
Single group members weighted to population	1.67	9.81	3.912	2.340
Multi-group members weighted to population	2.97	15.00	6.178	3.850
Multi-group members excluding all-city weighted to population	1.33	6.72	2.821	1.780
Comments weighted to population	1.24	73.02	23.730	21.735
Likes weighted to population	2.34	175.41	37.752	45.429
Posts per user	38.40	100.00	70.863	19.18760
Share of posts per user	.00	61.60	29.137	19.18760
Share of isolates	21.60	48.60	32.869	6.26735
Share of Vertices in Max Connected Component	57.90	98.70	91.456	9.51224
Share of Edges in Max Connected Component	80.00	99.90	97.381	4.76784
Share of multi-group members	41.57	72.12	61.251	8.23289
Share of multi-group members (excl. all-city)	17.87	43.24	28.110	6.13484
Share of Comments per user	.24	5.47	2.109	1.28956
Share of Likes per user	.46	8.50	2.987	2.24425
Median Edges	0	8	1.69	1.815
Density of Max.Connected Component	.05	.58	.111	.12818
Density	.02	.12	.042	.02481
Diameter	4.00	11.00	7.438	1.54785
Average Distance	1.63	3.41	2.897	.43025
Average degree	2.16	16.80	8.685	3.50873
Average degree in max. connected component	5.82	21.66	13.317	4.11027
Modularity	.23	.34	.265	.03502
District population	72648.00	534646.00	307141.31	150222.320

Table A2. Pearson Correlation: Individual Participation

	Offline Participation	Sum of posts	Sum of comments	Sum of likes	Sum of received comments	Sum of received likes on posts	Sum of received likes on comments	Activity in groups	Membership in groups	Friendship links in groups	Mean friendship links in groups	Gender
Offline Participation	1											
Sum of posts	.074**	1										
Sum of comments	.052**	.286**	1									
Sum of likes	.024**	.130**	.876**	1								
Sum received comments	.075**	.556**	.265**	.074**	1							
Sum received likes on posts	.065**	.758**	.236**	.108**	.522**	1						
Sum received likes on comments	.009	.278**	.184**	.088**	.474**	.338**	1					
Activity in groups	.139**	.481**	.331**	.316**	.228**	.331**	.108**	1				
Membership in groups	.162**	.220**	.133**	.116**	.124**	.165**	.057**	.153**	1			
Friendship links in groups	.172**	.313**	.364**	.358**	.147**	.223**	.075**	.434**	.583**	1		
Mean friendship links in groups	.124**	.124**	.145**	.128**	.081**	.136**	.061**	.066**	.360**	.559**	1	
Gender	.066**	.036**	.033**	.016	.038**	.026**	.009	.015	.091**	.047**	.071**	1

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