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Welcome to the Club: From Multimodal Voluntary Participation to Community Involvement

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This study integrates the theory of media multiplexity and a social network perspective to examine whether and how multiple modes of participation in voluntary groups, that is, multimodal voluntary participation, facilitate community involvement. Analyzing a 2013 random sample survey of 400 residents in the Greater Cleveland area, Ohio, in the United States, the results show that multimodal voluntary participation contributes to community involvement after controlling for local social ties and multiple affiliations. However, the normalization hypothesis was not supported as individuals who occupy bridging affiliation positions are not necessarily more advantaged than are those without such positions in adopting multimodal voluntary participation and engaging in community activities. Implications and directions for future research are discussed.

Keywords: voluntary associations, new media, social networks, media multiplexity, community involvement

The growing adoption of new media technologies such as social media and mobile applications has changed the way individuals participate in voluntary collective activities at organizational, community, and societal levels. Whereas much of the scholarly attention has been devoted to the use of new media technologies for engagement in collective activities on a temporary event basis such as disaster response (Landwehr & Carley, 2014; Starbird & Palen, 2011), important questions remain as to the role of these technologies in the participation of more regular forms of collective activity, such as leisured-based groups or church groups, and the outcomes of such collective activity. Despite the unique nature, social movements can be considered a long-term type of voluntary participation because members are connected in some way between big protest events. Evidence from research on recent social movements suggests that, in addition to social media, an array of technologies ranging from text messaging, e-mails,

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and blogs is used for different phases of coordination and organization of the movements, and activities take place in both online and offline domains (Lim, 2012; Tufekci & Wilson, 2012). It appears that to understand how new media technologies play out in contemporary forms of voluntary participation, it may be necessary to consider the broader social context of participation and technology use.

Voluntary associations play an important role in the consolidation of democracies around the world (Kim, 2004; Maloney & Rossteutscher, 2007; Putnam 1993). A person's voluntary group participation—comprising interactions and activities that take place within the boundaries of a specific group—may facilitate his/her involvement in a community through attending, connecting with, orienting, and manipulating formal and informal activities beyond the boundaries of the specific group (e.g., Babchuk & Edwards, 1965; Putnam, 2000; Rothenbuhler, 1991; Stamm, Emig, & Hesse, 1997; Stolle, 2000). It is important to point out that voluntary group participation and community involvement are conceptually and empirically distinct. On the one hand, voluntary group participation may help facilitate community involvement: It facilitates and sustains trust, norms, and networks (Putnam, 1993). By participating in voluntary groups, people have the opportunity to pursue and enhance their interests, skills, and competence in participating in civic affairs (e.g., Putnam, 1993; Verba, Schlozman, & Brady, 1995). In turn, participation may foster greater formal and informal involvement at the community and social levels (Florin & Wandersman, 1990; Rothenbuhler, 1991; Stolle & Rochon, 1998). On the other hand, participation in certain voluntary groups, particularly those with strong inward-looking tendencies, may not lead to positive individual and collective outcomes (Kwon, Heflin, & Ruef, 2013).

However, few studies in this rapidly growing literature have delved into this paradox to specify when and how voluntary group participation spills over and is beneficial to community involvement beyond group boundaries. Indeed, there are significant knowledge gaps. First, a substantive line in the literature has focused on either individual citizens' binary membership (i.e., whether individuals join a group or not) or the absolute number of voluntary groups they have joined (e.g., Stolle & Rochon, 1998; Verba et al., 1995). With a few exceptions, such as the studies conducted by Kavanaugh et al. (2007) and McPherson and his colleagues in the 1980s in Nebraska, appropriate theoretical frameworks that can systemically account for the environment and different dimensions of voluntary group participation have been lacking. McPherson's (1983) ecology model for voluntary associations centers on the dynamic relationships among voluntary groups. As the focus has been at the organizational level, limited attention has been paid to members' patterns of participation in these groups and the larger media and community environments in which group participation is embedded.

Second, the possibility of multiple modes of participation and the resulting outcomes has been overlooked in the existing literature. The majority of the research has focused on investigating the positive relationships between individuals' technology use and membership in voluntary groups (e.g., Hampton, Lee, & Her, 2011). Yet, there has been little empirical examination of how members' different dimensions of technology-enabled participation are associated with collective outcomes, some of which may go beyond the group boundaries.

As digital media and communication technologies have become an integral part of everyday life, it is possible that people can harness the potential of multiple technologies to participate in voluntary

groups—that is, to engage in *multimodal voluntary group participation.* The use of multiple means of communication and information channels to participate in group activities and the implications of such use for community involvement have not received much scholarly attention. Practical insights are also lacking in terms of the ways to organize voluntary groups and promote community involvement in contemporary digital media-saturated environments. Thus, an important theoretical and empirical question begs more attention: What are the patterns of participation in voluntary groups embedded in the contemporary socio-technological environment, and what are their implications for broader community involvement?

In this research, local communities are seen as networks of networks, as people living in one community are connected through various types of interpersonal relationships and voluntary affiliations (Craven & Wellman, 1973). Hence, understanding individuals' participation in voluntary groups necessitates examining interpersonal and group connections. To advance a more structural and contextualized understanding of the implications of voluntary participation for community involvement, we propose a systemic view of community involvement to investigate the ways individuals engage in group activities, their interpersonal embeddedness in the local social contexts, and the structural and communicative aspects of voluntary participation. Specifically, we focused on the social contexts in which voluntary group participation takes place, including network ties at the interpersonal and group levels and the interaction effects between group ties and group participation (see Figure 1).

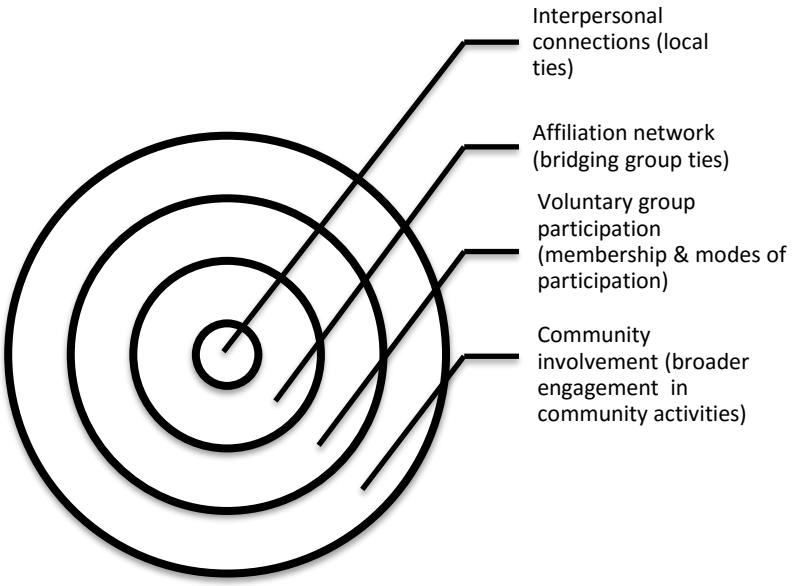

Figure 1. The conceptual model of a systemic view of community involvement.

Such a systemic view demands a multi-theoretical framework incorporating the theory of media multiplexity and a social network perspective; this framework enabled us to simultaneously theorize about the technological, social, and community environments in which participation in voluntary groups takes

place. We used data collected through a telephone survey with a randomly selected sample of 400 residents in the Greater Cleveland area, Ohio. In the following, we start by reviewing the theory of media multiplexity and the social network perspective; subsequently, the hypotheses and research questions are discussed. The results are reported and the theoretical implications of this research and directions for future research are presented.

Media Multiplexity, Voluntary Participation, and Community Involvement

The theory of media multiplexity suggests that multimodal communication patterns are based on tie strength (Haythornthwaite, 2005). The more frequently people communicate, the stronger their ties and the more types of media they use (e.g., face-to-face talks and e-mail; Haythornthwaite & Wellman, 1998). Strongly tied people tend to take advantage of appropriate occasions for interaction to maintain those relationships (Haythornthwaite, 2005). For example, Haythornthwaite (2005) found that different tiers of media use were developed within a group setting; organizationally established media (e.g., Webboard) were used for wide connectivity among all members, and other interpersonal forms of information and communication (e.g., e-mail, phone calls) were appropriated for selective connectivity among certain subsets of strongly tied members. Essentially, rather than focusing on the attributes of media or individual characteristics, the theory of media multiplexity emphasizes the social contexts in which media are used (Haythornthwaite, 2002). In a voluntary group setting, the theory of media multiplexity can thus provide a theoretical reason for the multitude of communication modes that members use in maintaining their participation.

Multimodal communication has various implications for relational closeness and development (Caughlin & Sharabi, 2013), psychological well-being (Chan, 2014), knowledge sharing within groups (Yuan, Carboni, & Ehrlich, 2010), and political communication and participation (Hsieh & Li, 2014). A higher level of multimodal Internet use can increase the chance that individuals engage in participatory activities (e.g., politics and blog writing), which in turn can foster participatory outcomes across online and offline modes (Wei, 2012). In sum, multimodal communication helps generate positive outcomes at the interpersonal and collective levels.

Applying the theory of media multiplexity in the voluntary association context, it is reasonable to speculate that individuals may use multiple ways of communication, including online and offline modes, to maintain their engagement with the group as well as their relationships with other members. Extending the notion of media multiplexity to voluntary group participation, Lai (2014a) found that multimodal participation in voluntary groups enhanced individuals' involvement within groups. Considering the importance of social contexts posited in the theory of media multiplexity, it is expected that multimodal voluntary group participation may derive broader social outcomes beyond group boundaries. However, relevant empirical inquiries have not been made in the literature.

We expect that multimodal participation in voluntary groups may stimulate individuals' community involvement, which involves broader formal and informal activities such as attending (following what goes on in the local community), connecting (spending time with others and talking about community needs), orienting (having ideas for improving the community), and manipulating (putting

changes about the community into practice) (Rothenbuhler, 1991; Stamm et al., 1997). Furthermore, we examine both the intensity as well as the scope of multimodal group participation. In light of this, we hypothesize the following:

H1a: The intensity of group participation enabled through online and offline modes is positively associated with the level of community involvement.

H1b: The scope of multimodal group participation is positively associated with the level of community involvement.

In addition to examining the predictive power of multimodality on community involvement, it is critical to decipher the patterns of multimodal group participation and determine whether there are specific modes of group participation that can stimulate community involvement and whether multimodal participation corresponds to particular types of groups. Some people may favor a wide range of online media such as online forums, social networking sites, or e-mail for group participation, whereas others may engage in only a few offline modes of participation. Such differences may be further manifested in levels of community involvement. Moreover, research has shown that compared with groups (e.g., social clubs) that provide opportunities for expanding social networks, participation in inward-looking groups such as churches might be less helpful in terms of facilitating individual and collective outcomes (Kwon et al., 2013). Thus, we pose the following research question:

RQ1: How is multimodal group participation related to community involvement, the type of group engagement, and the type of group individuals participate in?

We argue that to obtain a richer understanding of the contemporary forms of voluntary groups, it is necessary to expand one's focus and compare the influences of various structural and communicative measures of voluntary participation on community involvement. The positive relationship between binary membership in voluntary groups and individual and collective outcomes has been examined (e.g., Kavanaugh et al., 2007; Stolle & Rochon, 1998; Verba et al., 1995). However, little research has directly tackled a comparative analysis of the influences of binary membership and the number of group memberships on community involvement. We thus develop the following research question:

RQ2: What are relative influences of binary group membership and the absolute number of group memberships in relation to multimodal patterns of group participation on community involvement?

Social Network Ties and Voluntary Affiliations

Membership in voluntary organizations may lead to the generation of collective outcomes that benefit individual members, organizations, and the community at large (Kavanaugh, Reese, Carroll, & Rosson, 2005; Putnam, 2000; Verba et al., 1995); moreover, different network mechanisms play a critical role in this process of translating individual participation into collective action. Friedland (2001) proposed that in a community, multiple levels of networks (i.e., macro-level interorganizational elite networks,

meso-level networks of organizations, and micro-level interpersonal networks) operate to facilitate communicatively coordinated actions. At the interpersonal level, a common argument is that with the wide diffusion of technology use, the importance of place in individuals' social networks is diminished (Wellman, 2002). Nonetheless, studies have consistently shown that local context still matters in one's uses of technologies in organizing social networks; organizing social networks is, in turn, conducive to the acquisition of diverse resources (Hampton et al., 2011). From the community's perspective, individuals' informal social ties with other people in the local community can facilitate involvement in the community and their undertaking of coordinated actions, such as mobilizing resources to deal with community problems (Erickson, 1998; Florin & Wandersman, 1990).

Participation in voluntary groups affords individuals the opportunity to build horizontal affiliation networks within and between groups. In particular, being exposed to more groups creates opportunities for learning about local issues, developing relevant interests, and engaging in collective action (Kavanaugh et al., 2007). Such multiple affiliations can facilitate the generation of bridging social capital (Putnam, 2000) because people who belong to two or more groups can construct potential links between their groups. Shared memberships among voluntary groups facilitate exchanges and greater resource accessibility, which in turn give rise to the availability of collective goods at the community level (Kwon et al., 2013). As posited in our conceptual model, voluntary group participation is situated in the social context represented in the form of local ties and bridging affiliation ties. We expect that multimodal group participation would facilitate community involvement beyond the influences of local ties and affiliations.

H2: Multimodal group participation (intensity and scope) is positively associated with community involvement, after controlling for the level of neighborhood ties and bridging affiliation network ties.

Thus far, few empirical studies have examined whether and how multiple affiliation ties—that is, embeddedness in affiliation networks—are related to technology-enabled voluntary group participation and enhanced community involvement. In one such study, Kavanaugh et al. (2005) found that heavy Internet users who belonged to multiple groups tended to engage in local social activities more than did heavy Internet users who were not bridges. It is thus possible that people with multiple affiliation ties are likely to benefit from multimodal group participation, which is reflected in their increased level of community involvement. Examining the influence of affiliation bridges echoes the scholarly debate about whether information and communication technologies help broaden or minimize the existing social gaps between advantaged and disadvantaged individuals and groups, as per the mobilization versus the normalization hypothesis (Chen, 2015). In light of this, we develop two hypotheses examining whether multimodal participation maintains or minimizes the existing social benefits of affiliation bridges.

H3a: The relationship between the intensity of online and offline group participation and community involvement varies according to bridging affiliation ties.

H3b: The relationship between the scope of multimodal group participation and community involvement varies according to bridging affiliation ties.

Method

Sample

Given the lack of a representative list of voluntary groups and the elusive nature of such groups, this study follows the hypernetwork sampling method proposed by McPherson (1982). That is, to derive a complete network picture of voluntary groups in a community, researchers can survey a randomly selected sample of residents about the various voluntary groups they participate in. In this way, a representative sample of voluntary groups can be retrieved. A telephone survey was conducted with the assistance of Princeton Survey Research Associates International. The survey was administered in English by Princeton Data Source to a representative random sample of 400 adults (ages 18 and older) living in and around Cleveland, Ohio. This geographic area was selected because of its declining population over the past few decades, which provides a good opportunity to examine how traditional and new forms of voluntary participation take place, which can further facilitate community involvement. The survey took place between August 5 and August 26, 2013. The response rate for the landline samples (n = 200) was 7% and the response rate for the cellular samples (n = 200) was 9%. The statistical results were weighted to adjust for known demographic discrepancies.

The average respondent was 48.27 years old (SD = 18.37), female (53%), and White/non-Hispanic (78%). Measurements of all of the 14 variables, including six control variables, are presented in Table 1. In terms of technology use, 79% of respondents used the Internet or e-mail at least occasionally. Within this random sample of 400 residents in the Greater Cleveland area, 37% of respondents s (n = 146) were active in voluntary groups.

Measurements

Community involvement. The dependent variable of community involvement was measured according to frequency of participation in the community in five ways (1 = *never*, 2 = *less often*, 3 = *about once a month*, 4 = *several times a month*, 5 = *several times a week*, 6 = *everyday*): keeping up with the local news in the community, having ideas for improving things in the community, getting together with people who know what is going on in the community, working to bring about changes in the community, and spending an evening with someone in the community (Rothenbuhler, 1991; Stamm et al., 1997). An index of community involvement was created by averaging the five items (M = 2.91, SD = 1.01, α = .69).

Table 1. Zero Correlation Among Study Variables.

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Sex (women)	1													
2	Age	.19***	1												
3	Employment (full-time employed)	−.15**	−.24***	1											
4	Income	.03	−.10	.41***	1										
5	Education (college degree)	.16**	−.01	.21**	.43***	1									
6	Length of residence	.06	.35***	−.03	.13*	−.05	1								
7	Binary membership	.14***	.03	.08	.22***	.27***	.12*	1							
8	Number of memberships	−.10	−.09	−.02	.24*	.02	.19*	−	1						
9	Neighborhood ties	−.01	.01	.06	.01	.03	.13*	.19***	.03	1					
10	Affiliation bridges	.08	−.01	.10*	.21***	.22***	.11*	.58***	.66**	.20** *	1				
11	Intensity of offline participation	.03	−.22*	−.11	−.12	−.15	− .08	−	−.05	−.07	−.09	1			
12	Intensity of online participation	.14	−.24*	.02	.15	.09	− .11	−	.13	.09	.05	.52***	1		
13	Scope of multimodal participation	.06	.31**	.16	.17	.15	− .18	−	.15	.07	.10	.36***	.79**	1	
14	Community involvement	.07	−.05	.03	.11	.08	.13*	.26**	.11	.39** *	.23**	.22*	.36***	.26**	1

Note. $^{*}p < .05$. $^{**}p < .01$.$^{***}p < .001$.

Group membership and group participation. Binary membership was measured by asking respondents whether they were currently involved (e.g., regularly attending meetings, contributing time or money, or holding a leadership position) in any voluntary groups or organizations (0 = no, 63.5%; 1 = yes, 36.5%). Respondents also reported the number of voluntary groups or organizations they belonged to on a 5-point numeric scale (M = 1.77, SD = 0.97); this was done to measure the number of groups in which respondents were members. Group participation was measured based on the intensity and scope of multimodal participation. First, three items were scored according to a 6-point scale (1 = *never*, 2 = *less often*, 3 = *about once a month*, 4 = *several times a month*, 5 = *several times a week*, 6 = *everyday*) to

capture the ways that respondents participated in their groups in offline form: attending in-person group meetings, volunteering time for face-to-face group activities, and spending time with members of their group face-to-face. An index of the intensity of offline group participation was created by averaging the scores of these three items (M = 3.53, SD = 0.89, α = .69).

Second, five items were used to measure respondents' participation in their group in online form: sending/receiving e-mail to and from members of the group; keeping up with news and information about the group via e-mail or online newsletter; posting news and information on a group website, blog, or social networking webpage; keeping up with news and information about the group via the group website, blog, or social networking webpage; and communicating with members of the group via phone or text messaging. An index of the intensity of online group participation was created by averaging the scores of these five items (M = 3.00, SD = 1.13, α = .79). Responses for each of these eight items measuring voluntary participation were further dichotomized where 0 = *never use* and 1 = *use*. The scores of the eight items were summed to create an index of the scope of multimodal group participation; the values ranged from 0 to 8 (M = 6.32, SD = 1.60).

Neighborhood ties. The degree of neighborhood ties was measured by asking respondents how many people living in their neighborhood they considered to be friends or acquaintances (1 = *none of them*, 2 = *some of them*, 3 = *about half of them*, 4 = *many of them*, 5 = *all of them*; M = 2.49, SD = 1.09) (Sampson, 1991).

Affiliation bridges*.* Building on Kavanaugh et al. (2005), we categorized respondents into *bridges* and *non-bridges* based on the level of their affiliation in voluntary groups. Specifically, affiliation bridges were respondents who participated in two or more voluntary groups (n = 54, 14%) and non-bridges were respondents who mentioned that they were members of one or no groups (n = 345, 86%).

Controls. Demographic factors such as age, sex, and length of residence are considered relevant to participation in voluntary groups and communities (e.g., Mesch & Talmud, 2010; Putnam, 2000; Smith, 1994; Verba et al., 1995). Five categories of age were used: 18–24 years (12.0%), 25–34 years (14.6%), 35–44 years (16.8%), 45–64 years (37.5%), and 65 years and older (19.1%). Level of education was measured as high school or less (44.2%), associate degree or some college (30.3%), and college or above (25.4%). Approximately 56.6% of respondents were not employed full time and 43.4% were employed full time. Level of annual income was measured as 1 = less than $10,000, 2 = $10,000 to under $20,000, 3 = $20,000 to under $30,000, 4 = $30,000 to under $40,000, 5 = $40,000 to under $50,000, 6 = $50,000 to under $75,000, 7 = $75,000 to under $100,000, 8 = $100,000 to under $150,000, and 9 = $150,000 or more ($M$ = 4.67, SD = 2.43). Length of residence was measured by asking how long respondents had lived in the neighborhood they lived in now: 1 = less than 1 year, 2 = 1–2 years, 3 = 3–5 years, 4 = 6–10 years, 5 = 11–20 years, and 6 = more than 20 years (M = 4.21, SD = 1.61).

Two-mode network extractions. To answer RQ1, we extracted affiliation network data from the question asking respondents to provide the names of voluntary groups they participate in. The affiliation data are represented through the "is a participant in" relation between the individuals and the groups (Borgatti & Halgin, 2011; Breiger, 1974). Essentially, two groups are considered connected when a

respondent mentions that he/she belongs to both of these groups. Co-membership or co-participation in groups, which is called an *affiliation network*, indicates the possibility of underlying social ties between groups, which helps reveal the general structural qualities of the broader community (Borgatti & Everett, 1997; Davis, Gardner, & Gardner, 1941). Specifically, co-affiliation may indicate different possibilities, for example, creating opportunities of developing social ties because members are likely to interact with each other and develop relationships when they are members of the same group (Borgatti & Halgin, 2011). Yet, co-affiliation may also result because of an existing social relationship (Borgatti & Halgin, 2011). For example, people tend to participate in the same group because they are friends.

Building on the existing typology to classify voluntary group types (Kavanaugh et al., 2007; Putnam, 2000), we identified 15 group types, including church/religious group, school-related group (e.g., PTA, music association, booster club), youth group (Boy Scout), alumni group, fraternity/sorority, homeowner association, community civic group (e.g., block party), civic group (e.g., Tea Party), service group (e.g., United Way, Red Cross, YMCA), specific service group (e.g., VFW, APL, AARP), community service group (e.g., local food bank), support group (e.g., weight loss, AA), hobby group (e.g., baseball team), professional group (e.g., association of engineers), and educational group (e.g., university). One valued and rectangular ($n \times m$, person $\times$ group) matrix was created, where n represented the 146 respondents and m referred to the 15 group types. In the rectangular matrix, each respondent was assigned a row and the columns were the 15 group types. Each group was treated as representing a group type (e.g., church, school-related group). If two or more voluntary groups named by the respondent represented the same group type, they were counted separately and the entry for this group type was valued. If other group types were not named by the group, a zero was entered in the corresponding cell.

Strictly speaking, this extracted two-mode network is not an affiliation network because individuals did not necessarily have ties with other people who joined the same type of group. Similarly, as a respondent identified he/she was affiliated with two group types, a tie existed between two group types instead of between two groups. Nonetheless, with the use of a random sample in this selected geographic area, the patterns of co-affiliation were discerned and the embeddedness of a particular voluntary group type in a community of associational activities was identified, which could be applied to other similar community contexts (Cornwell & Harrison, 2004).

Results

Hierarchical multiple regression models were used to test the hypotheses and answer the two research questions. Because of multicollinearity concerns, we entered the intensity of group participation and scope of multimodal participation in the regression model separately (see Table 2). Models 1–3 contain results related to the controls, binary membership, and the number of group memberships. Models 4–6 contain results associated with the variables of intensity and scope of multimodal group participation. In Models 7–10, the variables of neighborhood ties and affiliation bridges were included, along with participation-related variables. Models 11 and 12 contain the results of interaction terms between bridging affiliation ties and multimodal group participation. Figure 2 presents the results from Models 2, 11, and 12.

Table 2. Results of Regression Analyses on Measures of Group Participation, Neighborhood Ties, Affiliation Bridges, and Community Involvement.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Sex	.07	.05	.06	.06	.05	.06	.02	.03	.01	.03	.01	.03
Age	−.12	−.11	−.28*	−.20	−.20	−.20	−.16	−.17	−.16	−.17	−.19	−.19
Income	.04	.01	−.05	−.04	−.07	−.05	.03	.06	.04	.06	.03	.06
Employment	−.01	−.02	.11	.21	.20	.15	.14	.09	.14	.10	.13	.09
Education	.06	.00	−.01	−.02	−.04	−.08	−.01	−.05	−.01	−.05	−.01	−.06
Length of residence	.14*	.11	.41***	.40***	.44***	.44***	.36**	.34**	.36**	.34**	.41***	.35***
Binary group membership		.27***	–	–	–	–	–	–	–	–	–	–
Number of memberships			.10	.11	.07	.05	.05	.03	.03	.04	.02	.04
Intensity of offline participation				.23*	.06	–	.09	–	.10	–	.20	–
Intensity of online participation					.29*	–	.23*	–	.23*	–	.33*	–
Scope of multimodal participation						.28**	–	.26*	–	.26*	–	.31
Neighborhood ties							.32**	.31**	.32**	.31**	.26*	.30**
Affiliation bridges									.03	−.01	.05	−.01
Offline × Affiliation Bridges[a]											−.15	–
Online × Affiliation Bridges[a]											−.10	–
Scope × Affiliation Bridges[a]												−.06
Constant	−***	−***	−**	–	–	–	–	−*	–	–	–	–
F test	1.77	4.68** *	3.51**	3.81	4.28** *	4.16** *	4.58***	4.80** *	4.11** *	4.27** *	3.63** *	3.85** *
Adjusted R^2	.01	.08	.15	.19	.24	.22	.29	.28	.28	.27	.28	.26
n	315	314	104	98	92	92	90	90	90	90	90	90

Note. Regression coefficients are standardized.

[a]The variables of the interaction terms were mean centered to avoid multicollinearity.

*$p < .05$. **$p < .01$.***$p < .001$.

The results showed that H1a was partially supported as engaging in frequent online (β = .29, p < .05) but not offline modes of participation (β = .06, p > .10) was positively associated with community involvement (see Model 5, Table 2). However, using a combination of multiple online and offline modes of communication to participate in the activities of voluntary groups was associated with a higher level of involvement in broader community activities; thus, H1b was supported (β = .28, p < .01; see Model 6, Table 2). The intensity of online modes of participation (β = .23, p < .05) and scope of multimodal group participation (β = .26, p < .05) significantly predicted community involvement, after controlling for neighborhood ties and affiliation bridges (see Models 9 and 10, Table 2). Hence, H2 was supported. In fact, the level of neighborhood ties was the most consistent predictor of community involvement after other variables were accounted for (see Models 7–12, Table 2).

To test H3a–b, we created interaction terms between measures of group participation (intensity and scope) and affiliation bridges. The results showed that having bridging ties did not significantly affect the relationships between the intensity of offline and online group participation and community involvement (β = −.15, p > .10; β = −.10, p > .10; see Model 11, Table 2). Hence, H3a was not supported. H3b was not supported as well because the relationship between the scope of multimodal group participation and community involvement was not moderated by bridging affiliation ties (β = −.06, p > .10; see Model 12, Table 2). Among the control variables, length of residence was the strongest predictor of the level of community involvement (see Models 1 and 3–12, Table 2). In other words, the length of residing in the local community was positively related to one's level of community involvement.

In answering RQ1, we referenced Wei's (2012) analysis by ordering multimodal group participation by number and presenting changes by type of participatory activity. We found that individuals' engagement in group activities changed with the scope of multimodal participation (see Table 3). When people engaged in a lower number of group activities, they tended to engage in face-to-face group activities (e.g., attending group meetings, volunteering time for face-to-face group activities, and spending time with members of the group face-to-face). When the range of group participation increased, they tended to incorporate more technologically mediated types of activities, such as the use of e-mail and social networking sites, in their multimodal participation. In turn, the increased number and modes of group participation were correlated with increased levels of community involvement.

Visual illustrations were also generated through NetDraw using the spring embedding procedure (Borgatti, 2002) to identify the patterns of affiliation relationships between the individuals and the voluntary groups they participated in. As shown in Figures 3–5, church and community service groups stood out as the popular types of groups people were involved in. This result was consistent with previous research recognizing the dominance of churches and community-based service groups (e.g., Cornwell & Harrison, 2004; Kavanaugh et al., 2005). From Figures 3 and 4, it appears that compared with online participation, respondents reported more intense offline participation for their involvement in church/religious, community service, specific service, and hobby groups. Yet, group types were less distinct in relation to the scope of multimodal participation, as shown in Figure 5.

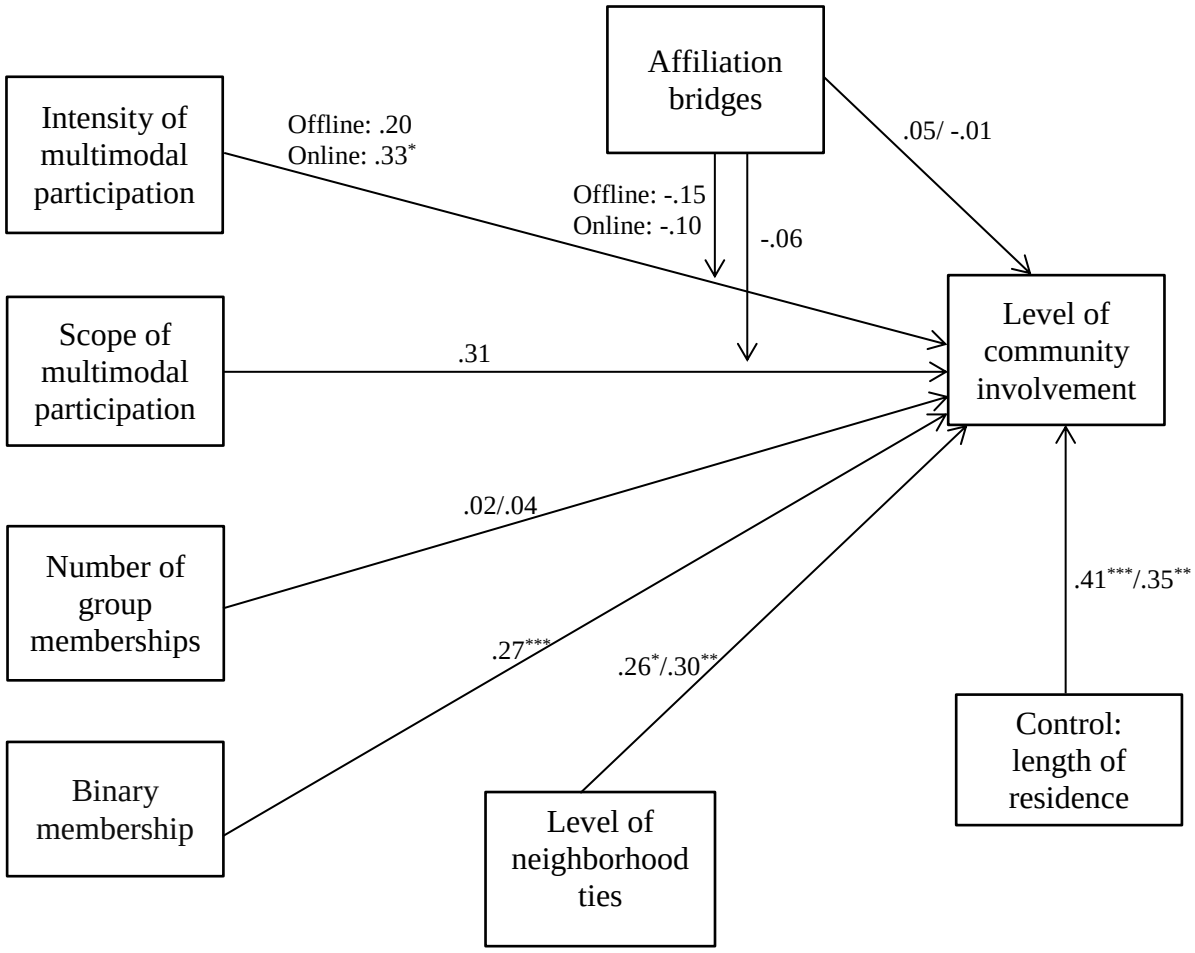

Figure 2. The results from the final regression models. Affiliation bridges, number of group memberships, neighborhood ties, and length of residence are displayed with two coefficients: The first number represents the results from Model 11, and the second from Model 12. The coefficient of binary membership is from Model 2. Sex, age, income, employment, and education were controlled, but due to lack of statistical significance, they are not reported in the graph.

Table 3. Distribution of the Number and Type of Group Participation Via Multiple Modes.

	Number of multimodal group participation						
Participation	2	3	4	5	6	7	8
Spend time with members of the group face-to-face	**45.3**	**100.0**	**94.1**	**95.3**	**100.0**	**97.4**	**100.0**
Attend in-person group meetings	**45.3**	**71.8**	**76.2**	**100.0**	**83.3**	**100.0**	**100.0**
Volunteer time for face-to-face group activities	0.0	**61.0**	**90.2**	**92.3**	**100.0**	**100.0**	**100.0**
Keep up with news and information about the group via the group website, blog, or social networking webpage	**54.7**	0.0	17.8	40.0	**70.3**	**97.0**	**100.0**
Communicate with members of the group via phone or text messaging	**54.7**	30.7	**72.5**	**64.3**	**87.6**	**93.1**	**100.0**
Keep up with news and information about the group via e-mail or online newsletter	0.0	36.5	27.5	**67.5**	**78.6**	**96.4**	**100.0**
Send or receive e-mail with members of the group	0.0	0.0	21.7	40.7	**63.9**	**100.0**	**100.0**
Post news and information on the group website, blog, or social networking webpage	0.0	0.0	0.0	0.0	16.4	16.0	**100.0**
% of *n*	1.5	3.2	13.8	11.0	13.4	28.4	28.7
Predicted value of community involvement (range of the value)[a]	2.84 (2.15–3.40)	2.77 (2.20–3.41)	3.10 (2.08–3.59)	2.95 (2.03–3.69)	3.45 (2.75–4.16)	3.49 (2.13–4.43)	3.71 (2.87–4.53)

Note. The activities in bold represent those engaged by approximately 50% of the respondents who reported the number of multimodal group participation in that particular column. The minimal count of multimodal group participation started at 2.

[a]The value was calculated from the resulting regression model (see Model 6, Table 2).

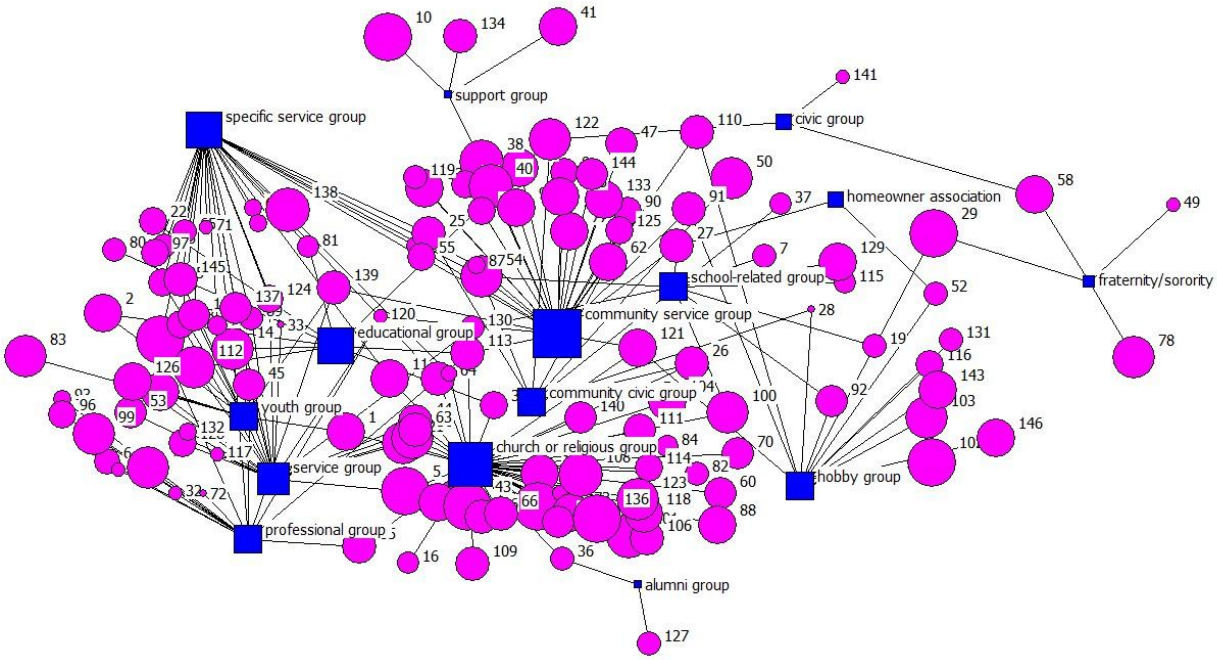

Figure 3. Intensity of offline group participation and types of voluntary groups. Circles are the respondents and squares are 15 group types reported by the respondents. The size of the group nodes is adjusted proportional to the degree centrality, and the size of the person nodes reflects the degree of the intensity of offline group participation.

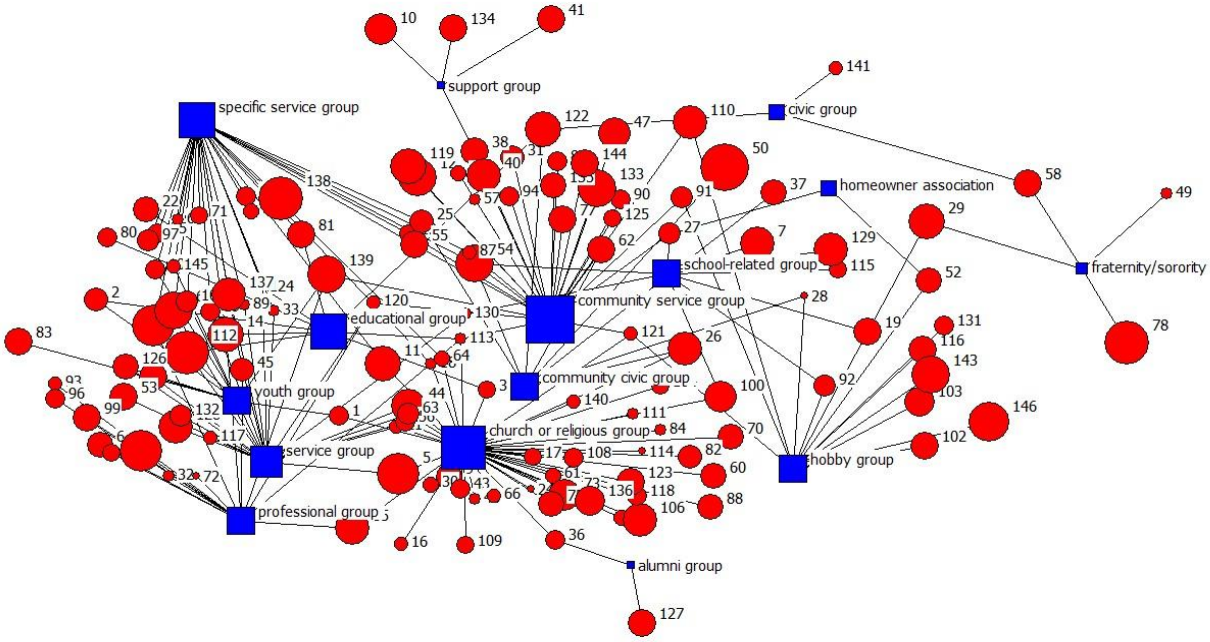

Figure 4. Intensity of online group participation and types of voluntary groups. Circles are the respondents and squares are 15 group types reported by the respondents. The size of the group nodes is adjusted proportional to the degree centrality, and the size of the person nodes reflects the degree of the intensity of online group participation.

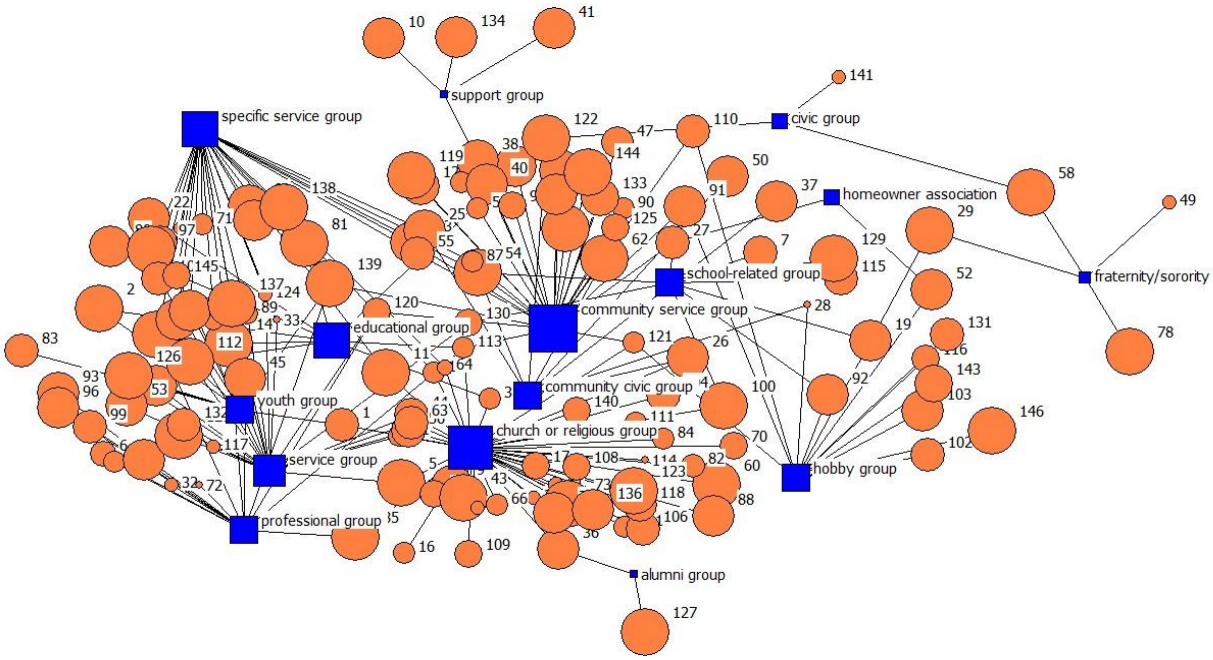

Figure 5. Scope of multimodal group participation and types of voluntary groups. Circles are the respondents and squares are 15 group types reported by the respondents. The size of the group nodes is adjusted proportional to the degree centrality, and the size of the person nodes reflects the degree of the scope of multimodal group participation.

To answer RQ2, we compared the regression results with the variables of binary membership, number of group memberships, and multimodal group participation. First, in Model 2 (see Table 2), we considered the individual influence of binary membership on community involvement and found a significant relationship between these two variables (β = .27, $p < .001$; see Model 2, Table 2). This indicates that the fact that belonging to any voluntary group makes a difference in an individual's community involvement. Second, we included the number of group memberships, which was not significantly related to community involvement (β = .10, $p > .10$; see Model 3, Table 2). In fact, the absolute number of group memberships was consistently insignificant in all of the models tested (see Models 3–12, Table 2). On the other hand, after including intensity and scope of multimodal group participation, the explanatory power of the model increased significantly (R^2 = 24% and 22%; see Models 5 and 6, Table 2). These results together suggest that merely considering these two structural aspects of voluntary association (binary membership or the number of group memberships) fails to offer a complete account of the relationship between voluntary group participation and community involvement.

Discussion

Driven by the observation of the increasing attention to new media technologies for collective activities, in this study, we argue that to derive a better understanding about contemporary forms of voluntary participation and the resulting collective outcomes, it is important to consider the broader social context of participation and technology use. With this argument as the point of departure, we drew on a multi-theoretical framework encompassing media multiplexity and social network theories and proposed a systemic view of community involvement. Several contextual and structural factors were taken into account and the findings reveal a consistent relationship between multimodal group participation and community involvement. The study provides theoretical and empirical contributions through examining multimodal affordances of voluntary participation within local social environments and how that translates into involvement in broader community activities.

Multimodal Participation and Community Involvement

The multi-theoretical framework provides a systemic and dynamic understanding of how voluntary group participation across online and offline modes can contribute to positive outcomes of collective action at the broader community level beyond specific group boundaries. Our results show that individuals' scope of group participation was usually concentrated in offline activities (e.g., attending group meetings and communicating with group members in person). Yet, as individuals had more diverse ways of participating in group activities in both online and offline modalities, this was positively correlated with a growing scope of group involvement, specifically the engagement with the group as a whole as well as with individual group members (e.g., communicating with members through texting and keeping up with group information via online newsletters). Moreover, multimodal group participation can be seen as opportunities for individuals to engage with broader community activities, as evidenced by the higher level of community involvement.

Altogether, this study confirms the existing research on the potential of online group participation to result in offline participatory outcomes (Lai, 2014b). It also provides evidence showing that the benefits acquired from media multiplexity at one level of human behavior are associated with participatory outcomes at another level (e.g., in this study, from multimodal participation in voluntary groups to engagement with a range of informational, social, and civic activities in the much broader community). On the other hand, the non-significant relationship between the intensity of offline group participation and community involvement may be ascribed to the fact that offline modes of participation are perceived as requiring more personal effort and time. Talking to members and performing group activities face-to-face is relatively time-intensive; however, keeping up with groups through online newsletters, group websites, or social networking sites may take less time away from individuals' other social and work obligations. Indeed, as shown in Model 4 (see Table 2), we found that the original significance of intense offline group participation in relation to community involvement was lessened when online modes of participation were included in the model. This indicates that online modes of group participation not only complement but also strengthen offline counterparts, motivating individuals to engage in collective action at both group and community levels.

Social Network Ties and Participatory Outcomes

Driven by the goal of strengthening existing research on voluntary groups, we examined the social contexts as well as the structural and communicative aspects of voluntary participation in relation to community involvement. In support of the existing research (Erickson, 1998; Florin, & Wandersman, 1990; Hampton & Wellman 2003; Mesch & Levanon, 2003), this study confirms that neighborhood ties are positively associated with community involvement. The reason may be ascribed to the exposure individuals have to the community context through their neighborhood ties. It may also indicates that people who do not have friends or acquaintances in the neighborhood are less active in the broader community. The relatively insignificant contributions of the structural measures (including the number of group memberships and bridging affiliation ties) after controlling for the communicative dimensions of group participation indicate the inadequacy of merely relying on structural aspects of voluntary participation to understand the relationship between voluntary groups and community involvement. Rather than resorting to individuals' occupying of bridging positions between voluntary groups (Kavanaugh et al., 2005, 2007; Putnam, 2000; Verba et al., 1995), our study shows that individuals' engagement in group activities through multiple modes of communication can be a more effective way of leveling group participation into community participation. In other words, it is necessary to employ a communication-centered view in investigations of participation in social organizations, especially with the growing adoption of multiple technologies in contemporary voluntary participation.

Furthermore, the non-significant interactions between affiliation bridging ties and intensity and scope of multimodal group participation indicate that the "rich get richer" pattern is not salient in the situation of multimodal voluntary participation and community involvement. Research supporting the normalization hypothesis has found that people who are socially competent tend to use the Internet or technologies to enhance their network capacity (e.g., Kraut et al., 2002; Ruppel & Burke, 2015). In other words, individuals with existing networking advantages are likely to use technologies to further enhance their social capacity and thus widen the differences between themselves and people who do not have either networking or technological competence.

This study found that individuals who did not belong to any or to only one group did not necessarily have a lower likelihood of engaging in broader community activities. That is, people who occupy bridging positions are not necessarily more advantaged than are those who do not join any voluntary association or have only one group membership. One possible explanation is that by engaging in multiple modes of participation, individuals could be introduced to other networking possibilities for community involvement that are not dependent on belonging to multiple groups. Alternatively, frequent uses of multiple media technologies allow individuals to deepen their connections with particular voluntary groups, which is sufficient to motivate them to engage in broader community-related activities. Echoing these interpretations, the network visualization shows that although individuals tended to engage in more offline participation for certain types of voluntary groups (e.g., church, community service, and hobby groups), they invested in a wider scope of multimodal participation regardless of group type. Practically speaking, these findings suggest that as individuals are routinely embedded in the expanded media and social environments, organizers of voluntary groups and communities should tap into the opportunities afforded by multiple technologies. Specifically, it may be fruitful to use multiple ways across online and

offline modes to engage members in interpersonal and collective group activities, which can in turn motivate them to engage in the community.

Future Research

Multimodal group participation has become prevalent; respondents in our study reported that they participated in group activities by using an average of six (M = 6.32) out of eight modes of communication. Several directions merit further examination. It is expected that individuals' habits of using different combinations of technologies for participation may result in differential outcomes. For example, people who participate in groups more through online modes of communication are likely to expand their social networks by maintaining weak ties or forming latent ties with many other members they would otherwise know through face-to-face activities (Haythornthwaite, 2002). Latent ties refer to social ties that are technically feasible yet not socially activated. An individual develops latent ties with other group members by joining a group's Facebook page. Only after this person initiates social interactions with other members can these latent ties transform into weak or even strong ties. A group with a majority of members who engage only in online participation or maintain weak or latent ties with one another will generate different participatory outcomes than will other groups with more diverse distributions of members who engage in both online and offline participation. Future research can examine differential multimodal group participation undertaken by members, which can help shed light on the effective operation of voluntary groups tailored to different member needs.

More research is also needed to understand the relationship between multimodal group participation and members' network structure inside and outside of groups. In McPherson's ecology model of voluntary associations, the mechanism of homophily is considered to shape the composition of voluntary organizations (McPherson, Popielarz, & Drobnic, 1992; McPherson & Ranger-Moore, 1991). Organizations (members) tend to recruit new members from their existing social networks, reinforcing the attributes and characteristics of the membership. Future research can focus on whether and how multimodal participation coevolves with members' network structure, and whether this in turn affects member interaction within the group. Similarly, studies have recognized the usefulness of technology in local contexts in support of collective action (Hampton, 2010; Hampton & Wellman, 2003). In other words, glocalization (in which the features of local and global networks are combined) has exerted crucial effects (Wellman, 2002). It would thus be useful to examine whether and how having access to diverse non-local ties through technology facilitates information exchange and resource acquisition, which may benefit community collective action.

Conclusion

There are three major limitations of this study. Regarding sample size, the sample of respondents who participated in voluntary groups was relatively small (n = 146). Yet, our research fills an important gap in the existing research as it tests the individual explanatory power of binary membership, number of group memberships, and patterns of group participation in relation to community involvement. The results provide evidence that can be used in future research inquiries on the impact of voluntary groups at

multiple levels. The measurement of the intensity of offline multimodal participation had relatively low reliability. Subsequent research should refine the scale of multimodal participation to further the nuanced understanding of different types of technologies involved in group participation. The cross-sectional design of the study did not allow for causality claims. It is possible that people who participate in broader community activities more often tend to know more people from the neighborhood and get involved in voluntary groups. Longitudinal analysis can help provide more insights into the conceptualized linkages among the variables examined in this study.

Despite these limitations, by incorporating online and offline modes of participation, the findings of this study bring to light a new way of understanding the linkages between contemporary forms of multimodal participation in voluntary groups and community involvement and the transferability of outcomes generated across online and offline modes at the group and community levels. Moreover, the results show that the normalization hypothesis was not supported as people who were active in multiple affiliations did not necessarily use technology for participation to enhance their social advantage. It is believed that with more research devoted to studying the mechanisms and processes of multimodal voluntary participation, a richer, contextualized, and structural understanding can be obtained concerning the fundamentals of human collectives conducive to the well-being of society.

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