International Journal of Communication 17(2023), 4541–4562 1932–8036/20230005

Participatory Outcomes of Collective Action Groups on Facebook: The Roles of Network Relationships and Group Contexts

CHIH-HUI LAI
National Yang Ming Chiao Tung University, Taiwan

This study examines the mechanisms of how participation in Facebook collective action groups predicts civic participation and the generation of group impacts. The results from a nationally representative sample in Taiwan showed that group participation was positively associated with civic participation, but only indirectly through perceived tie strength within the group. This indirect relationship was also moderated by the extent to which members coparticipated in other groups on Facebook. Moreover, the results from a second data set (a young adult sample in Taiwan) showed that group participation had both direct and indirect effects on perceived group impacts (internal and external) through perceived network size within the group. The indirect and negative relationship between group participation and perceived external impact was mitigated by the extent to which the groups endeavored to collaborate with other entities.

Keywords: social media, Facebook, voluntary group, civic engagement, communication infrastructure theory

Research on social media (SM) has progressed from the question of whether SM use facilitates civic participation to how the specific use of SM creates a social environment conducive to civic participation (Gil de Zúñiga, Molyneux, & Zheng, 2014; Thorson, Xu, & Edgerly, 2018). However, while existing studies focus on individual use of SM in relation to civic participation (e.g., Bouchillon & Gotlieb, 2017; Ferrucci, Hopp, & Vargo, 2020; Park & Kaye, 2018), group use of SM also deserves attention. With the prevalence of digital technology, especially SM (e.g., Facebook and Twitter), a variety of collective action groups are formed that reflect different modes of interaction and engagement; that is, groups are characterized by the combined consideration of direct/indirect member interaction and high/low member involvement (Flanagin, Stohl, & Bimber, 2006).

Flanagin et al. (2006) argue that with the use of digital technology, contemporary forms of collective action should be understood as a set of communicative practices that allow individuals to act on private interest in a way that is publicly observable. Following this conceptualization, voluntary groups or fanpages on Facebook can be seen as *collective action groups* that entail different levels of member interaction and involvement. In particular, these refer to any types of voluntary groups or fanpages on Facebook that are created based on members' common interests, values, and/or goals (Hsu, Wang, Chih,

Chih-Hui Lai: chlai@nycu.edu.tw
Date submitted: 2021-10-13

& Lin, 2015; Park, Kee, & Valenzuela, 2009; Valenzuela, Park, & Kee, 2009). Participating in collective action groups on SM enables individuals to learn how to meet new people based on shared interests, and this competence may result in benefits, such as building weak-tie discussions and subsequently developing trust in people (Bouchillon, 2019).

Existing research on SM collective action groups is rooted in two lines of work, both of which have limitations. The first line of research focuses on whether the use of the Internet, including SM, influences individuals' participation in voluntary groups, mostly offline (e.g., Boulianne, 2015; Hampton, Lee, & Her, 2011). These works examine the role of technology use in changing how individuals exhibit the collective social behaviors that have long been part of human society (Putnam, 1995; Wollebaek & Selle, 2002). However, they often overlook the nuanced mechanisms of how these collective social behaviors are practiced online.

The other line of research delves into the motivators of individuals' participation in interest-based groups on SM and the patterns and outcomes of such participation (e.g., Bouchillon, 2019; Conroy, Feezell, & Guerrero, 2012; Fernandes, Giurcanu, Bowers, & Neely, 2010; Park et al., 2009). Most of these studies either focus on political groups or rely on a simple count of group membership to examine group participation. There is a lack of attention to the specific mechanism of how different forms of participation in different types of groups, politically or nonpolitically oriented, influence members' participatory outcomes within and beyond the group. More importantly, relatively few efforts have synthesized these two aforementioned lines of research in developing a comprehensive understanding of contemporary collective action groups.

To address the gaps in the existing research on SM collective action groups, this study employs an ecological approach to understand the mechanisms and outcomes of collective action groups on Facebook by considering the different forms of group participation and member network relationships, as well as the context in which these groups are embedded. In particular, this study contributes to the subject of SM use and online collective action groups in the following ways. First, complementing the existing research that addresses the civic outcomes of individuals' relational or general uses of SM (e.g., Gil de Zúñiga et al., 2014; Kahne & Bowyer, 2018; Yu & Lai, 2022), this study considers SM use in the group setting. Specifically, it examines the relationships between the use of Facebook for participating in collective action groups not limited to political purposes and the different participatory outcomes (i.e., civic participation and perceived internal and external group impacts; see Figures 1 and 2 for the conceptual models). As such, it provides a way to theorize whether and how general SM use in the collective action context relates to the generation of civic outcomes for participating members and society.

Second, this study addresses group contexts in terms of members' co-participation in other groups and the type of group operation. It examines how group contexts influence the relationships between group participation, member network relationships, and participatory outcomes. In doing so, this study contributes evidence to the existing literature on online collective action groups (e.g., Bouchillon, 2019; Shen & Cage, 2015) by pointing to the necessity of examining the circumstances under which group participation and member network relationships may result in positive or negative participatory outcomes.

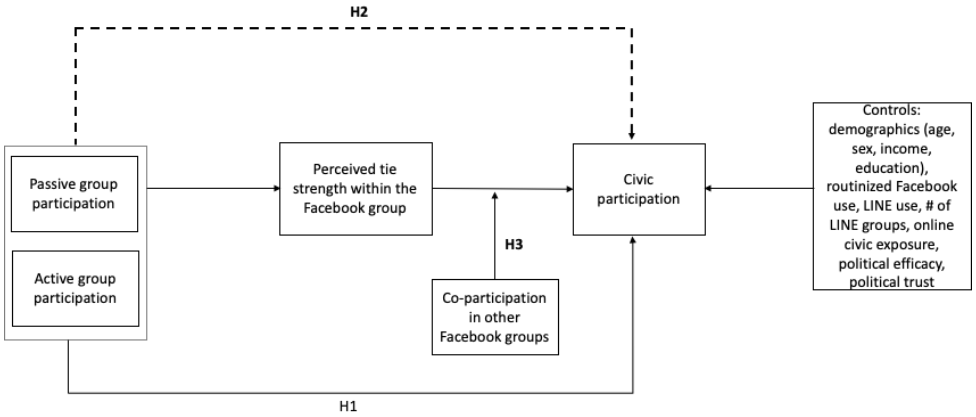

Figure 1. The conceptual model for Study 1.

Note. The dashed line indicates indirect effects, and the hypotheses in boldface are supported.

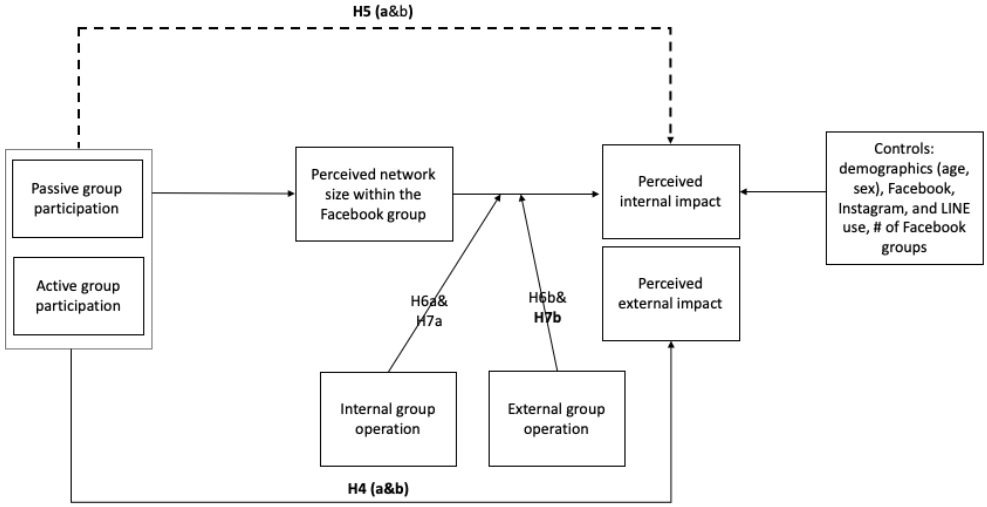

Figure 2. The conceptual model for Study 2.

Note. The dashed line indicates indirect effects, and the hypotheses in boldface are supported.

Literature Review

SM Use and Civic Participation

Research on SM use and civic participation has addressed the mechanisms and effects of SM use from different theoretical perspectives. For example, research grounded in the communication mediation model suggests that discussion networks (e.g., heterogeneity) serve to mediate the effect of SM use on civic participation (e.g., Kim & Kim, 2022; Lu, Lee, & Kim, 2018). Building on the differential gains model (Hardy & Scheufele, 2005), another line of work examines the moderating role of interpersonal networks in the relationship between SM use and civic participation (e.g., Choi & Shin, 2017; Kahne & Bowyer, 2018).

However, these works rarely consider SM use in collective action contexts, such as in groups or communities. Similarly, there are a few studies on SM collective action groups in relation to civic participation (e.g., Bouchillon, 2019; Park et al., 2009; Valenzuela et al., 2009; Yang & DeHart, 2016), but they overlook the social and group environments in which group participation is embedded.

Due to these limitations, this study references communication infrastructure theory (CIT), which is an ecological model of how communicative actions in communities, mediated or non-mediated by digital technology, facilitate civic outcomes. CIT proposes that individuals are embedded in the communication infrastructure, which comprises different levels of neighborhood storytelling networks (i.e., daily conversations among community members and stories about the community) in communication action contexts (environments that facilitate or hinder local storytelling; Kim & Ball-Rokeach, 2006a). CIT emphasizes integrated connectedness to a storytelling network (ICSN), where individuals' connections to macro-level (e.g., national media), meso-level (e.g., community organizations, local media), and micro-level storytelling agents (e.g., friends, family) help construct stories and conversations about the community (Ball-Rokeach, Kim, & Matei, 2001; Kim & Ball-Rokeach, 2006a). Empirical tests of CIT have been applied to the SM domain. For example, Kim et al. (2019) found that ICSN, along with a higher level of perceived importance of SM in everyday goal achievement, predicted community engagement. Similarly, Jung and LeNoble (2022) found that using SM for local affairs (SM local storytelling) predicted community engagement (collective efficacy).

Building on CIT and relevant works on SM use and civic participation, this study employs an ecological perspective to examine the mechanisms and outcomes of participation in collective action groups on Facebook by paying attention to the mediating and moderating roles of member network relationships and group contexts. Similar to the community context, members' participation in online collective action groups represents a storytelling process (Kent, Rechavi, & Rafaeli, 2019) that motivates them to engage in communication behaviors, facilitating a sense of belonging (Ball-Rokeach et al., 2001). Specifically, members' passive forms of participation, such as reading or reacting (e.g., clicking on the "like" button) to group posts, resemble the way community residents use traditional media to acquire information about community affairs. Active forms of participation, such as posting, sharing, or replying to group posts, reflect interpersonal discussions about community issues (Kim & Ball-Rokeach, 2006b). In fact, applying CIT, Ognyanova et al. (2013) defined community-oriented online participation as passive content consumption and active interpersonal discussion about community issues via the Internet. As such, with Facebook collective action groups, I argue that members generate narratives and conversations about the group through both passive and active forms of participation, which constitute members' integrated connectedness to the group storytelling network. Unlike storytelling processes in traditional communities, however, members' group participation mostly occurs within the same online space on Facebook.

Mechanisms and Outcomes of SM Collective Action Groups

Participation in online collective action groups, politically or nonpolitically oriented, is often driven by the need to seek information about certain topics or events, which motivates individuals to engage in civic activities offline (Park et al., 2009). Following CIT's proposition about ICSN and civic outcomes (Kim & Ball-Rokeach, 2006a), this study posits that if individuals participate in Facebook collective action groups through passive consumption of group content and active initiation or responses to group posts, they are likely to participate in civic activities. The empirical tests of CIT suggest that ICSN is positively related to

different types of community engagement, such as neighborhood belonging, collective efficacy, and community participation (Jung & Kim, 2021; Kim & Ball-Rokeach, 2006b; Nah & Yamamoto, 2017). Moreover, Nah, Lee, and Liu (2022) found that ICSN and expressive digital media use (including SM) for community issues were related to both online and offline civic participation but not limited to local contexts. Similarly, Choi, Nah, and Chung's (2021) study found that ICSN and the use of SM for getting news stories about local community issues predicted online civic participation. In light of this, I hypothesize:

H1: Levels of participation in Facebook collective action groups are positively related to levels of civic participation.

In collective action groups, members' interpersonal interactions help them develop relationships with each other (Flanagin et al., 2006). Acquiring resources from strong ties online is associated with political participation (Skoric, Ying, & Ng, 2009). One's strength of ties with contacts on SM is also a critical motivator for civic participation on SM (Warren, Sulaiman, & Jaafar, 2015; You & Hon, 2019). Moreover, in the individual action context, research has confirmed the mediating role of interpersonal networks between SM use and civic participation (e.g., Kim & Kim, 2022; Lu et al., 2018). Hence, I argue that participation in Facebook collective action groups fosters the strength of relational ties among members, which in turn facilitates civic participation.

H2: Levels of participation in Facebook collective action groups are positively related to perceived tie strength within the group, which in turn predicts increased levels of civic participation.

According to CIT, communication action context (CAC) is where ICSN is situated, which may moderate the pathways between locality-based communication and civic outcomes (Nah & Yamamoto, 2019). Research has shown that CACs (i.e., ethnic heterogeneity and residential stability of the neighborhood) conditioned the effect of ICSN on civic engagement (Kim & Ball-Rokeach, 2006b). This study argues that members' co-participation represents a form of CAC that influences how they may or may not benefit from group participation. Similar to joining multiple groups, members' co-participation in other groups embodies the acquisition of relational benefits from the original group and an opportunity to expand networks, which influences participatory outcomes (Kavanaugh, Reese, Carroll, & Rosson, 2005). Participation in multiple relevant Facebook groups was found to enhance relationships with affiliated members, which in turn motivated broader volunteering behaviors beyond the group (Farrow & Yuan, 2011). As such, I hypothesize:

H3: The indirect relationship between participation in Facebook collective action groups and civic participation through perceived tie strength within the group varies by the extent of members' co-participation in other groups on Facebook.

Study 1

Method

To test H1–H3, I conducted Study 1, which used data from the 2018 Taiwan Communication Survey (TCS). TCS is a yearly survey conducted in Taiwan through face-to-face interviews with a nationally

representative sample derived from multistage stratified random sampling. The 2018 TCS survey was conducted from July 4, 2018, to October 11, 2018, with a final sample size of 2,028. The average respondent was aged 46.940 (SD = 16.944), and 49.2% were men. Note that in Taiwan, interest-based Facebook fanpages often operate as online communities (Hsu et al., 2015). The questionnaire thus asked respondents to report whether they had voluntarily joined any Facebook groups or fanpages not related to their school, work, or jobs, including interest-driven, public issue-, politics-, or religion-related voluntary groups (e.g., alumni groups, friend circles, drama fandom groups, community development groups, and the Tzu Chi Foundation). Following this definition, around 20% of the participants reported that they had joined at least one voluntary group or fanpage on Facebook (n = 399). I present the measurements of the variables in the following paragraphs.

Civic Participation

Four items were used to measure civic participation. Respondents indicated how often they engaged in the following activities in the past year, including participation in community development/local neighborhood affairs, volunteering, attendance in community/civic group assemblies or activities, and involvement in the activities of local political groups, on a 4-point scale (from 1 = never to 4 = often; α = .805, M = 1.438, SD = .612).

Facebook Group Participation

Respondents were asked to report how often in the past three months they had engaged in certain activities on their preferred Facebook groups or fanpages (i.e., reading, reacting, commenting, or sharing group posts at least once a month). Two items measured passive and active participation, respectively: reading posts (M = 5.92, SD = 1.851) and replying to posts/posting (M = 4.27, SD = 2.449), on an 8-point scale (from 1 = never to 8 = several times a day). Following Nah and Yamamoto (2018), I created an index of group participation by multiplying these two variables and obtained the square root of the values (M = 4.804, SD = 1.997).

Perceived Tie Strength Within the Group

Perceived tie strength was measured using a 5-point scale (1 = not close, 2 = not very close, 3 = middle, 4 = close, 5 = very close; M = 2.82, SD = .858) by asking respondents to assess their level of closeness with other members on their preferred Facebook groups or fanpages.

Co-Participation in Other Groups

Using a 5-point scale (1 = almost none of them did, 2 = most of them did not, 3 = half did, half did not, 4 = most of them did, 5 = almost all of them did; M = 2.70, SD = .961), respondents were asked to report how many members they knew in their preferred Facebook group or fanpage who also participated with them in other Facebook groups or fanpages.

Controls

A series of media use, participatory and attitudinal factors, and demographics were included as controls, which might have influenced the civic outcomes of the communication infrastructure (Nah & Yamamoto, 2017). The variable of routinized Facebook use was created by averaging the scores of different

items that tapped different uses of Facebook (i.e., posting, sharing, reading posts or photos by friends, and browsing shared posts by friends) on a 4-point scale (from 1 = never to 4 = often; α = .740, M = 2.826, SD = .624). Given that LINE is a popular SM platform in Taiwan (Statista, 2022), the time (hours) spent weekly using LINE (M = 17.784, SD = 18.059) and the number of LINE groups participants belonged to (M = 11.92, SD = 20.896) were included to measure the participants' media use and participatory experiences that may influence their civic participation. Given the skewedness of the number of LINE groups, a square root transformation was performed (M = 2.883, SD = 1.901).

Online civic exposure was measured by asking respondents how often they had searched for/read, shared/forwarded, and created/posted content related to politics and public affairs online in the past year on a 4-point scale (from 1 = never to 4 = often; α = .843, M = 1.806, SD = .827). Political efficacy and political trust were also included as controls. The former was measured by asking participants the extent to which they agreed that they had no say in what the government did, and the values were recoded (M = 3.165, SD = 1.170). The latter was measured by two items: "the government will pursue the maximum benefit for the public" and "what government officials say on the news can be trusted" (r = .557, p < .001, M = 2.564, SD = .965). Both questions were measured on a 5-point scale (1 = strongly disagree to 5 = strongly agree). Furthermore, four demographic variables were controlled for age, sex, income (M = 4.49, SD = 2.922, from 1 = no income to 23 = more than 300,000 NT), and education (M = 4.061, SD = 1.065, from 1 = illiterate to 5 = college and graduate school).

Data Analysis

To test the hypotheses, I used ordinary least squares (OLS) regression models. Indirect and moderated indirect effects (H2 and H3) were examined via Process Macro (Hayes, 2017), and 5,000 bootstrapped samples were used. An indirect effect is significant when the confidence interval (CI) does not contain zero.

Results

The results showed that Facebook group participation was not positively related to civic participation (see Table 1). However, perceived tie strength mediated the relationship between group participation and civic participation (Effect = .016, Boot SE = .007, Boot 95% CI = [.004, .030]). Hence, H1 was not supported, but H2 was supported. H3 was also supported because the indirect relationship was moderated by co-participation (Index = .015, Boot SE = .008, Boot 95% CI = [.002, .031]). As seen in Table 2 and Figure 3, the positive indirect relationship between group participation and civic participation through perceived tie strength was particularly stronger for those who reported coparticipating in other groups with other members than for those who did not.

Table 1. Results of OLS Regression Models Predicting Civic Participation in Study 1.

	Model 1	Model 2	Model 3	Model 4
	Perceived tie strength within the group	Civic participation	Civic participation	Civic participation
Age	.005(.003)	**.009(.003)****	**.010(.003)****	**.010(.003)*****
Gender[a]	−.046 (.083)	.051(.065)	.052(.065)	.068(.064)
Education	.008(.074)	−.078(.059)	−.075(.059)	−.078(.058)
Income	−.023(.013)	.007(.010)	.007(.010)	.010(.010)
Routinized Facebook use	.110(.079)	−.040(.062)	−.039(.062)	−.043(.062)
LINE use	–	.000(.002)	−.001(.002)	−.001(.002)
# of LINE groups	-	**.057(.019)****	**.056(.019)****	**.055(.018)****
Online civic exposure	-	**.212(.036)*****	**.210(.036)*****	**.210(.036)*****
Political efficacy		−.023 (.027)	−.025(.027)	−.031(.027)
Political trust		.062(.034)	.058(.034)	.048(.034)
Facebook group participation	**.148(.021)*****	−.010(.018)	−.012(.018)	−.018(.018)
Perceived tie strength within the group	-	**.101(.039)***	**.083(.042)***	−.192(.102)
Co-participation		**-**	.041(.037)	**−.281(.115)***
Perceived tie strength within the group X co-participation		–	–	**.112(.038)****
F	11.967	5.724	5.381	5.723
Sig.	.000	.000	.000	.000
R^2	.155	.152	.154	.173

Note. n = 369. [a] The coding category is 1 = male and 2 = female. The coefficients presented are in unstandardized form. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2. Results of Moderated Indirect Effects of Facebook Group Participation on Civic Participation through Perceived Tie Strength by Co-Participation in Study 1.

Moderator: Co-participation	Effect	SE	*P*	95% LLCI/ULCI
2	.044	.048	.363	[−.051, .139]
3	**.142**	**.049**	**.004**	**[.045, .239]**
4	**.239**	**.076**	**.002**	**[.090 .389]**
	Effect	Boot SE		Boot LLCI/ULCI
2	.007	.007	-	[−.007, .020]
3	**.022**	**.009**	**-**	**[.006, .040]**
4	**.037**	**.015**	**-**	**[.009, .069]**

Note. *n* = 369. The upper pane presents the moderation effects, and the lower pane presents the conditional indirect effects. The moderator values presented are in the 16th, 50th, and 84th percentiles. The values in boldface indicate significant effects.

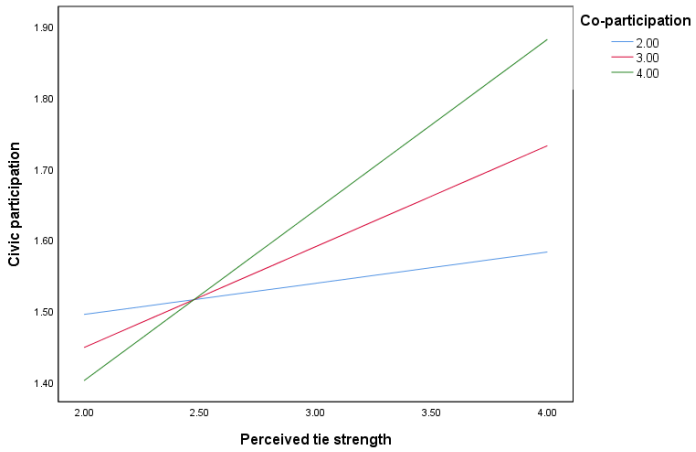

Figure 3. The results of the interaction effect between perceived tie strength and co-participation on civic participation.

The CIT literature suggests that community residents with higher ICSN are more likely to equip themselves with resources to broaden their perspectives beyond the original community (Kim & Kim, 2021). In support of the CIT literature, the results from Study 1 showed that members' participation in Facebook collective action groups was positively related to their engagement in civic participation beyond the group, and this relationship happened through increased perceived tie strength within the group.

Collective action groups can also impact the broader environment (Smith, 1999), for example, by providing human and financial resources that help community development. Nonetheless, there is a lack of systematic examination of how SM group participation is related to the accomplishment of different types of group impacts, and how the context in which group participation is embedded may enable or constrain group impacts. Addressing these issues, this study further examines how Facebook group participation relates to different types of group impacts and how group contexts influence this relationship.

Involvement in voluntary groups can benefit members and society (Dekker & van den Broek, 1998). Participation in online collective action groups is associated with the generation of internal and external impacts (Lai & Katz, 2016), with the former referring to the positive impact on the members and the latter the positive impact on the society beyond the group (Smith, 1999). As such, I hypothesize:

H4: Levels of participation in Facebook collective action groups are positively related to levels of (a) perceived internal impact and (b) perceived external impact.

Participation in voluntary groups helps expand individuals' network ties, which enables the development of social trust, motivates civic engagement, and subsequently facilitates social integration and the accomplishment of collective action at the societal level (Putnam, 1995; Wollebaek & Selle, 2002). In online collective action groups, participation often comes with the change of member network structure (e.g., effective network size; Shen & Cage, 2015), which may in turn shape group outcomes. Research on non-group use of SM has shown that SM network size predicts online civic participation (Yang & DeHart, 2016), and the proportion of strong ties in one's SM network mediates the relationship between SM use and political participation (Lu et al., 2018). In Facebook collective action groups, it is thus possible that if members participate in group activities, they are more likely to report that they know more people (i.e., a larger network size) within the group, which enhances their perceptions that the group could generate positive impacts for members as well as for the broader society (e.g., promoting public interest in a leisure activity).

H5: Levels of participation in Facebook collective action groups are positively related to perceived network size within the group, which in turn predicts increased levels of (a) perceived internal impact and (b) perceived external impact.

Building on the CIT literature (Ball-Rokeach et al., 2001; Nah & Yamamoto, 2019), I argue that, in addition to co-participation, the way a group operates serves as a CAC in which group participation and member networks are situated. Activities that foster member interaction represent internally oriented group operations, while those that broaden members' perspectives and networks are externally oriented group operations (Lai & Katz, 2016). These group operations can determine the formation of member network ties within and beyond the group, which may in turn influence members' assessment of group impacts. In fact, in political communication, the interaction between discussion networks (e.g., network centrality) and group contexts (e.g., group leaning or group size) influences members' political participation (Song & Eveland, 2015). In light of this, I hypothesize:

H6: The indirect relationship between levels of participation in Facebook collective action groups and perceived internal impact through perceived network size within the group varies by (a) internal group operation and (b) external group operation.

H7: The indirect relationship between levels of participation in Facebook collective action groups and perceived external impact through perceived network size within the group varies by (a) internal group operation and (b) external group operation.

Study 2

Method

To further delve into the mechanisms that are at play in influencing the participatory outcomes of Facebook collective action groups, I conducted Study 2. The data used came from the Digital Media Audience Project, which is an annual survey that focuses on Taiwanese college students' digital lifestyles. The survey was conducted from October 12 to November 23, 2018, with a final sample size of 893. The average respondent was aged 21.748 (*SD* = 3.476), and 40.4% were men. Using the same question in Study 1 about group membership on Facebook, more than 75% of the participants in Study 2 reported that they had participated in a Facebook group or fanpage (n = 684). Below are detailed explanations of the measures.

Perceived Group Impacts

Two questions asked respondents whether, on a 5-point scale (from 1 = strongly disagree to 5 = strongly agree), they thought their preferred Facebook groups or fanpages impacted their members and the public/society (Smith, 1999), which corresponded to the *perceived internal* (*M* = 3.37, *SD* = .981) and *perceived external impacts* (*M* = 2.91, *SD* = 1.057).

Facebook Group Participation

Focusing on their preferred Facebook groups or fanpages, respondents reported different group participation activities that had been performed in the past three months on an 8-point scale (from 1 = never to 8 = several times a day). Principal component factor analysis with varimax rotation was conducted, with two groups of classification accounting for 68.997% of the variance. The first group represented passive participation, which comprised reading and reacting (e.g., using "like" or emojis) to group posts (r = .482, p <.001, *M* = 5.291, *SD* = 1.715). The second group represented active participation, including four items: attending face-to-face group activities, replying to group posts, sharing group posts, and posting on the group page (α = .788, *M* = 2.561, *SD* = 1.506). As in Study 1, an index of group participation was created by multiplying these two variables, and the square root of the values was obtained (*M* = 3.549, *SD* = 1.387).

Perceived Network Size Within the Group

Perceived network size was measured by asking respondents to report, in the Facebook group or fanpage in which they most actively participated, how many people in the group they knew on a 5-point scale (1 = none of them, 2 = some of them, 3 = half of them, 4 = many of them, 5 = all of them; *M* = 2.03, *SD* = 1.081).

Group Operation

Focusing on their preferred Facebook groups or fanpages, the respondents reported the internal and external dimensions of group operation. *Internal group operation* focused on how often the group was active in maintaining relationships among members (*M* = 2.34 *SD* = 1.022). *External group operation* was

assessed by the extent to which the group had connected or interacted with other groups or fanpages online (e.g., cross-promoting activities on each other's group page) and the extent to which the group organized offline activities with other organizations (r = .580, p < .001, M = 2.364, SD = .848). All items were rated on a 4-point scale (from 1 = never to 4 = often).

Controls

Similar to Study 1, several media use and participatory factors were included as controls. Given that Instagram and LINE are popular SM platforms in Taiwan (Statista, 2022), especially among young people, I included the use of these media as controls. In addition to Facebook (M = 13.136, SD = 15.256), I asked respondents to report the time (hours) spent weekly using Instagram (M = 15.525, SD = 18.289) and LINE (M = 14.887, SD = 18.471). In addition, they reported the number of Facebook groups or fanpages in which they had actively participated (i.e., reading or responding to group posts at least once a month; M = 5.649, SD = 12.707). A square root transformation was performed for this variable (M = 1.959, SD = 1.347). Given the homogeneity of the young adult sample in Study 2, only age and sex were controlled as demographic variables.

Data Analysis

H4–H7, including the investigation of indirect and moderated indirect effects, were tested using OLS regression models and a customized version of Process Macro. Similar to Study 1, 5,000 bootstrapped samples were used to assess indirect effects.

Results

The results showed that Facebook group participation was positively related to perceived internal impact (B = .149, SE = .032, p <.001) and external impact (B = .159, SE = .035, p <.001; see Table 3). Thus, H4a and H4b were supported. Perceived network size within the group significantly mediated the relationship between group participation and perceived internal impact (Effect = .041, Boot SE = .015, Boot 95% CI = [.013, .073]). Hence, H5a was supported. H5b was not supported because the mediating relationship between group participation and perceived external impact through perceived network size was significant, but in a negative way (Effect = −.044, Boot SE = .017, Boot 95% CI = [−.079, −.011]). The indirect relationship between group participation and perceived internal impact was not moderated by either internal or external group operation (Index = .013, Boot SE = .015, Boot 95% CI = [−.018, .042]; Index = −.015, Boot SE = .015, Boot 95% CI = [−.043, .014]). Hence, H6a and H6b were not supported.

Meanwhile, the indirect relationship between group participation and perceived external impact was not moderated by internal group operation (Index = −.005, Boot SE = .015, Boot 95% CI = [−.034, .029], but varied by external group operation (Index = .044, Boot SE = .018, Boot 95% CI = [.006, .076]). Thus, H7a was not supported, while H7b was supported. As seen in Table 4 and Figure 4, the negative indirect relationship between group participation and perceived external impact through perceived network size was more substantial among those belonging to groups that had fewer opportunities to collaborate with other groups or organizations.

Table 3. Results of OLS Models Predicting Perceived Group Impacts in Study 2.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Perceived network size within the group	Perceived internal impact	Perceived external impact	Perceived internal impact	Perceived external impact	Perceived internal impact	Perceived external impact
Age	−.001(.012)	.004(.013)	.002(.015)	.003(.013)	.000(.014)	.003(.013)	.002(.014)
Gender[a]	.135(.078)	.134(.081)	**.220(.090)***	.127(.078)	**.191(.086)***	.125(.078)	**.192(.085)***
Facebook use	−.002(.003)	.004(.003)	.005(.003)	.004(.003)	.004(.003)	.004(.003)	.003(.003)
# of Facebook collective action groups	−.039(.029)	**.081(.029)****	**.113(.032)*****	**.076(.028)****	**.102(.030)****	**.075(.028)****	**.107(.030)*****
Instagram use	-	**−.005(.003)***	.002(.003)	**−.005(003)***	.003(003)	**−.006(.003)***	.004(.003)
LINE use	-	−.004(.003)	−.003(.003)	−.004(.003)	−.003(.003)	−.004(.003)	−.004(.003)
Facebook group participation	**.364(.028)*****	**.149(.032)*****	**.159(.035)*****	.063(.033)	**.089(.036)***	.064(.034)	**.073(.037)***
Perceived network size within the group	-	**.114(.039)****	**−.122(.043)****	**.078(.039)***	**−.100(.043)***	.076(.116)	**−.358(.127)****
Internal group operation		-	-	**.197(.043)*****	−.069(.047)	.125(.086)	−.037(.094)
External group operation	-	-	-	**.178(.049)*****	**.395(.054)*****	**.264(.100)****	.139(.109)
Perceived network size X internal group operation	-	-	-	-	-	.037(.040)	−.013(.043)
Perceived network size X external group operation	-	-	-	-	-	−.041(.042)	**.122(.045)****
F	34.413	9.727	5.977	13.729	10.666	11.533	9.676
Sig.	.000	.000	.000	.000	.000	.000	.000
R^2	.207	.121	.078	.196	.159	.198	.171

Note. n = 574. [a] The coding category is 1 = male and 2 = female. The coefficients presented are in unstandardized form.
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. Results of Moderated Indirect Effects of Facebook Group Participation on Perceived External Impact through Perceived Network Size by Group Operation in Study 2.

Moderator: Internal group operation	Moderator: External group operation	Effect	SE	*p*	95% LLCI/ULCI
1	**1.5**	**–.189**	**.080**	**.019**	**[–.346, –.032]**
1	2.5	–.067	.089	.449	[–.241, .107]
1	3	–.006	.100	.951	[–.203, .191]
2	**1.5**	**–.202**	**.058**	**.001**	**[–.315, –.088]**
2	2.5	–.079	.055	.145	[–.187, .028]
2	3	–.019	.066	.773	[–.149, .111]
3	**1.5**	**–.214**	**.064**	**.001**	**[–.339, –.089]**
3	**2.5**	**–.093**	**.044**	**.034**	**[–.178, –.007]**
3	3	–.032	.049	.512	[–.127, .064]
		Effect	Boot SE		Boot LLCI/ULCI
1	**1.5**	**–.068**	**.031**		**[–.129, –.013]**
1	2.5	–.024	.032		[–.089, .034]
1	3	–.002	.036		[–.075, .063]
2	**1.5**	**–.073**	**.023**		**[–.121, –.029]**
2	2.5	–.029	.020		[–.069, .009]
2	3	–.007	.023		[–.054, .037]
3	**1.5**	**–.077**	**.025**		**[–.125, –.024]**
3	**2.5**	**–.033**	**.016**		**[–.066, –.002]**
3	3	–.012	.018		[–.048, .022]

Note. *n* = 574. The upper pane presents the moderation effects, and the lower pane presents the conditional indirect effects. The moderator values presented are in the 16th, 50th, and 84th percentiles. The values in boldface indicate significant effects.

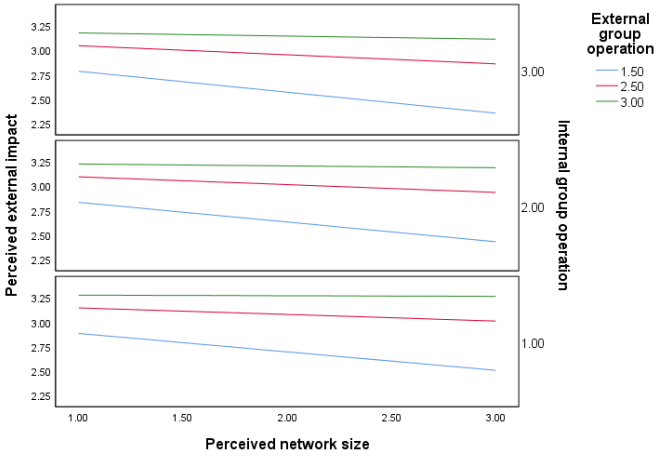

Figure 4. The results of the interaction effect between perceived network size and external group operation on perceived external impact.

General Discussion

Driven by the need to advance a more comprehensive understanding of contemporary collective action groups in the era of SM, this study draws on the ecological model of CIT to examine the mechanisms and outcomes of participation in Facebook collective action groups. Specifically, this study unpacks the roles of member network relationships and the group contexts in which group participation and member networks are embedded. I further explain the implications of the findings below.

Existing CIT research has demonstrated the effects of passive and active uses of SM for community matters in facilitating online and offline civic participation (Choi et al., 2021; Nah et al., 2022). Following this line of work, this study explores the effects of Facebook group participation on two types of participatory outcomes: civic participation and perceived group impact. The results show that group participation has no direct effect on civic participation; instead, group participation is only positively related to civic participation indirectly through perceived tie strength within the group. At first, this may seem to contradict existing research showing a direct and positive relationship between participation in Facebook groups and civic participation (Bouchillon, 2019; Conroy et al., 2012; Park et al., 2009).

However, further inspection shows that these extant works mostly measured group participation without considering members' involvement in different forms of participation. Conversely, this study applies CIT and examines an aggregated form of group participation that encompasses the interaction between passive and active forms of group participation. Invariably, engaging in group activities in both passive and active forms is more likely to facilitate member relationships. It is through activating communication resources from members' aggregated group participation that members enhance their relationships with one another, which then foster civic participation (Kim & Ball-Rokeach, 2006a). Together, the findings from this study suggest that strengthened relationships with other members due to group participation on Facebook may assuage concerns for those who are otherwise civically apathetic and thus motivate them to participate in civic activities (Skoric et al., 2009).

Moreover, this study goes beyond the existing research on voluntary associations or online groups/communities, which mostly focuses on the influence of multiple affiliations (Conroy et al., 2012; Kavanaugh et al., 2005) or offline group meetings on member connections and participation (Shen & Cage, 2015). It examines co-participation in a group context, which may influence group participation and participatory outcomes. The results show that individuals' participation in Facebook collective action groups is associated with increased tie strength within the group, which in turn predicts a higher level of civic participation. This pattern occurs especially with those who coparticipate with more members of other Facebook groups. This finding echoes CIT's proposition concerning the moderating role of CACs in influencing civic outcomes (Kim & Ball-Rokeach, 2006b; Nah & Yamamoto, 2019). Accordingly, this study advocates the consideration of member participation migrated or extended to other groups as an important factor in theorizing civic outcomes of SM use in the collective action context.

This study also contributes evidence to the existing research on online collective action groups (Lai & Katz, 2016) by examining how the interplay among group participation, membership network relationships, and group operation influences group impacts. First, the results reveal direct and positive relationships between group participation and perceived group impacts (both internal and external). This suggests that equal

investment in passive and active expressive uses of Facebook for group participation is sufficient to enhance individuals' perceptions of group impacts on members and society. Second, while group participation is indirectly related to perceived internal impact through a positively perceived network size, group participation is indirectly related to perceived external impact through a negatively perceived network size. The latter is due to the negative relationship between perceived network size and perceived external impact.

The analysis of the data shows that, for the Facebook group or fanpage in which they most actively participated, 32% of the respondents reported learning or professional knowledge-related groups, followed by the groups driven by common interests in celebrities (13.5%) and shopping (12.8%). In these leisure- and learning-driven voluntary groups, building connections with other members may be more important for gratifying member needs but less important for generating broader societal impacts. Hence, knowing more people from the group may reduce members' perception that the group can benefit society.

Third, the data reveal that neither internal nor external group operation influences the indirect relationship between group participation and perceived internal impact through perceived network size. However, external group operation moderates the indirect relationship between group participation and perceived external impact. A higher level of group participation is indirectly related to a decreased level of perceived external impact through an increased perceived network size within the group, particularly among those who participate in groups that have fewer opportunities to collaborate with other entities. Thus, if groups have more activities reaching out to other groups or organizations, this would, to some extent, assuage the negative effect of perceived network size within the group on perceived external impact.

Indeed, Facebook provides an avenue for expanding one's network ties and participating in voluntary groups beyond Facebook, especially for those who use Facebook to know new and different people (Bouchillon, 2019; Bouchillon & Gotlieb, 2017). Hence, group operations that broaden members' social horizons are helpful for changing their perception of group impact on society. In sum, these findings suggest that when evaluating participatory outcomes for members, the type of group operation plays a minor role; however, when assessing participatory outcomes beyond the group at the societal level, it is more valuable to examine group activities that can extend members' social experiences rather than those that focus on strengthening internal relationships.

Theoretical Implications

This study presents theoretical contributions. First, this study complements the existing research on civic outcomes of individuals' relational or general uses of SM (Gil de Zúñiga et al., 2014; Yu & Lai, 2022), including those that empirically test the mediating and moderating effects of interpersonal networks (Kahne & Bowyer, 2018; Kim & Kim, 2022). It does so by referencing CIT (Kim & Ball-Rokeach, 2006a, 2006b) and the literature of traditional voluntary associations and online groups (e.g., Farrow & Yuan, 2011; Smith, 1999), as well as by considering Facebook use for participating in different voluntary groups, not limited to political ones. Findings confirm the direct and indirect effects of group participation on different participatory outcomes through member networks. As a result, this study provides an alternative approach to theorize how general SM use in the collective action context may facilitate citizenship. It also opens up a new area of inquiry into exploring the various participatory outcomes of SM use for individuals and society.

Second, an important debate among online groups is the extent to which members' strengthened interpersonal relationships may come at the expense of group sustainability (Sessions, 2010; Shen & Cage, 2015). Focusing on Facebook collective action groups, this study delves into the links among group participation, member networks, group contexts in the form of co-participation and group operation, and group outcomes. Findings reveal the differential mediating effects of member networks on different group outcomes, depending on the extent of members' co-participation in other groups and group operations that aim to collaborate with other entities. As such, this study evidences the utility of employing an ecological approach to advance the understanding of the mechanisms conducive to the generation of group outcomes. It also calls for a more nuanced examination of the group contexts that enable (or constrain) the realization of communication and the social resources acquired from group participation and member relationships alongside the resulting group outcomes.

Conclusion

This study has several limitations that suggest directions for future research. Due to the constraints of secondary data, this study measured group participation in terms of active and passive forms of participation, but the detailed measurements were slightly different between the two data sets. This study also failed to include other elements of storytelling networks that are relevant to Facebook collective action groups, for example, the intensity of member interaction in group matters and connections to other storytelling agents (e.g., news media on Facebook). Furthermore, it does not exhaust the investigation of diverse forms of group contexts, such as group competence, leadership networks (Lai & Katz, 2016), and diverse internal and external group operations. It is worth exploring how member interaction within and beyond the group and participation in group activities are conditioned by the extent to which leaders can acquire tangible and intangible resources for group sustainability. As such, it could yield further insights into the mechanisms and effects of participation in collective action groups on SM.

Relatedly, while CIT considers different civic and community outcomes (e.g., neighborhood belonging and collective efficacy; Nah et al., 2022), this study only focuses on two types of participatory outcomes. Building on the proposed models of this study, future inquiry should explore different types of outcomes, such as group cohesion (Shiue, Chiu, & Chang, 2010). Moreover, cross-sectional data prevent us from making causality claims. It is possible that group participation and civic participation/perceived group impacts may influence one another. Future research should conduct a longitudinal examination of the content of interaction in specific Facebook collective action groups to identify the interplay between the motivating mechanisms of group participation and participatory outcomes. Lastly, this study is based on data collected in Taiwan. Cross-country comparisons will advance a fuller understanding of the disparities and contextual factors that may enable and constrain the participatory experience of SM and citizenship.

Despite these limitations, this study enriches the existing literature on SM and civic participation by focusing on collective action groups on Facebook. Specifically, building on CIT, this study employs an ecological perspective to examine how participation in Facebook collective action groups predicts different types of participatory outcomes. Based on the analysis of the two samples, the data reveal that group participation has only an indirect effect on civic participation through perceived tie strength within the group. Moreover, if members coparticipate with more members of other Facebook groups, their group participation

would strengthen tie building with other members, which would in turn increase their motivation to engage in civic activities beyond the group.

Meanwhile, group participation has both direct and indirect effects on perceived group impact through the perceived network size within the group. However, while increased connections within the group are positively associated with the perception of internal impact, these connections are negatively related to perceived external impact. If members belong to groups that attempt to broaden their perspectives and social horizons by collaborating with other entities, however, they will see a reduced extent of this negative pattern. In sum, the findings of this study highlight the importance of considering member networks and group contexts, which may influence how group participation functions and how individuals and society may benefit from SM use in the collective action context.

The emergence of numerous collective action behaviors has created new opportunities and challenges for engaging citizenship. Theorization and empirical evidence are needed to keep pace with these changes and unpack the motivators, processes, and consequences of contemporary collective behaviors, especially those enacted on SM. Building on CIT, this study contributes an ecological perspective to understanding one form of contemporary collective action behavior: collective action groups on Facebook. More research should examine the differences underlying SM use and citizen engagement at the individual and collective levels.

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