

SOCIAL MOVEMENT PARTICIPATION OVER TIME: AN EGO-NETWORK APPROACH TO MICRO-MOBILIZATION*

D. B. TINDALL

University of British Columbia

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This study focuses upon the relationship between personal networks and the participation of individuals in a social movement over time, a rarity in the social movement literature, which has mostly used cross-sectional designs to explore this topic. Objectives of the research include empirically documenting some of the mechanisms that underlie the effects of network ties on social movement participation, examining the explanatory power of an ego-network model of individual participation in social movements over time, and examining whether network effects on activism are spurious, once past activism is controlled. Data were collected through two waves of a panel survey administered to members of three formal environmental organizations in Victoria, British Columbia in 1992 and 1998. These organizations were central to the British Columbia wilderness preservation movement. Multiple regression and path analysis are utilized to examine the relative importance of network degree versus network range, as well as frequency of communication and level of movement identification, for explaining level of social movement participation. Results show distinct effects of network degree, network range, communication, and identification on level of activism. An additional finding is that network (and network process) variables have effects on new activism that are independent of the effects of past activism. A theoretical discussion considers the implications of the stage of the cycle of protest and biographical availability in influencing these processes.

Social movements are collectivities of people who are engaged in trying to create or resist social change. Social movement organizations (SMOs) — organizations dedicated to fostering social change that may vary in the degree to which they are formalized and institutionalized — are key actors in contemporary social movements (McCarthy and Zald 1977). While there are many different types of social movements, social movement organizations, and social movement strategies, the success of SMOs is related to the extent to which individuals and groups mobilize to support them.

The participation of individuals and groups is important for several reasons. First of all, SMOs need a critical mass of resources in order to continue to exist and operate. Second, in order for SMOs to be effective in liberal democracies, governments

* Direct correspondence to D. B. Tindall, Department of Anthropology and Sociology, University of British Columbia, 6303 NW Marine Drive, Vancouver, BC, Canada, V6T 1Z1. E-mail: tindall@interchange.ubc.ca. This research was supported by the Social Sciences and Humanities Research Council of Canada. I would like to thank the following people for their help with this project: Bonnie Erickson, Barry Wellman, John Hannigan, Bob Brym, Kerri Lynn Bates, Noreen Begoray, Mario Diani, Doug McAdam, Brian Doherty, Stephen Baron, Rima Wilkes, Gerry Veenstra, Bob Ratner, Sean Lauer, Chrisian Joppke, and the anonymous referees of this article.

and other key actors have to be convinced that a substantial proportion of the population supports the beliefs and goals of the SMO. SMOs can foster the perception of widespread support by having members and supporters attend demonstration rallies, write letters to the editor, sign petitions, and attend community-based meetings.

Among contemporary social movements in Canada, one of the most visible and effective has been the environmental movement. This article explains individuals' participation in the British Columbia environmental movement by focusing on the role of social networks.

This study addresses three issues: First, a variety of authors (e.g., Diani 2003; Gould 2003; McAdam 2003) have noted that while network effects on social movement participation have been well documented empirically, there has been relatively little work on identifying, especially empirically, the mechanisms that underlie such network effects. Second, the nature of social movement participation is thought to change over time (Friedman and McAdam 1992). Movements are often thought to have cycles of protest, or even life stages and life cycles. However, there is a dearth of research systematically examining networks and participation over time or how this relationship is affected by temporal factors. Third, even though the relationship between network ties and social movement participation has been well documented, I examine whether network effects are merely an outcome of past activism and have no bearing on current or future activism. For example, a number of scholars have suggested that one of the most potent predictors of future activism is past activism.

This study sets out to address these knowledge gaps by (1) identifying and measuring some of the key network-based processes that mediate the relationship between personal (ego) network structure and the participation of individuals in social movements; (2) examining the applicability of a network-centrality model of low-cost activism to the social movement participation of individuals over time; and (3) examining whether the effect of past activism on current activism is direct or indirect.

SOCIAL NETWORKS AND INDIVIDUAL PARTICIPATION IN SOCIAL MOVEMENTS

There are two basic perspectives on network analysis: whole networks (or bounded groups) and personal (or egocentric) networks. Studies tend to focus on one or the other, and the present study focuses upon the movement-based personal networks of wilderness preservation movement members.

NETWORK CENTRALITY

Network centrality is one of the most important concepts developed by social network scholars. The more central an actor, the greater is the degree of his or her involvement with others in a social network. A variety of centrality measures have been developed corresponding to different theoretical and analytical aims (Freeman 1979). Measures that focus upon a single unit or node (e.g., a single individual within a group, or a single group within an intergroup network) are referred to as *indicators of point centrality*. Measures that focus on the overall pattern of an entire social net-

work are referred to as *measures of centralization*. The research described here focuses on personal or egocentric networks and thus utilizes measures of point centrality.

NETWORK DEGREE VERSUS NETWORK RANGE

The simplest conception of centrality is one that is based on degree (Freeman 1979). The degree of a point is calculated by counting the number of other points that are adjacent to it and with which it is in direct contact. Degree is an indicator of an individual's potential communication activity and thus theoretically influences social movement participation in several ways. It is expected that degree centrality will be positively associated with frequency of interaction, amount of information flow, and level of social pressure to participate. One degree measure is investigated here: the total number of ties to other people in one's social movement organization (SMO).

Another distinction made by network analysts (Burt 1980) is between *network degree* (total number of direct ties) and *network range* (the number of different social locations or groups to which one is connected). Network range has been used as a measure of social capital with the argument that network diversity is positively associated with cognitive complexity, cultural capital, and social mobility (Pinard 1971; Lin and Dumin 1986; Coleman 1988; Erickson 1996).

Why is the distinction between degree and range important? Degree is associated with *frequency* of interactions, which is important in the processes of information dissemination, social pressure, and attitude formation. Range is important for diversity of interactions, which is associated with the variety of information one receives. While many scholars have focused upon the relationship of network degree and/or network range indicators to social movement participation, no one has systematically compared the direct and indirect effects on network degree versus network range on low risk/cost individual activism over time (Oliver 1984; Fernandez and McAdam 1988; McAdam 1989; Diani 1995; Erickson Nepstad and Smith 1999; Kitts 1999). The aim of this article is to do so.

Network Range and Social Movement Participation

Social movement scholars who have examined the effects of network range (or the number of organization memberships/ties) on social movement recruitment/participation have found positive associations between these two variables (e.g., Fernandez and McAdam 1988). An individual who has ties to people from different organizations is more likely to have face-to-face contact with a range of people who may provide varied information, opinions, and evaluations about movement issues and events. Also, the greater the number of different organizations to which a movement member belongs, the greater the diversity of information he or she will receive through other modes (e.g., newsletters). The distinction between these two types of range measures is particularly relevant under conditions of low to medium risk/cost activism because it is possible that people will be influenced to participate through impersonal modes of communication alone (such as newsletters) whereas personal contact is likely necessary to affect participation in high risk/cost activism (Wiltfang and McAdam 1991).

Network Structure and Network-Based Processes

Network structures do not directly cause collective action to occur. Rather, such structures condition the nature of interpersonal interaction, influence, and resource flows among potential participants. While theoretical work has focused on a number of possible intervening mechanisms, most prominent amongst these has been incentives (Marwell et al. 1988; Friedman and McAdam 1992; Gould 1993). However, empirical work has generally failed to measure intervening mechanisms (Tindall and Wellman 2001). In the low to medium risk/cost activism studied here, two intervening processes are examined: communication and level of identification.

Identification, Communication, and Movement Participation

The importance of identity to collective action has been noted by numerous social movement scholars (e.g., Melucci 1988; Klandermans and de Weerd 2000; Snow and McAdam 2000; Stryker 2000; White and Fraser 2000). Surprisingly, however, little empirical research has explored the importance of movement identification to individual activism or the relationship between movement identification and personal network structure. (See McAdam and Paulsen 1993 for an exception.)

I argue that the greater one's embeddedness (i.e., network range) into the movement through personal network ties, the greater will be an identification with the movement. There are a variety of mutually reinforcing processes at work. Movement values and attitudes predispose individuals to join a movement and are then reinforced through interaction in movement-based networks, in conjunction with the process of identification. The larger and more diverse one's personal network, the more opportunities there are to make social comparisons with others' values, opinions, and activities, and such social comparisons are implicated in people accepting a social movement as being a positive reference group with which to identify (Gartrell 1987). The reasons for this include the "socialization" and "social comparison" functions (Passy 2003). There are a variety of other possible processes also at work, but the present model will be confined to considering the above arguments.

THEORETICAL MODEL, HYPOTHESES, AND ANALYTICAL STRATEGY

STRUCTURAL VARIABLES AND SOCIAL MOVEMENT PROCESSES

Researchers have examined the relationship of structural variables (e.g., class location, existence of a social movement organization network contact, prior organizational affiliation) to attribute variables (e.g., education, age, level of ideological support for the movement), and how both of these are related to recruitment (McAdam 1986; Klandermans and Oegema 1987). However, scholars who have conducted empirical research on the relationship between social networks and the participation of individuals in social movements (e.g., Kitts 1999) have not measured the processes that intervene between network structure and movement participation but rather have conjectured (based on the theoretical literature) and inferred underlying mechanisms from the observed relationships between structure and participation. I

endeavor to advance our understanding of the relationship between personal networks and movement participation by examining the role that network-based processes play in mediating the relationship between personal network structure and social movement participation amongst individuals.

Current activism is a function of past activism (McAdam et. al. 1988; McAdam 1989). Yet, it is maintained here that logically some intervening processes must exist between past activism and current activism. By developing an ego network-social psychological model of individual participation, the present study provides systematic, detailed analysis (using identical measures) on both people's personal networks and their participation in movement activities over time. This allows an examination of the relative importance of the effects of different factors upon ongoing social movement participation and to examine change versus stability of key factors — network degree versus network range — over time.

AN EGO NETWORK-SOCIAL PSYCHOLOGICAL MODEL OF INDIVIDUAL PARTICIPATION IN LOW-MEDIUM COST SOCIAL MOVEMENT ACTIVITIES

Based on the literature above, Figure 1 is a model that hypothesizes how ego networks are related to communication, identification, and ongoing low risk/cost activism in the social movement micromobilization process. This model is motivated by the aforementioned literature and by earlier empirical research by the author (Tindall 2002). The core of the theoretical argument is illustrated in the left side of Figure 1, by the paths leading to activism at Time 1. The hypotheses are summarized below:

H1: The greater one's network degree, the higher the frequency of communication.

The model implies that communication has both a direct and an indirect influence on activism. Information and knowledge partly underlie the positive relationship posited between frequency of communication and level of activism. The more often individuals discuss movement events and issues with others, the more informed and knowledgeable they will become. As people become more knowledgeable about events and issues, they become more likely to participate in movement activities.

H2: The greater the participants' frequency of communication, the higher their level of activism.

As Goffman (1967) and Collins (1981) have demonstrated, frequent conversations between individuals in small groups can serve as interaction rituals that help to shape and reinforce group identities. Thus,

H3: The greater one's frequency of communication, the higher the level of identification with the movement.

Based on the literature and previous research, network range and movement identification are also hypothesized to have distinct effects. Hence,

H4: The greater one's network range, the higher the level of identification with the movement.

H5: The higher one's level of identification with the movement, the higher the level of activism.

The model implies that there will be differential effects of "potential frequency of interaction" versus "potential diversity of interaction." While the model identifies some intervening mechanisms (communication, identification) it assumes that some unmeasured processes (e.g., amount and diversity of information, social pressure)

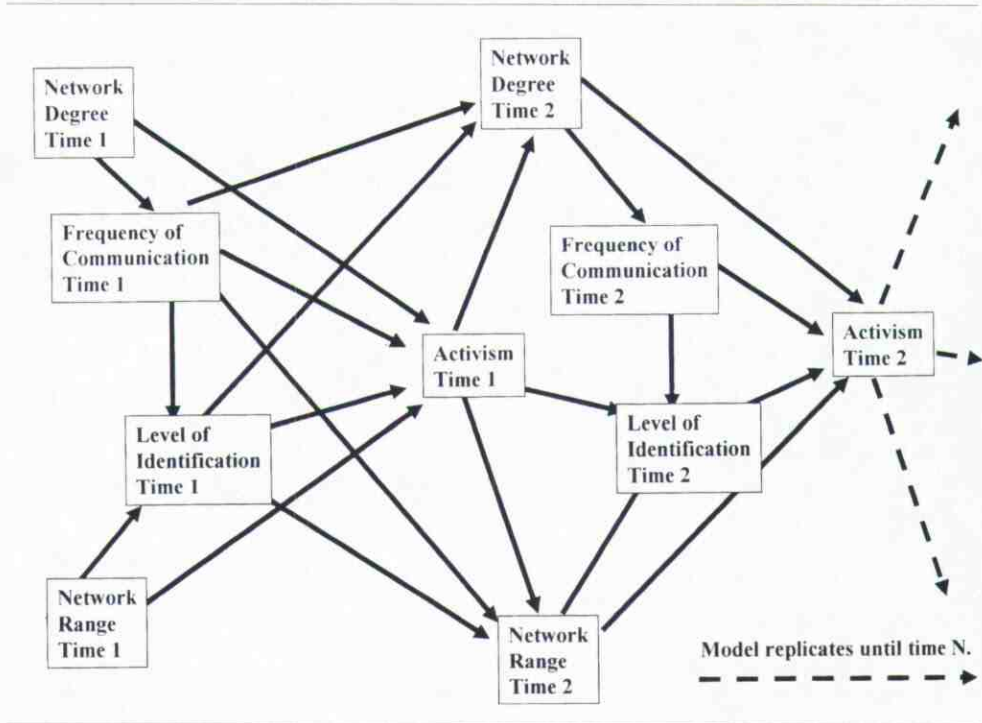
take place through network ties, and thus the direct effects are retained in the theoretical mode. Hence,

H6: The greater one's network degree, the higher the level of activism.

H7: The greater one's network range, the higher the level of activism.

FIGURE 1

AN EGO NETWORK-SOCIAL PSYCHOLOGICAL MODEL OF INDIVIDUAL PARTICIPATION IN LOW-MEDIUM COST SOCIAL MOVEMENT ACTIVITIES OVER TIME



RECIPROCAL INFLUENCES: NETWORK-BASED PROCESSES OVER TIME

Many of the proposed relationships between variables in the model are likely to be reciprocal over time, especially *vis á vis* the relationship between level of activism and other variables. These reciprocal influences are shown in the center-right section of the diagram. While the main network argument is that the greater participants' network degree and network range, the more active they will become, it is also the case that the more active individuals are, the more ties they will make to other members of their SMO, as well as to members of the movement more generally. Thus, activism Time 1 is seen as having direct effects upon network degree and network range at Time 2.

Also, while it is argued that level of identification with the movement has a direct effect on one's level of activism, it is also the case that people may identify with the movement in part based on their prior participation (Bem 1972). Thus, activism Time 1 is seen to have a direct effect on level of identification at Time 2.

After these reciprocal effects are introduced, the original relationships shown in the left side of the model are reproduced on the right side of the model (e.g., Time 2 network degree has direct effects on Time 2 frequency of communication, and Time 2 activism, and so forth).

The far right portion of the figure shows three arrows with dashed lines. These are meant to indicate that the model replicates itself until Time N (e.g., activism Time 2 has a direct effect upon network degree Time 3, and so on). Because there has been relatively little research done on change over time regarding the relationship between ego network characteristics and activism, and there are contradictory theoretical arguments about the nature of change, no specific hypotheses about change are offered here. Rather, the analysis of change, while guided by theory, will be primarily descriptive.

THE EFFECT OF PAST ACTIVISM ON CURRENT ACTIVISM

Prior social movement research has suggested that past activism is one of the strongest predictors of current activism (McAdam et. al. 1988; McAdam 1989). As noted earlier, while there is empirical support for this proposition, it cannot theoretically be the case that past activism has a direct effect on current activism. There must be some intervening mechanism(s). Figure 1 suggests that network degree, network range, frequency of communication, and level of identification intervene between past activism (activism Time 1) and current activism (activism Time 2).

If the intervening variables identified (between activism Time 1 and activism Time 2) really do have causal effects on activism Time 2, then these effects should be net of any effects of activism Time 1 upon activism at Time 2. Hence,

H8: The effects of the network and social psychological variables upon activism at Time 2 will be net of the effects of activism at Time 1.

In accordance with the theoretical argument provided here, there should be no direct effect of activism Time 1 upon activism Time 2. Nevertheless, the possibility of such a direct effect will be investigated in the regression analyses that follow.

As will be discussed below, the data collected for the first wave of this study occurred near the peak of a cycle of protest, while the data for the second wave occurred in a valley in the cycle of protest (Tarrow 1994). Based on this information, we might expect the scores for the variables in Figure 1 to decrease over time. This issue will be considered in the discussion.

The concept of "biographical availability," discussed by McAdam (1986), is also relevant to consideration of change over time. Biographical availability refers to personal constraints that may increase the costs and risks of movement participation (e.g., full-time employment, marriage, and family responsibilities). These tend to be associated with one's status in the life course. In regard to the present study, during the time period between the two data collection periods, participants may have entered new life course stages, which may affect their biographical availability and hence affect their level of activism (as well as the other variables identified in Figure 1). Thus, the scores for the variables in Figure 1 may either increase or decrease in response to changes in people's level of biographical availability. Biographical availability is not directly measured in this study but will be considered in the discussion.

THE STUDY CONTEXT: THE BRITISH COLUMBIA WILDERNESS PRESERVATION MOVEMENT

British Columbia is home to a substantial proportion of the world's remaining old growth, temperate rainforests. These forests are highly valued by a variety of stake-holders, including aboriginals, nature lovers, and forest-industry workers. In recent years a number of disputes have arisen over the plans of forestry companies to log old growth rain forests on western Vancouver Island. During the late 1980s and the 1990s, environmental groups lobbied to have a number of these old growth forests protected as wilderness areas.

The three groups focused upon in this study — the Sierra Club of Western Canada (SCWC), the Western Canada Wilderness Committee (WCWC), and the Carmanah Forestry Society (CFS) — are all formal environmental social movement organizations, and all have been central in the movement to protect and preserve old growth rainforests in British Columbia. (For more details on the movement and these organizations, see Tindall and Begoray 1993; Wilson 1998.) These groups have organized protest rallies on the lawns of the legislature in Victoria, held public meetings and public slide show presentations, sold movement-related merchandise to raise funds (e.g., t-shirts, coffee table books, posters of old growth trees) that promote wilderness conservation, lobbied bureaucrats and politicians, produced educational pamphlets, and recruited members and financial resources.

THE CYCLE OF PROTEST

The wave of environmentalist protest in British Columbia examined in this study can be argued to have begun in the late 1980s. The first survey was conducted in 1992, which was a midpoint in the intensity of the cycle of protest. The protest reached its peak in 1993, when mass civil disobedience was undertaken. The second wave of the survey was conducted in 1998, which was arguably a low point in this entire cycle of protest, as a variety of forested areas had gained park or protected area status.

METHODS

SAMPLE

This study examined members of three formal environmental organizations in Greater Victoria, British Columbia. Victoria, the capital of the province, is situated on Vancouver Island, off mainland Canada's west coast. The data examined here were drawn from two waves of a survey of participants in three British Columbia environmental movement organizations. The first wave of the survey was conducted in 1992 ($n = 381$), using a self-administered questionnaire mailed to members of the Sierra Club of Western Canada, the Carmanah Forestry Society, and the Western Canada Wilderness Committee, identified below as Group A to C. For two of the groups, a systematic random sampling procedure was employed. For the third, smaller organization, a census of members was conducted. Statistical analyses were based on an aggregate sample of all the respondents in order to build the sample size. Inter-group

comparisons revealed no substantial differences, thus offering empirical support for this strategy.

For the first wave of the survey, the response rates for the three groups were as follows: Group A, 35 percent ($n = 146$); Group B, 35 percent ($n = 64$); Group C, 11 percent ($n = 187$). While low in absolute terms, other social movement researchers have obtained similar response rates (Muller and Opp 1986; Opp 1986). As was the case for Opp and his colleagues, my focus was on theoretical relationships amongst variables, not parameter estimates for particular variables, and so I expect these relationships to hold even for samples that are not necessarily representative.

In 1998, a second wave of the survey was conducted using a telephone interview with respondents from the original survey ($n = 58$) who provided follow-up contact information. All participants contacted for the second wave of the survey agreed to participate. Analysis (not reported here) comparing the original larger sample with the smaller sample in Wave 2 suggested only minimal sample selection biases. (Details are available upon request.) Identical questions were included in the two surveys to collect data for the variables analyzed here.

MEASURES

With the exception of "new activism 1998" all of the variables utilized here have been used previously (see Tindall 2002; Tindall, Davies, and Mauboulés 2003).

DEPENDENT VARIABLES

Total (or Aggregate) Activism

Respondents were asked whether they had ever participated in each of 17 different types of movement activities. Level of activism for Time 1 was an index based on the sum of these activities, where participation = 1, non-participation = 0 for each item. The items were (1) donate money to a wilderness preservation or other environmental organization; (2) write a letter to a government official regarding a wilderness preservation issue; (3) write a letter to a newspaper regarding wilderness preservation (or forestry related issues); (4) write a letter to a logging company about a forestry (or wilderness) issue; (5) write a letter to another organization regarding a wilderness preservation issue; (6) sign a petition to preserve a wilderness area; (7) participate in trail building; (8) attend a community meeting about wilderness preservation and/or forestry; (9) attend a rally or protest demonstration on the lawns of the legislature to support wilderness preservation; (10) participate in an information campaign for the general public about wilderness preservation; (11) advertise in the media to promote wilderness preservation; (12) make a presentation to a public body about wilderness preservation and/or forestry related issues; (13) give a lecture on wilderness preservation and/or logging practices to a school group or voluntary organization; (14) participate in a press release/conference (regarding wilderness preservation and forestry-related issues); (15) serve as a representative on an advisory board formed around wilderness preservation or forestry related issues; (16) purchase a book, t-shirt, poster, mug or other merchandise from an environmental organization; (17) other activities. It was assumed that the greater the number of activities that individuals had participated in, the more active they were. Factor

analysis and reliability analysis strongly supported the creation of a general index measure of activism based on the 17 items. Cronbach's coefficient of reliability is .85 for level of activism.

TOTAL AND NEW ACTIVISM AT TIME 2

Exactly the same question was used for obtaining data on activism for Time 2 in order to reduce measurement error. (For example, it is easier to recall accurately whether or not you have ever participated in an activity than to recall accurately how many times you have participated in one.) When activism was measured in this fashion for Time 2, it became an aggregate measure of activism for the entire time period. This became a problem, however, when I wanted to assess the effects of past activism (Time 1) on total aggregate activism in time 2 because the two variables are not entirely independently measured. Thus, a second measure of new activism (estimated activism for Time 2) was also created and analyzed (see description below). Separate analyses were conducted for each of these dependent variables, allowing for the examination of whether the model was a good predictor of aggregate activism over time (total activism) and whether the same independent variables explained activism at different points in time (activism Time 1 versus estimated activism Time 2).

New Activism

New activism was the proportion of new activities that participants had participated in since 1992 (and thus is independent of prior activism). This measure provided an estimate of activism in 1998.

INDEPENDENT VARIABLES

Network Degree

Respondents were asked to estimate the total number of people they know from their organization (SMO) with whom they could hold a casual conversation.

Network Range

From a list of seven organizations involved in the wilderness preservation movement on Vancouver Island, respondents were asked to indicate whether they knew any members from these organizations and also whether they were a member of any of these organizations. The composite network range measure was calculated by adding together the range of organization ties and range of organization membership measures.

Frequency of Communication

Respondents were asked to indicate from a list of categories how often they talked with someone about wilderness preservation and other environmental issues. The categories were every day, at least once a week, at least once a month, several times a year, once a year or less often, never. The responses were then transformed to

create a ratio level variable of days per year referred to as "frequency of communication."

Level of Identification

Respondents were asked to respond to two questions about how strongly they identified themselves as a member of the wilderness preservation movement and how strongly they thought others identify them (the respondents) as members of the wilderness preservation movement. These two questions contained ordinal categories: "identify . . . very strongly as a member of the wilderness preservation movement," "identify somewhat as a member of the wilderness preservation movement," and "do not think of yourself at all as a member of the wilderness preservation movement." For each question, respondents were given a score of 2 or "identifying very strongly," 1 for "identifying somewhat," and 0 for the neutral category. The correlation between these two variables was .58, $p < .001$. These two variables were then summed to create an index score for level of identification that ranged from 0 to 4. Higher scores indicated a greater level of identification.

ANALYTICAL STRATEGY

The analysis examined the utility of the theoretical model described in Figure 1 for explaining individual social movement participation, or activism. Thus, the main dependent variable of interest is level of activism. In addition to examining the relative importance of the independent variables (identified in Figure 1) for explaining level of activism, a descriptive analysis of change over time is provided. The main analytic techniques used are multiple regression and path analysis. The path analyses address research Hypotheses 1 through 7. A separate regression equation is conducted to examine research Hypothesis 8 (whether the network effects are net of past activism).

RESULTS

CHANGES OVER TIME

Table 1 provides the mean proportion of activism for both time periods. For 1992 this is the proportion of activities (out of 17) in which respondents had participated. For 1998 this is the proportion of new activities in which participants had participated since 1992. In 1992, on average, respondents had participated in 35 percent of the total possible activities. In 1998, on average, respondents had participated in 25 percent of possible new activities, a significant decrease. This latter measure will be used as an estimate of new activism in 1998.

Table 1 provides the mean scores on the study measures for both time periods. Only the network range measure was not significant. The scores for network degree, communication, and level of identification were significantly lower while level of activism increased. For the proportion of 1992 activism, this is the proportion of activities (out of 17) that respondents had participated in. For 1998 this is the proportion of new activities that participants had participated in since 1992. In 1992, on average, respondents had participated in 35 percent of the total possible activities.

In 1998, on average, respondents had participated in 25 percent of possible new activities, a significant decrease. This latter measure will be used as an estimate of new activism in 1998.

TABLE 1
MEANS FOR NETWORK DEGREE, NETWORK RANGE, COMMUNICATION,
IDENTIFICATION, AND ACTIVISM IN 1992 AND 1998

	Mean in 1992	Mean in 1998	Significance of <i>t</i> -test
Network degree	7.19	5.00	.05
Network range	3.64	3.67	N.S.
Communication (days/year)	112.51	85.62	.05
Level of identification	2.38	2.07	.05
Level of activism	5.90	8.45	.001
Proportion of activism	.35	.25	.005

n = 58.

Two-tailed tests of significance.

MODEL PREDICTING TOTAL INDIVIDUAL ACTIVISM OVER TIME

Table 2 provides the results for two multiple regression analyses predicting level of activism, or level of participation in the movement. A path model containing the variables predicting total activism over time is presented in Figure 2. In this section only the results for direct effects upon level of activism will be described.

TABLE 2
STANDARDIZED REGRESSION COEFFICIENTS FOR MULTIPLE REGRESSION ANALYSES
EXPLAINING LEVEL OF ACTIVISM IN 1992 AND TOTAL ACTIVISM 1998

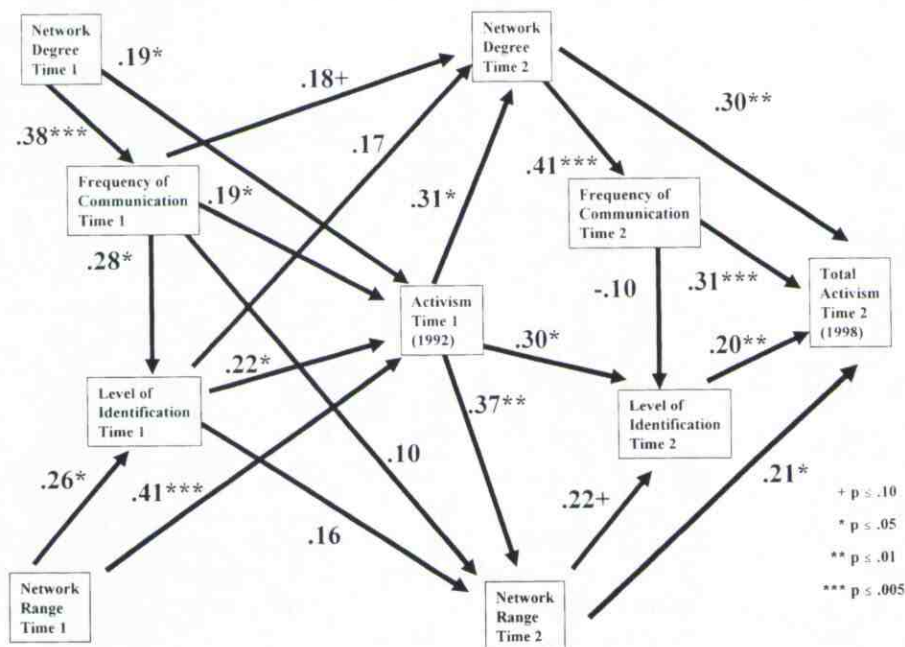
Independent Variables	Activism Time 1 (1992)	Total Activism Time 2 (1998)
Network degree	.19*	.30*
Network range	.41***	.21*
Communication	.19*	.31***
Level of identification	.22*	.20*
R^2	.50***	.50***
<i>n</i>	58	58

* $p < .05$, ** $p < .01$, *** $p < .005$

In column 1 of Table 2, all of the variables included in the model are statistically significant. Of the network structure variables, the range measure is the strongest predictor of activism and, in fact, is the strongest predictor of all the variables included in the model. Of the network-process (or social psychological) variables, level of identification is a slightly stronger predictor of activism compared with frequency of communication. These four independent variables account for a fairly substantial amount of variation in the dependent variable, level of activism (Time 1, 1992) — 50 percent.

FIGURE 2

A PATH ANALYSIS EXPLAINING TOTAL INDIVIDUAL ACTIVISM OVER TIME



In column 2, results from the Time 2 multiple regression analysis are presented that predict total activism in 1998 with similar results observed. Again, each of the standardized beta coefficients is statistically significant, though there are some changes in the relative importance of different independent variables compared with Time 1. In sum, the results of the multiple regression analyses presented in Table 1 support the hypothesized association between: activism and communication (H2), activism and identification (H5), activism and network degree (H6), activism and network range (H7). The fact that the basic pattern of results found in 1992 is replicated in 1998 provides further support for the model.

MODEL PREDICTING NEW ACTIVISM

Table 3 provides a series of multiple regression results predicting total level of activism in 1992 and new activism in 1998. As noted earlier, this new measure of activism provides an independent estimate of activism in 1998 (unlike the total activism Time 2 measure in Figure 1 and Table 2) and thus allows us to assess whether the network and social psychological effects on new activism are net of the effects of past activism.

For comparison purposes, the first column duplicates the analysis in column 1 of Table 2. Column 2 duplicates this analysis using the same Time 2 independent variables. Column 3 expands upon the model by adding activism in 1992 (Time 1) as

an independent variable; this specific analysis is not a part of the path analysis but rather is undertaken in order to test Hypothesis 8, concerning the effect of the network and social psychological variables on Time 2 activism. Figure 3 provides a path model predicting new activism (Time 2).

TABLE 3
STANDARDIZED REGRESSION COEFFICIENTS FOR MULTIPLE REGRESSION ANALYSES
EXPLAINING LEVEL OF ACTIVISM IN 1992 AND NEW ACTIVISM 1998

Independent Variables	Activism Time 1 (1992)	New Activism Time 2 (1998)	New Activism Time 2 (1998)
Network degree	.19*	.36**	.36**
Network range	.41***	.11	.12
Communication	.19*	.22**	.23**
Level of identification	.22*	.11	.12
Activism Time 1 (1992)	—	—	-.04
R ²	.50***	.34***	.34***
n	58	58	58

* $p < .05$, ** $p < .01$, *** $p < .005$.

In column 2, only two of the independent variables are statistically significant: one network structure variable and one network process variable. Network degree and level of communication have positive direct effects on new activism, while network range and level of identification do not. Overall, the model explains 34 percent of the variation in new activism — a substantial amount, though less than that explained for activism at Time 1.

In column 3, activism in 1992 (Time 1) is added as an independent variable. Here we see that the effects for network degree and level of communication remain virtually identical and are both significant. By contrast, the effect for activism Time 1 on new activism is not significant. This provides evidence, as expected, that the network effects are not spurious; network degree and level of communication have positive net effects on new activism (in 1998) even when activism Time 1 is controlled, and thus supports H8, that the effects of the network and social psychological variables upon activism in Time 2 are net of the effects of activism Time 1.

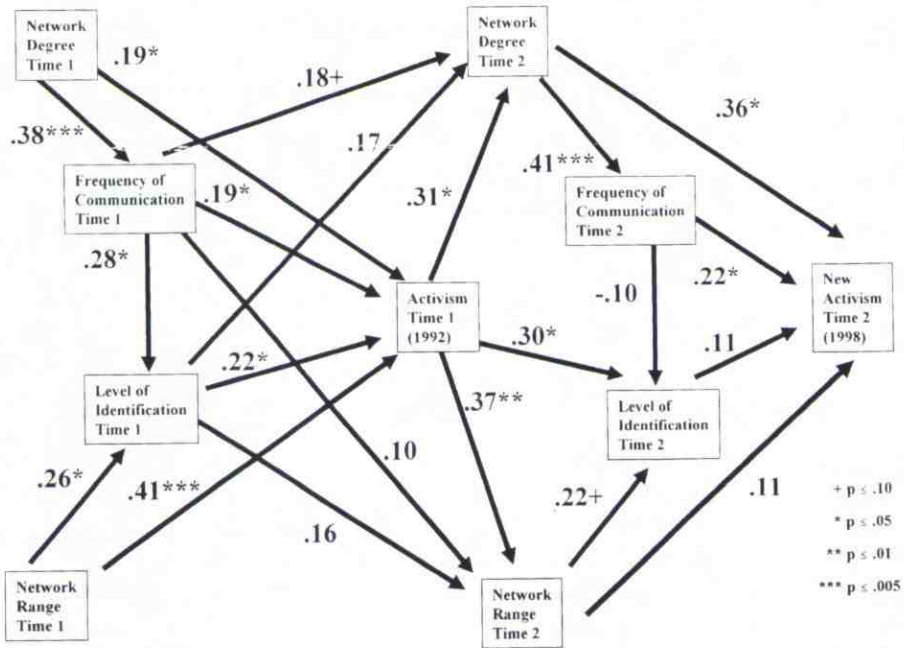
THE DIRECT AND INDIRECT EFFECTS OF PERSONAL NETWORK STRUCTURE AND NETWORK-PROCESSES UPON TOTAL ACTIVISM IN 1998

Figure 2 provides a path analysis of the study variables predicting level of total activism in 1998. (A table providing results for the final multiple regression model for each of the dependent variables in the path model is available upon request.) As results for the regression models predicting activism in 1992 and total activism 1998 were discussed above, I will focus on the intervening variables in the model and on the indirect effects of independent and intervening variables in the model upon total activism in 1998.

Network degree has a moderately strong positive effect upon frequency of communication at both times. Network range has a small positive effect on level of identification at both times.

FIGURE 3

A PATH ANALYSIS EXPLAINING NEW INDIVIDUAL ACTIVISM IN TIME 2



Level of activism at Time 1 is used to explain several of the intervening variables. After controlling for other variables, level of activism at Time 2 has a moderately strong relationship with the intervening variables, and it is the strongest predictor of network degree, network range, and level of identification. Both frequency of communication at Time 1 and level of identification at Time 1 have positive (but nonsignificant) effects upon network degree and network range at Time 2.

One finding that does not appear to support the model described earlier is the *beta* coefficient for the relationship between frequency of communication at Time 2 and level of identification at Time 2. The theoretical arguments suggest that the *beta* coefficient for this relationship should be positive (and indeed it is for the model at Time 1). However, the fact that the *beta* is nonsignificant and that the zero order correlation between communication and identification (at Time 2) is positive, moderately strong, and significant suggests that the result ($b = -.10$) reported in the path model (Figure 2) may be due to random variation.

INDIRECT AND DIRECT EFFECTS ON TOTAL ACTIVISM

Columns 1 and 2 of Table 4 provide the indirect and direct effects of the variables in the path model upon level of total activism in 1998. Here, one of the most noteworthy findings is the substantial indirect effect (.28) of activism at Time 1 upon

activism at Time 2. The indirect effect of activism is roughly equal to the direct effects of network degree and frequency of communication at Time 2 — the two variables with the largest direct effects — upon activism at Time 2.

TABLE 4
DIRECT AND INDIRECT EFFECTS ON TOTAL ACTIVISM (TIME 2)
CALCULATED THROUGH THE PATH ANALYSIS

Independent Variables		Effect on Total Activism Time 2 (1998)		Effect on New Activism Time 2 (1998)	
		Indirect	Direct	Indirect	Direct
Network degree	Time 1	.13	—	.08	—
	Time 2	.12	.30	.09	.36
Network range	Time 1	.15	—	.12	—
	Time 2	.04	.21	.05	.12
Communication	Time 1	.18	—	.16	—
	Time 2	-.02	.31	-.02	.23
Identification	Time 1	.17	—	.15	—
	Time 2	—	.20	—	.12
Activism	Time 1	.28	—	.22	—

Both of the network structure and network process variables from Time 1 have small but substantial indirect effects upon activism at Time 2. These indirect effects were roughly half of those for activism at Time 1. In comparing the network structure variables, network degree at Time 2 had a larger direct and indirect effect upon activism. Finally, in comparing the network-process variables, communication at Time 1 and identification at Time 1 had roughly equal indirect effects, while communication at Time 2 had a somewhat stronger direct effect upon activism than identification at Time 2.

INDIRECT AND DIRECT EFFECTS ON NEW ACTIVISM

Figure 3 provides a path model of new activism in 1998, or Time 2. (A table providing results for the final multiple regression model for each of the dependent variables in the path model is available upon request.) This model only differs from the path model in Figure 2 in regard to the direct effects on new activism; thus, the details of the earlier effects will not be described. Column 3 and 4 of Table 4 provide the indirect and direct effects of the variables in the path model upon level of new activism in 1998.

Activism at Time 1 has the largest indirect effect on new activism, which is considerably larger than the indirect effects of the other variables. Thus, while previous activism does not have a direct effect on new activism (see Table 3), it has a substantial indirect effect on new activism via the network structure and process variables shown in Figure 3. Network degree has the strongest total effect on new activism, and its total effect is over 2.5 times as strong as network range. Communication at Time 2 has a substantial direct effect on new activism, while communication at Time 1 has a moderately small indirect effect on new activism. Interestingly, the direct effect of identification at Time 2 is slightly less than the indirect effect of identification at Time 1 on new activism. In a similar finding, the

direct effect of network range at Time 2 is the same as the indirect effect of network range at Time 1 on new activism.

DISCUSSION

Using longitudinal data from members of three wilderness preservation groups in Vancouver, British Columbia, I have taken steps in this study towards documenting some of the mechanisms that underlie the positive relationship between in-movement social network ties and the participation of individuals. In particular, it has documented some of the causes and effects of communication and movement identification. This is important because heretofore little systematic empirical work was devoted to measuring such mechanisms. However, as I acknowledged at the outset of this analysis, a variety of other intervening variables are likely also to be important for explaining this relationship. Empirical evidence of this observation is provided by the fact that there were still net effects for the network variables upon level of activism.

In addition, this study has provided a rare analysis focusing on the relationship between network ties and individual participation in a social movement over time. It has documented empirically that different network and social psychological variables for explaining ongoing participation are more and less important at different times. I believe that two of the key temporal factors that influence these processes are "stage in the cycle of protest" and the "life-stage" of individual participants and their corresponding level of "biographical availability." To the extent that these observations motivate researchers to build temporal factors into their explanations of how networks are related to social movement participation, then this will mark another contribution of the current study.

The final general contribution of this study is that it provides strong evidence that network effects on activism are not simply an epiphenomenon – for example, the results of past activism. Findings show that network ties and related processes have effects net of past activism thus indicating that current activism is not just based on prior activism. These findings should help to put causal claims about network effects on activism on a more solid footing.

Specifically, in the regression models and path analysis predicting total or aggregate activism over time, most of the hypotheses were supported. Hypothesis 3 (the association between communication and identification) received partial support – it was supported for Time 1 but not for Time 2. The rest of the hypotheses were supported: Network degree was associated with communication (H1), communication was associated with activism (H2), network range was associated with identification (H4), identification was associated with activism (H5), network degree was associated with activism (H6), and network range was associated with activism (H7). However, when new activism in 1998 was used as the dependent variable in the regression models and path analysis, three of the hypotheses – the association between communication and identification (H3), the association between identification and activism (H5), and the association between network range and activism (H7) – received only partial support (supported for Time 1 but not for Time 2). In sum, this general model seemed to be good for predicting aggregate activism over time but did not do as well predicting new activism (e.g., activism at discrete points in time).

Earlier, I suggested that the number of ties versus the diversity of ties are associated with different aspects of micromobilization in social movements. In particular, I argued that network degree may be directly associated with frequency of social interaction, such as frequency of communication. In other words, people who have larger movement-based personal networks tend to interact more frequently with others about environmental issues, in part, because they have a greater number of opportunities to interact. It was also suggested that network range implies interactions with a variety of others and hence the receipt of diverse information.

This study suggests that the effects of network degree versus network range may differ depending upon time, such as when it occurs within the cycle of protest. As has been described, data for Time 1 was obtained near the peak of the cycle of protest, while data for Time 2 were collected at a low point in the cycle of protest. When we examine total activism (Table 2), we find network range effects for both time periods, though the effect is relatively smaller in Time 2. When we examine new activism, we find that the effect for Time 2 is not significant (though the coefficient is positive). This finding suggests that diversity of interactions as captured by the measure of network range does have an effect on activism but that this relationship may be contingent upon location in the cycle of protest. (This conjecture is also relevant to a number of other findings reported here.) By contrast, the effect of network degree is significant on both total activism at Time 1 and new activism at Time 2.

At times when there is a high volume of protest and other types of mobilization activity, there is more intergroup interaction. At low points in the cycle of protest, ties to other groups become latent. Thus, while network range did not decline over time, range seems to affect activism at moderate to high points in the cycle of protest. For instance, when movement issues heat up, there are more joint events (such as rallies) and intergroup interaction, and such interaction promotes further individual activism. Similarly, at high points in the cycle of protest when movement issues are more salient, especially in the media, a person's identity as a member of the movement becomes more salient. At such times, intergroup interaction reinforces movement identification, and increased identification salience translates into greater activism.

As assessed here, network degree is a measure of the number of people to whom an individual is tied within his/her own organization. For individuals who retain their membership in the organization, it seems likely that new activism may be partly a function of the number of people to whom they are tied. The findings from this study show that network degree is positively associated with activism, and this relationship holds for both measures of activism (total activism and new activism) and for both time periods. While interaction with others within one's social movement organization is also likely to be related to the stage of the cycle of protest, the effects of the stage of the cycle of protest upon the relationship between network degree and activism may not be as substantial as the corresponding effect for network range and activism. For example, SMOs are much more likely to hold joint events such as rallies at the legislature during peaks in the cycle of protest. Many other activities and events continue, however, even at low and moderate points in the cycle of protest, including public lectures and distribution of newsletters. While intragroup interaction might be lower at low points in the cycle of protest and thus could mute effects of

network range upon activism, there is some continued intergroup interaction, and thus the relationship between network degree and activism persists.

CHANGE OVER TIME

It was noted earlier that there were a variety of possibilities for changes in the scores for the network-social psychological variables over time, and thus it was difficult to develop specific hypotheses regarding change. Here, I will consider two factors that may be responsible for the change results reported here: the cycle of protest and biographical availability.

Position Within the Cycle of Protest

As discussed earlier, the analysis presented in this paper purposely focused on the structure of egocentric networks and interpersonal processes and how these affect levels of individual activism. The analysis ignored the characteristics of the cycle of protest, a concept that could help to explain the negative changes in network integration, communication, and identification in the present case (Tarrow 1994).

The first survey was conducted in 1992, a midpoint in the intensity of the cycle of protest. By 1992, movement organizations had mobilized a good deal of support and had had some successes — as evidenced by the protection of the lower Carmanah Valley as a park. The peak of the cycle of protest occurred the following year around the conflict over Clayoquot Sound, when more than 850 people were arrested for engaging in civil disobedience by blockading logging roads in order to prevent clearcut logging of old growth rainforests, a spectacle that received worldwide media attention. (See Magnusson and Shaw 2002 for more on this topic.)

When the second survey was conducted in 1998, this was arguably a low point in this entire cycle of protest. Environmental issues (forest conservation issues in particular) seemed less pressing in light of the apparent successes of the movement. It is therefore not surprising that people developed and maintained fewer ties to other activists. As concerns about the imminent loss of old growth forests decreased, environmentalists talked less about movement issues, and their identification with the movement became less salient. Of course, a decrease in the frequency and scale of movement events is also probably implicated in this decline in mobilization. The fact that the movement was at a low ebb in 1998 may in part explain the nonsignificant relationship between communication and identification: As the movement waned, identification with it became less salient. In sum, an important dimension of understanding individual activism is to understand it in the larger context of the cycle of protest.

The Role of Biographical Availability

A second factor that may be associated with the observed decline in integration, communication, and identification is biographical availability. In particular, some elderly respondents may have been less able to participate in movement activities at the time of the second wave of data collection due to physical limitations. Further, many younger people may have changed their statuses from being single, students,

and part-time workers to being married with children and employed in full-time careers. Such changes in status could have limited people's abilities to form ties with other movement participants and to engage in activism.

Limitations of the Research and Avenues for Future Research

As with any single study, there are a number of limitations to the current one. As one of the anonymous reviewers of this paper reminded me, the empirical findings of this study can not be generalized beyond this particular sample and thus are limited by time, geography, the type of movement, and the particular characteristics of the sample respondents. However, as the main focus of this analysis is on theoretical concerns, it is theoretical and methodological limitations that deserve more emphasis. The activism studied here was restricted to low to medium cost/risk activities, and the movement took place in the context of a modern liberal democracy. These are two limiting conditions. Further, this study collected data at only two points in the cycle of protest. In terms of methodology, while the approach taken here with its focus upon *level of total activism over time* has its advantages (e.g., compared to studies that focus only on joining an organization or attending a single event), it would also have been useful to have measures of activism (as well as the other variables) that were obtained for a greater number of more discrete periods of time. This would better enable the analysis of factors such as the cycle of protest.

Findings and observations from this research suggest a number of avenues for future research. Linkages between ego-network micromobilization and individual activism are likely influenced by stage in the cycle of protest. Other micro-level factors such as biographical availability likely influence both micromobilization and individual activism. And the cycle of protest is likely affected by other macro and meso-level factors such as political opportunities and media attention. More research needs to be devoted to relating the variables in the current model to different points in the cycle of protest and to these other factors. Other intervening mechanisms could also be given more attention in future research. Finally, while there is a substantial body of research examining ego network variables as independent variables, there is a dearth of research examining network variables as dependent variables (Diani 1997). To study fully all of these issues would require a multi-sample, time series approach – a difficult challenge, but one with a potentially large theoretical payoff.

D. B. Tindall is an associate professor at the University of British Columbia where he has a joint appointment in the Department of Anthropology and Sociology and the Department of Forest Resources Management. He specializes in the study of social networks, social movements, and environmental sociology.

REFERENCES

- Bem, Daryl J. 1972. "Self-Perception Theory." Pp. 1–62 in *Advances in Experimental Social Psychology*, vol. 6, edited by Leonard Berkowitz. New York: Academic.
- Burt, Ronald. 1980. "Models of Network Structure." *Annual Review of Sociology* 6:79–141.
- Collins, Randall. 1981. "On the Micro-Foundations of Macro-Sociology." *American Journal of Sociology* 86:984–1014.

- Coleman, J. S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology*, 94:S95-S120.
- Diani, M. 1995. *Green Networks: A Structural Analysis of the Italian Environmental Movement*. Edinburgh: Edinburgh University Press.
- . 1997. "Social Movements and Social Capital." *Mobilization* 2:129-147.
- . 2003. "Introduction: Social Movements, Contentious Actions, and Social Networks: 'From Metaphor to Substance?'" Pp. 1-18 *Social Movements and Networks: Relational Approaches to Collective Action*, edited by Mario Diani and Doug McAdam. Oxford, UK: Oxford University Press.
- Erickson, Bonnie H. 1996. "Culture, Class, and Connections." *American Journal of Sociology* 102:217-251.
- Erickson Nepstad, Sharon and Christian Smith. 1999. "Rethinking Recruitment to High-Risk/Cost Activism: The Case of Nicaragua Exchange." *Mobilization: An International Journal* 4:25-40.
- Fernandez, Roberto M. and Doug McAdam. 1988. "Social Networks and Social Movements: Multiorganizational Fields and Recruitment to Mississippi Freedom Summer." *Sociological Forum* 3:357-382.
- Freeman, Linton C. 1979. "Centrality in Social Networks: Conceptual Clarification." *Social Networks* 1:215-239.
- Friedman, Debra and Doug McAdam. 1992. "Collective Identity and Activism: Networks, Choices, and the Life of a Social Movement." Pp. 156-173 *Frontiers in Social Movement Theory*, edited by Aldon D. Morris and Carol McClurg Mueller. New Haven, CT: Yale University Press.
- Gartrell, C. David. 1987. "Network Approaches to Social Evaluation." *Annual Review of Sociology* 13:49-66.
- Goffman, Erving. 1967. *Interaction Ritual*. New York: Doubleday.
- Gould, Roger V. 1991. "Multiple Networks and Mobilization in the Paris Commune, 1871." *American Sociological Review* 56:716-729.
- . 1993. "Collective Action and Network Structure." *American Sociological Review* 58:182-196.
- . 2003. "Why do Networks Matter? Rationalist and Structuralist Interpretations." Pp. 233-257 *Social Movements and Networks: Relational Approaches to Collective Action*, edited by Mario Diani and Doug McAdam. Oxford, UK: Oxford University Press.
- Kitts, J. A. 1999. "Not in our Backyard: Solidarity, Social Networks, and the Ecology of Environmental Mobilization." *Sociological Inquiry* 69:551-574.
- Klandermans, Bert and Dirk Oegema. 1987. "Potentials, Networks, Motivations, and Barriers: Steps Towards Participation in Social Movements." *American Sociological Review* 52:519-531.
- Klandermans, B. and M. de Weerd. 2000. "Group Identification and Political Protest." Pp. 68-92 in *Self, Identity, and Social Movements*, edited by S. Stryker, T. J. Owens, and R. W. White. Minneapolis: University of Minnesota Press.
- Lin, N. and M. Dumin. 1986. "Access to Occupations through Social Ties." *Social Networks* 8:365-385.
- Magnusson, Warren and Karen Shaw, eds. 2002. *A Political Space: Reading the Global Through Clayoquot Sound*. Montreal: McGill-Queen's Press.
- Marwell, G., P. E. Oliver, and Ralph Prahl. 1988. "Social Networks and Collective Action: A Theory of the Critical Mass III." *American Journal of Sociology* 94:502-534.
- McAdam, Doug. 1986. "Recruitment to High-Risk Activism: The Case of Freedom Summer." *American Journal of Sociology* 92:64-90.
- . 1989. "The Biographical Consequences of Activism." *American Sociological Review* 54:744-760.
- . 2003. "Beyond Structural Analysis: Toward a More Dynamic Understanding of Social Movements." Pp. 281-298 *Social Movements and Networks: Relational Approaches to Collective Action*, edited by Mario Diani and Doug McAdam. Oxford, UK: Oxford University Press.
- McAdam, Doug, John McCarthy, and Mayer Zald. 1988. "Social Movements." Pp. 695-737 in *Handbook of Sociology*, edited by Neil Smelser. Newbury Park, CA: Sage.
- McAdam, Doug and Ronnelle Paulsen. 1993. "Specifying the Relationship between Social Ties and Activism." *American Journal of Sociology* 99:640-667.
- McCarthy, John D. and Mayer N. Zald. 1977. "Resource Mobilization and Social Movements: A Partial Theory." *American Journal of Sociology* 82:1212-1241.
- Melucci, Alberto. 1988. "Getting Involved: Identity and Mobilization in Social Movements." Pp. 329-348 in *International Social Movement Research, vol. 1*, edited by B. Klandermans, H. Kriesi, and Sidney Tarrow. London: JAI Press.
- Muller, E. N. and K. Opp. 1986. "Rational Choice and Rebellious Collective Action." *American Political Science Review* 80:471-487.
- Oliver, P. 1984. "If You Don't Do It, Nobody Else Will: Active and Token Contributors to Local Collective Action." *American Sociological Review* 49:601-610.
- Opp, K. 1986. "Soft Incentives and Collective Action: Participation in the Anti-nuclear Movement." *British Journal of Political Science* 16:87-112.
- Passy, Florence. 2003. "Social Networks Matter. But How?" Pp. 21-48 in *Social Movements and Networks: Relational Approaches to Collective Action*, edited by Mario Diani and Doug McAdam. Oxford, UK: Oxford University Press.

- Pinard, Maurice. 1971. *The Rise of a Third Party: A Study of Crisis in Politics*. Englewood Cliffs, NJ: Prentice-Hall.
- Snow, D. A. and D. McAdam. 2000. "Identity Work Processes in the Context of Social Movements: Clarifying the Identity/Movement Nexus." Pp. 41-67 in *Self, Identity, and Social Movements*, edited by S. Stryker, T. J. Owens, and R. W. White. Minneapolis: University of Minnesota Press.
- Stryker, S. 2000. "Identity Competition: Key to Differential Social Movement Participation?" Pp. 21-40 in *Self, Identity, and Social Movements*, edited by S. Stryker, T. J. Owens, and R. W. White. Minneapolis: University of Minnesota Press.
- Tarrow, Sidney. 1994. *Power in Movement: Social Movements, Collective Action, and Politics*. Cambridge: Cambridge University Press.
- Tindall, D. B. 2002. "Social Networks, Identification, and Participation in an Environmental Movement: Low-Medium Cost Activism Within The British Columbia Wilderness Preservation Movement." *Canadian Review of Sociology and Anthropology* 39:413-452.
- Tindall, D. B. and W. Barry. 2001. "Canada as Social Structure: Social Networks and Canadian Sociology." *Canadian Journal of Sociology* 26:265-308.
- Tindall, D. B., Scott Davies, and Céline Mauboules. 2003. "Gender Differences in Activism and Conservation Behaviour in a British Columbia Environmental Movement." *Society and Natural Resources* 16:909-932.
- White, R. W. and M. R. Fraser. 2000. "Personal and Collective Identities and Long-term Social Movement Activism: Republican Sinn Fein." Pp. 324-346 in *Self, Identity, and Social Movements*, edited by S. Stryker, T. J. Owens, and R. W. White. Minneapolis: University of Minnesota Press.
- Wilson, Jeremy. 1998. *Talk and Log: Wilderness Politics in British Columbia, 1965-96*. Vancouver, BC: UBC Press.
- Wiltfang, G. L. and D. McAdam. 1991. "The Costs and Risks of Social Activism: A Study of Sanctuary Movement Activism." *Social Forces* 69:987-1010.

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