DOES LEADERSHIP IN NETWORKS MATTER?

Examining the Effect of Leadership Behaviors on Managers’ Perceptions of Network Effectiveness

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ABSTRACT: The empirical literature in public management only occasionally speaks to leadership in networks as a possible determinant of network effectiveness. This paper attempts to address this research gap by empirically examining leadership behaviors exhibited by public managers in their external network and the degree to which such behavior contributes to how well the network meets the needs of the manager’s jurisdiction. Using a sample of more than 500 network leaders, the findings demonstrate that different types of leadership do play an important role in network effectiveness within the context of a highly collaborative field, that of local emergency management.

KEYWORDS: effectiveness, emergency management, leadership, networks

How good? That is the question posed by Bardach (1998) more than a decade ago when networks and collaborative management were beginning to emerge into the consciousness of public management scholars. He wrote, “The literature is concerned mainly with the question of whether collaboration exists, and on what scale, but not with whether the collaboration is productive” (p. 23). Also during that same era, O’Toole (1997, p. 49) asked researchers to study networks not just descriptively or normatively, but “as causal forces in the administrative setting.” While the field of public management explores issues such as the determinants of collaboration (McGuire & Silvia, in press; Thomson & Perry, 2006), the types of multi-actor networks that exist (Agranoff, 2007), how collaborative structures emerge/evolve/dissolve over time (Human & Provan, 2000; Provan & Kenis, 2008), the barriers encountered by networks (McGuire & Agranoff, 2007), and
even the terminology used to describe multi-actor settings (Huxham, 2003), very little empirical research examines the relation between leadership and the effectiveness of networks.

The assumption is that network leadership exists, but seldom do researchers empirically report the actual behaviors that constitute such leadership (Silvia & McGuire, 2008). Indeed, “the literature on collaboration . . . has had little to say about leadership” (Huxham & Vangen, 2000, p. 1160). An empirical examination of leadership in public sector networks is thus long overdue. The cross-sectoral environment in which many public officials must now operate differs greatly from a traditional, bureaucratic structure and therefore, as the literature suggests, may require different types of leadership behaviors than leadership in a hierarchical setting. Although a growing body of literature frequently mentions the need for and the rise of a new type of public management, focusing on both structure and process, very little empirical research has been conducted in the public sector to measure and identify the behaviors associated with an emergent network leadership perspective. This paper addresses these two shortcomings in the literature by empirically examining the leadership behaviors exhibited by public managers in their network and the degree to which such behavior contributes to how well the network meets the needs of the manager’s jurisdiction.

As used in this paper, the term network describes an integrated structure that involves multiple actors—nodes—with multiple linkages, working on cross-boundary, collaborative activities. Such structures can be formal or informal, and they are typically intersectoral, intergovernmental, and based functionally in a specific problem or policy area. Network leadership refers to the behaviors of public managers that facilitate productive interaction and move the participants in the network toward effective resolution of a problem. We thus ask the research question: To what extent does leadership in a network contribute to the perceived effectiveness of that network?

There is a scholarly debate regarding the differentiation between leadership and management. While some have argued that they are separate and distinct (e.g., Bennis & Nanus, 1997; Kotter, 1999; Rost, 1991; Zaleznik, 1977), others have argued that the constructs of management and leadership overlap (e.g., Fernandez, 2008; Nahavandi, 2009; Northouse, 2007) to such an extent that the terms can be used interchangeably (Van Wart, 2005; Yukl, 2002). Notably, Fernandez (2008, p. 177) wrote that the distinction between leadership and management “is blurred even further when we examine and compare the leadership and public management literatures, particularly the public management literature on performance.”

Given this definitional controversy, many have contended that the operationalized definition of leadership should be based on the purpose of the research and the research questions being asked (Bass 2008; Campbell, 1977; Yukl, 2002). We prefer this approach, as it allows researchers to define leadership behaviors based
on the context of their study. Although this paper is intended neither to solve nor to add to the controversy regarding the distinction between leadership and management, it draws on both the leadership and public management literatures to further understand performance. The public manager studied here thus practices leadership behaviors.

Using a sample of more than 500 network leaders, we demonstrate quantitatively that leadership behavior does indeed contribute to the perceived ability of the network to meet the needs of its jurisdiction. Our unit of analysis is the county-level emergency manager in the United States, who is held responsible for the mitigation of, preparation for, response to, and recovery from natural and manmade disasters. The field of emergency management is an ideal context for this leadership study because, while it has historically been predominantly hierarchical in practice, the field has increasingly embraced collaborative leadership out of necessity (Drabek & McEntire, 2002; Kapucu, 2006). To adapt to this changing environment and the impossibility of single-agency disaster response, most local officials operate in large networks of organizations. This sentiment has been supported recently in the literature by many researchers who assert that collaboration is necessary for dealing with disasters and that effective preparation and response is unlikely to happen without collaborative leadership (Kapucu & Van Wart, 2006; McEntire, 2002; Moynihan, 2008; Perry & Lindell, 2003; Waugh & Streib, 2006). As Waugh (2002, p. 36) stated about emergency management, “Leadership is the key to successful networks and organizations. Providing or facilitating leadership will improve the chances for success.”

Before discussing the findings, we now provide the foundation for the study by summarizing previous research on both network effectiveness and network leadership.

**Network Effectiveness**

Can networks be held to the same outcome-oriented aims as those of hierarchical organizations? The difficulty with assessing goal achievement and the overall effectiveness of the network (or agency/program) concerns how to measure and evaluate performance and what to do with that information. Public management networks, like single, hierarchical organizations, are essentially goal-oriented structures, but the public sector does not easily lend itself to developing and assessing goal achievement and outcome measures (Radin, 2006). It is doubly difficult in networks. Ex ante formulated goals and objectives are often untenable as measures because participants in the network adapt their perceptions and objectives interactively (Klijn & Koppenjan, 2000), and effectiveness and goal attainment may be defined differently by each member of the network. In addi-
tion, participants in the network work to fulfill their individual organization’s needs as well as to attain a shared, collective goal (Agranoff, 2003). Effectiveness might thus be measured by the extent to which a network fulfills the collective needs of the participants, whatever the needs are and however they have been formulated.

A few empirical studies have found an association between networks and positive program outcomes. Provan and Milward’s seminal study compared four community mental health systems in terms of the relationship between implementation networks and effectiveness (1995). Effectiveness was measured in terms of client and family satisfaction with the treatment they received from the mental health system (Milward & Provan, 2003). In an effort to determine the contribution of management to policy outcomes, O’Toole and Meier (1999; Meier & O’Toole, 2001, 2003) place networking activities within the context of a general model of public management. Analyzing a dataset of more than 500 Texas school districts over a decade, the authors find that, in addition to management of the school district itself, network management in collaborative contexts as practiced by superintendents is a significant determinant of performance. In contrast to Provan and Milward’s satisfaction measures, the research uses an objective measure of an intermediate outcome as the dependent variable (standardized achievement test scores). As an alternative to outcome measures, Chen (2008) evaluated network process by comparing joint decision-making, joint program operation, reduced program autonomy, sharing resources and building trust with collaboration outcomes, goal achievement, quality of working relationships, broadening partners’ views, increased partner interactions, and equitable influences.

Assessing performance objectively in the field of emergency management is nearly impossible for a large number of cases. In the absence of an actual disaster, the success of the preparedness and response networks cannot be evaluated in terms of an outcome variable. So network participants, particularly emergency management officials, must assess a priori how the network is meeting the needs of the jurisdiction. *Objective* measures of performance for both the practitioner and the researcher are thus elusive; *subjective* measures that attempt to answer the “How am I doing?” question will be more appropriate, particularly when the leader of the network is answering the question.

**Network Leadership**

The assumption in network research is that leadership exists in collaborative structures, but seldom do researchers empirically document the actual competencies, tasks, and behaviors that constitute such leadership. One exception in the literature is from Huxham and Vangen (2000), who identified at least 204 leader-
ship tasks and 241 leadership processes from their decades-long action research program. Williams (2002) also attempted to identify variables and factors that influence collaborative behavior. His empirical research, based on surveys of collaborators in three policy areas (environment, crime and community safety, and health promotion) and in-depth interviews of partnership managers within a region, identified such behaviors as the development of sustainable interpersonal relationships, active listening, communication aimed at establishing shared meanings, understanding, empathy, conflict resolution, creativity, innovation, empowerment, and trust building.

The research questions raised in this study are related to the behaviors exhibited by the leaders of networks. This perspective of leadership study is akin to what Bass referred to as “leadership as purposive behaviors” (2008, p. 17). In his definitive work, Bass defined such behaviors as “the particular activities in which a leader engages in the course of directing and coordinating the work of group members . . . such as structuring work relationships, praising or criticizing group members, and showing consideration for members’ welfare and feelings” (p. 17). This behavioral approach to the study of leadership began in the 1950s with the Ohio State University and University of Michigan leadership studies.

The researchers at Ohio State University concluded that leadership behaviors could be divided into two categories: consideration behaviors and initiating structure behaviors. Consideration behaviors were those in which the leader acts in ways to show concern for the welfare of group members, treat them as equals, put group member suggestions into operation, and create a trust among group members. Initiating structure behaviors, on the other hand, are those behaviors related to “the extent to which a leader initiates activity in the group, organizes it, and defines the way work is to be done” (Bass, 2008, p. 540). This includes establishing standards for the group to follow, assigning tasks to group members, and scheduling and coordinating the work to be accomplished. Although they were referred to by different names, the researchers at the University of Michigan also uncovered two broad types of leadership behavior: employee-oriented behaviors, similar to the consideration behaviors, and production-oriented behaviors, akin to the initiating structure behaviors.

The survey instrument constructed for this study not only relies on this earlier work but also incorporates some newer work related to the behaviors exhibited by network leaders. These behaviors conform to the definition of leadership employed by Yukl: “Leadership is the process of influencing others to understand and agree about what needs to be done and how it can be done effectively, and the process of facilitating individual and collective efforts to accomplish the shared objectives” (2002, p. 7). The framework used in the paper to organize these behaviors was first suggested by Agranoff and McGuire (2001) and extended by McGuire
This framework was originally used to categorize the behavior of network managers. As “any manager who guides a group toward goal accomplishment can be considered a leader” (Nahavandi, 2009, p. 11), we believe this framework is equally appropriate to use in our study.

Agranoff and McGuire (2001) and McGuire (2002) grouped behaviors into four distinct categories in terms of their operational differences: activation, framing, mobilization, and synthesizing. The operational categorization is similar to the work of Kickert, Klijn, and Koppenjan (1997), who distinguished the multitude of managerial tasks in terms of purposes: those network management activities aimed at the ideas and perceptions of network members, and those aimed at the interaction of members. The “former includes preventing or introducing new ideas, bargaining, and inducing reflection within the network, whereas the latter involve arranging, structuring, and mediating interaction among network participants” (McGuire, 2002, p. 602).

The first category of behaviors undertaken by network leaders is activation, which may be the most important activity of leading networks, particularly at the beginning of the formation of a network. In general, activation refers to the set of behaviors employed for identifying and incorporating the persons and resources needed to achieve program goals. Selective activation (Scharpf, 1978) is based on correctly identifying necessary participants and other resources needed for the network. The skills, knowledge, and resources of these potential participants must be assessed and tapped. Activation is a critical component of leadership because resources such as money, information, and expertise can be integrating mechanisms of networks.

The second type of network behavior attempts to frame the structure and the norms and values of the network as a whole. Framing is defined as the behaviors used to arrange and integrate a network structure by facilitating agreement on participants’ roles, operating rules, and network values. Leaders may try to influence the roles that each participant may play at any given time and the perceptions one has about the common purpose of the network. Leaders do this by facilitating agreement on leadership roles; helping to establish an identity and culture for the network; assisting in developing a working structure for the network; developing a shared, collective vision for the network; changing the network structure when appropriate; and altering the perceptions of participants to understand the unique characteristics of working with persons in contexts without organizational mechanisms based in authority relations.

In addition to activating and framing the network, leaders must induce individuals to make and keep a commitment to the network. Mobilizing behaviors are used to develop support for network processes from network participants and external stakeholders. Publicizing the network’s accomplishments, establishing and
maintaining its legitimacy, and using incentives to motivate network participants are a few of the behaviors undertaken by network leaders. Mobilization in this regard can be a common and ongoing task for effective networks.

The fourth category of network behavior posits that leaders employ synthesizing behaviors intended to create an environment and to enhance the conditions for favorable, productive interactions among network participants. Leaders try to create and maintain trust among network participants as a means to build relationships and interactions that result in achieving the network purpose. Successful network leadership achieves collaboration among network participants while minimizing and removing informational blockages to cooperation.

**Networks in Emergency Management**

Emergency management has been evolving into a collaborative enterprise since the middle of the twentieth century (Waugh & Streib, 2006), but the pace at which this transformation is occurring has increased as well. As Wise concluded, “What is required for homeland security is for professionals at various levels to work across boundaries, plan and negotiate future activities, and communicate during operations to resolve unanticipated problems” (2006, p. 315). Furthermore, the capacity to be able to operate in such settings must improve as well. Waugh and Streib argued that “the critical tasks leading up to, during, and following a disaster involve coordinating multiorganizational, intergovernmental, and intersectoral response and recovery operations” (2006, p. 134). Emergency managers face extraordinary challenges, both in number and severity, and as a result, they increasingly prepare for and respond to natural hazards and disasters through collaborative structures such as partnerships and networks.

The recently adopted National Response Framework provides a clear endorsement of the idea of networks in emergency management (Department of Homeland Security, 2008). Indeed, creating engaged partnerships is the first principle listed in the document (p. 8). It defines the duties of the local emergency manager as having the day-to-day authority and responsibility in their jurisdiction for overseeing emergency management programs and activities. The document states that the emergency manager “coordinates all components of the local emergency management program” (p. 16), including coordinating the planning process; working collaboratively with other local agencies, which may include both nonprofit and for-profit organizations; and involving other organizations in planning, training, and exercises. Similar principles are adopted in state-level emergency management plans. For example, California’s Standardized Emergency Management System (SEMS) guidelines assert that local governments possess the role of coordinating SEMS development among departments and agencies, and coordinating with other local governments and volunteer and private agencies on the development and
implementation of the SEMS (California Office of Emergency Services, 2008). Many other states’ emergency management frameworks contain similar language regarding the role of the emergency manager in leading networks during planning and response. According to Waugh, “County governments may in fact be the most logical and hospitable hosts for emergency management agencies because of their unique roles in state and local governance” (1994, p. 253). Thus, the responsibility for leading emergency management often falls on the shoulders of the county emergency manager.

**Methods**

**MODEL**

We test an empirical model that seeks to explain the perceived level of effectiveness of an emergency manager’s network in terms of the leadership behaviors undertaken by the manager. The general hypothesis tested with this model is that leadership matters. That is, even taking into consideration the professional achievements of the manager, previous experience with disasters, the effectiveness of the home agency, and the extent to which certain collaborative activities are performed by the manager, we propose that leadership is associated with perceived level of effectiveness. More specifically, the frequency of practicing different types of leadership behavior will be positively associated with the level of network effectiveness.

**SAMPLE**

In an effort to study network leadership exhibited by critical local officials, Web-based questionnaires were sent directly to 2,486 county emergency managers across the country. The distribution list was generated using contact information gathered from county, state, and professional organization Web sites. The county emergency managers represented 46 states and the District of Columbia. The emergency management contact information could not be obtained for any of the counties in the four states excluded from the study (Connecticut, New Hampshire, Rhode Island, and Vermont). A total of 668 county emergency managers, representing 45 states and the District of Columbia, responded to the survey. Delaware was the only state to which surveys were sent, but no county officials responded. Because some respondents did not fully complete a section of the questionnaire, the final sample for this analysis is 505. The large number of cases is certainly illustrative of leadership in county-level emergency management activities. Data on even 505 responses are larger than most network leadership studies (cf. Agranoff, 2003), and the number of cases is consistent with other studies of effectiveness (Meier & O’Toole, 2003).
### Table 1. Comparison of Sample Counties with U.S. Counties

<table>
<thead>
<tr>
<th>Population group</th>
<th>All Counties (%)</th>
<th>Sample Counties (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro areas of 1 million population or more</td>
<td>13.15</td>
<td>16.24</td>
</tr>
<tr>
<td>Metro areas of 250,000–1,000,000 population</td>
<td>10.35</td>
<td>11.68</td>
</tr>
<tr>
<td>Metro areas of fewer than 250,000 population</td>
<td>11.17</td>
<td>13.47</td>
</tr>
<tr>
<td>Urban population of 20,000 or more, adjacent to a metro area</td>
<td>6.94</td>
<td>9.70</td>
</tr>
<tr>
<td>Urban population of 20,000 or more, not adjacent to a metro area</td>
<td>3.34</td>
<td>4.55</td>
</tr>
<tr>
<td>Urban population of 2,500–19,999, adjacent to a metro area</td>
<td>19.38</td>
<td>19.01</td>
</tr>
<tr>
<td>Urban population of 2,500–19,999, not adjacent to a metro area</td>
<td>14.33</td>
<td>11.88</td>
</tr>
<tr>
<td>Completely rural or less than 2,500 urban population, adjacent to a metro area</td>
<td>7.48</td>
<td>6.53</td>
</tr>
<tr>
<td>Completely rural or less than 2,500 urban population, not adjacent to a metro area</td>
<td>13.85</td>
<td>6.93</td>
</tr>
<tr>
<td>FEMA region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region 1 (CT, MA, ME, NH, RI, VT)</td>
<td>2.13</td>
<td>0.59</td>
</tr>
<tr>
<td>Region 2 (NY, NJ)</td>
<td>2.64</td>
<td>3.76</td>
</tr>
<tr>
<td>Region 3 (DC, DE, MD, PA, VA, WV)</td>
<td>9.07</td>
<td>6.34</td>
</tr>
<tr>
<td>Region 4 (AL, FL, GA, KY, MS, NC, SC, TN)</td>
<td>24.43</td>
<td>24.55</td>
</tr>
<tr>
<td>Region 5 (IL, IN, MI, MN, OH, WI)</td>
<td>16.68</td>
<td>24.16</td>
</tr>
<tr>
<td>Region 6 (AR, LA, NM, OK, TX)</td>
<td>16.01</td>
<td>12.28</td>
</tr>
<tr>
<td>Region 7 (IA, KS, MO, NB)</td>
<td>13.12</td>
<td>12.08</td>
</tr>
<tr>
<td>Region 8 (CO, MT, ND, SD, UT, WY)</td>
<td>9.23</td>
<td>7.92</td>
</tr>
<tr>
<td>Region 9 (AZ, CA, HI, NV)</td>
<td>3.02</td>
<td>2.18</td>
</tr>
<tr>
<td>Region 10 (AK, ID, OR, WA)</td>
<td>4.65</td>
<td>6.14</td>
</tr>
<tr>
<td>Social Vulnerability Index Score (SoVI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 standard deviations below the mean</td>
<td>1.27</td>
<td>1.39</td>
</tr>
<tr>
<td>1 standard deviation below the mean</td>
<td>10.06</td>
<td>12.67</td>
</tr>
<tr>
<td>1–0.5 standard deviation below the mean</td>
<td>18.40</td>
<td>19.60</td>
</tr>
<tr>
<td>0.5 standard deviation below–0.5 standard deviation above the mean</td>
<td>45.43</td>
<td>47.52</td>
</tr>
<tr>
<td>0.5–1 standard deviation above the mean</td>
<td>12.83</td>
<td>12.08</td>
</tr>
<tr>
<td>1 standard deviation above the mean</td>
<td>8.88</td>
<td>5.54</td>
</tr>
<tr>
<td>2 standard deviations above the mean</td>
<td>3.12</td>
<td>1.19</td>
</tr>
</tbody>
</table>


*Source:* 2000 SoVI Scores, Hazards and Vulnerability Research Institute; higher SoVI scores indicate greater disaster vulnerability.
While we do not claim that the findings can be generalized to all emergency managers, the distribution of the population and the geographic and vulnerability characteristics of the sample closely resemble that of the nation as a whole (see Table 1). The sample data set includes a slightly greater proportion of large counties and a slightly lower proportion of small counties. Feedback from those sampled indicated that county emergency management agencies with only one employee were hesitant to complete the survey due to questions related to intra-agency leadership. Because “one-person shops” are more prevalent in smaller counties, this resulted in under-sampling smaller counties. Geographically, the sample also closely resembled the nation, with two exceptions. There is a smaller percentage of New England counties (Federal Emergency Management Agency [FEMA] Region 1). Many of the New England states do not have county-level governments and therefore were not included in the study. Additionally, there is a higher proportion of Midwestern (FEMA Region 5) counties in the sample. Finally, the Social Vulnerability Index, which is a “relative measure of the overall social vulnerability of each county” (Cutter, Boruff, & Shirley 2003, p. 254), was used to compare the sampled counties to the nation. This index is based on 42 socioeconomic and environmental variables that have been identified in the literature as impacting a county’s ability to prepare for, respond to, and recover from disasters. The data set used in this analysis has a slightly higher proportion of less vulnerable counties and a slightly lower proportion of highly vulnerable counties.

The questionnaire included three sections. The first section addressed questions about leadership behavior within the emergency management agency. The second section also addressed leadership behavior, but within the context of the network with which the manager engages. The final section of the survey included questions regarding the entities with which the county emergency managers collaborated, the set of collaborative activities, the structure of the county agency, the size of the emergency management agency, and the education levels achieved and certifications earned by the county emergency manager.

The results of this survey were combined with data from FEMA to construct a model of the relation between leadership behaviors and perceptions of network effectiveness. Because most of the data were collected using the same survey instrument, it is possible that common-source/common-method bias exists. Using data from other sources and using different response formats does mitigate, however, the potential impact of common-source bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Also, while the awareness of this type of bias has increased, some scholars have argued that “the threat of common-source bias is overstated” and while “it may affect the strength of the relation between the variables . . . it does not invalidate the relation” (Yang & Pandey, 2007, p. 233). We thus proceed to discuss the relationships with that threat minimized.
Measurement of Variables

DEPENDENT VARIABLE

At the end of the sections regarding agency and network leadership behaviors, the respondent was asked to assess the effectiveness of his or her emergency management agency (in the first section) and the effectiveness of his/her emergency management network (in the second section). For the network assessment, the questionnaire asked, “How effective is your emergency management network in meeting your county’s needs?” The respondent answered this question using a five-point Likert scale. The points on the scale were labeled very ineffective, ineffective, neither effective nor ineffective, effective, and very effective. The dependent variable used in this analysis is the ordinal variable taken from the Likert scale with a range from 1 (very ineffective) to 5 (very effective).

Although this is a single, perceptual measure of effectiveness, such measures are commonly used in empirical research on public sector organizational performance. As argued earlier in the paper, the emergency manager may be in the best position to evaluate effectiveness of both his or her agency and network. Because objective measures of effectiveness are hard to come by in disaster research, the perceptual measure is sufficient. Furthermore, Brewer cited studies showing that measures of perceived performance “correlate positively with moderate to strong association with objective measures” (2005, p. 511) of performance. Brewer quoted Walker and Boyne as asserting that “there are positive and statistically significant correlations between objective and subjective measures of overall performance, some in the region of $r = .8$” (2004, p. 16). Finally, Wall et al. (2004) demonstrated that subjective measures of agency performance were conceptually and statistically valid.

As the National Response Framework attests, local emergency managers are important members of a network. Our evidence suggests the same. To verify that the leaders studied actually participate in a network, the respondents were asked to state whether they regularly deal with other entities, 13 of which were named in the survey. These other entities included other governments, nonprofit agencies such as the American Red Cross, and private sector agencies. More than 90 percent reported regular involvement with at least 11 of these external actors, and nearly one-half reported involvement with all 13 entities.

EXPLANATORY VARIABLES

Respondents were asked: “How often do you engage in the following behaviors in your emergency management network?” Respondents answered this question for each of 36 behaviors commonly found in the leadership literature using a five-point Likert scale. The points on the scale were labeled never, seldom, ocr-
casionally, often, and very often. Thirty-four of the 36 original questions are used in this analysis.

In an effort to organize the answers for the 34 questions, the Agranoff and McGuire (2001) framework for classifying network behavior was adopted. The four-fold classification is a useful device for conveying distinct types of behavior because it is based on operational, thus behavioral, categories. Although it has been conjectured that network behavior may be similar to behavior in a hierarchical agency (McGuire, 2003), the data on agency-specific leadership behaviors do not adequately conform to this classification. The 34 behaviors are thus classified in terms of activation, framing, mobilizing, and synthesizing.

An index was created that summed the values from the five-point scale for each of the four categories. To allow for comparison across the groupings, the sum was divided by the number of behaviors in each classification, thus producing a single number that measured the frequency of each type of behavior. Table 2 contains the wording from the survey for each behavior from the questionnaire, organized by category. The table also includes the mean usage for each of the 34 behaviors and each behavior’s ranking compared to the other behaviors. The mean usage for all 34 behaviors used in a network is 3.79, which suggests that, in the aggregate, emergency managers exhibit these leadership behaviors in networks slightly less than often but more than occasionally.

The components of each of the four framework categories were first determined by the descriptions of behavior provided in McGuire (2002). Confirmatory factor analysis using the AMOS 17.0 software was then used to assess the appropriateness of the factor structure of the four categories. It was determined that the four-factor model fit well with the data using both absolute and comparative fit indices. The relative chi-square (normed chi-square) was found to be 3.03, which is between the acceptable range of 1.0 and 5.0 established by Schumacker and Lomax (2004, p. 82). Additionally, the root mean square error of approximation (RMSEA) was determined to be 0.06, which conforms to the value Thompson (2004) and Hu and Bentler (1999) proposed and indicates a reasonable model fit. The fit of the four-factor model was also preferred when the AIC and BIC fit statistics of this model was compared to those for models with both fewer and greater numbers of factors.

Four of the 34 behaviors included in the questionnaire are categorized as activation behaviors. Although just 4 behaviors constitute the index, the Cronbach’s alpha reliability coefficient for the index is .79. Ten behaviors are categorized as framing behaviors. The alpha coefficient for the framing category of behaviors is .89. Eight behaviors are classified as mobilizing behaviors with an alpha coefficient of .90. Finally, 12 behaviors constitute synthesizing behaviors. The alpha coefficient for the index of synthesizing behaviors is .90. The explanatory variables of interest are thus the measure of each of the four categories of behavior. Because
Table 2. Classification of Leadership Behaviors, Mean Usage, and Rank

<table>
<thead>
<tr>
<th>Leadership Behaviors</th>
<th>Type of behavior</th>
<th>Mean usage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treating all network members as equals</td>
<td>A</td>
<td>4.33</td>
<td>1</td>
</tr>
<tr>
<td>Identifying resources (equipment, supplies, finances, man-power, etc.)</td>
<td>A</td>
<td>4.13</td>
<td>4</td>
</tr>
<tr>
<td>Identifying stakeholders</td>
<td>A</td>
<td>3.97</td>
<td>11</td>
</tr>
<tr>
<td>Putting suggestions made by the network into operation</td>
<td>A</td>
<td>3.92</td>
<td>14</td>
</tr>
<tr>
<td>Sharing leadership role with other network members</td>
<td>F</td>
<td>3.97</td>
<td>11</td>
</tr>
<tr>
<td>Establishing a shared vision</td>
<td>F</td>
<td>3.90</td>
<td>16</td>
</tr>
<tr>
<td>Making sure individual roles are understood by the network members</td>
<td>F</td>
<td>3.74</td>
<td>19</td>
</tr>
<tr>
<td>Permitting the network to set its own pace</td>
<td>F</td>
<td>3.67</td>
<td>21</td>
</tr>
<tr>
<td>Influencing the network’s values and norms</td>
<td>F</td>
<td>3.67</td>
<td>21</td>
</tr>
<tr>
<td>Asking that network members follow standard rules and regulations</td>
<td>F</td>
<td>3.65</td>
<td>24</td>
</tr>
<tr>
<td>Establishing agreement on the nature of the tasks</td>
<td>F</td>
<td>3.64</td>
<td>26</td>
</tr>
<tr>
<td>Assigning network members to particular tasks</td>
<td>F</td>
<td>3.46</td>
<td>29</td>
</tr>
<tr>
<td>Selecting performance measures</td>
<td>F</td>
<td>3.45</td>
<td>30</td>
</tr>
<tr>
<td>Changing the network’s structure</td>
<td>F</td>
<td>2.77</td>
<td>34</td>
</tr>
<tr>
<td>Encouraging support from superiors in your county government</td>
<td>M</td>
<td>4.15</td>
<td>3</td>
</tr>
<tr>
<td>Keeping the network in good standing with higher authority in your county government</td>
<td>M</td>
<td>4.08</td>
<td>6</td>
</tr>
<tr>
<td>Encouraging support from stakeholders outside your county government</td>
<td>M</td>
<td>4.03</td>
<td>7</td>
</tr>
<tr>
<td>Keeping the network in good standing with stakeholders outside your county government</td>
<td>M</td>
<td>4.02</td>
<td>8</td>
</tr>
<tr>
<td>Inspiring enthusiasm for a project</td>
<td>M</td>
<td>3.91</td>
<td>15</td>
</tr>
<tr>
<td>Establishing member commitment to the network’s mission</td>
<td>M</td>
<td>3.67</td>
<td>21</td>
</tr>
<tr>
<td>Publicizing the network’s goals and accomplishments</td>
<td>M</td>
<td>3.65</td>
<td>24</td>
</tr>
<tr>
<td>Using incentives to motivate network members</td>
<td>M</td>
<td>2.95</td>
<td>33</td>
</tr>
<tr>
<td>Freely sharing information among network members</td>
<td>S</td>
<td>4.16</td>
<td>2</td>
</tr>
<tr>
<td>Looking out for the personal welfare of network members</td>
<td>S</td>
<td>4.13</td>
<td>4</td>
</tr>
<tr>
<td>Creating trust among network members</td>
<td>S</td>
<td>4.01</td>
<td>9</td>
</tr>
<tr>
<td>Brainstorming</td>
<td>S</td>
<td>4.01</td>
<td>9</td>
</tr>
<tr>
<td>Permitting the network members to use their own judgment in solving problems</td>
<td>S</td>
<td>3.97</td>
<td>11</td>
</tr>
<tr>
<td>Maintaining a closely knit network</td>
<td>S</td>
<td>3.90</td>
<td>16</td>
</tr>
<tr>
<td>Letting network members know what is expected of them</td>
<td>S</td>
<td>3.77</td>
<td>18</td>
</tr>
<tr>
<td>Scheduling the work to be done</td>
<td>S</td>
<td>3.68</td>
<td>20</td>
</tr>
<tr>
<td>Coordinating the work of the network</td>
<td>S</td>
<td>3.63</td>
<td>27</td>
</tr>
<tr>
<td>Keeping work moving at a rapid pace</td>
<td>S</td>
<td>3.53</td>
<td>28</td>
</tr>
<tr>
<td>Settling conflicts when they occur in the network</td>
<td>S</td>
<td>3.44</td>
<td>31</td>
</tr>
<tr>
<td>Deciding how tasks will be performed</td>
<td>S</td>
<td>3.42</td>
<td>32</td>
</tr>
</tbody>
</table>

our primary hypothesis is that “leadership matters,” we expect that each of the leadership behaviors will be positively related to effectiveness; that is, the more frequent the use of the network behaviors, the higher the perceived effectiveness of the network.

CONTROL VARIABLES

Other factors must be considered as controls on the relation between leadership and network effectiveness. First, we control for the number of personnel the official must manage. Two continuous variables, number of full-time workers and number of part-time workers, are included in the analysis. The demands of the home agency, as expressed by the number of employees the emergency manager must lead, can take time and effort away from attending to the home agency’s external environment, so one could speculate that that the greater the number of workers that must be managed internally, the lower the perceived effectiveness of the network. It is also conceivable that having more employees (i.e., human resources) could lead to greater effectiveness in leading the external network. However, as staff size increases within an organization, the number of member relationships rapidly increases, thus placing increased demands on the leader in coordinating and controlling intra-agency activities (Daft, 2008). Also, because Agranoff and McGuire (2003) asserted that approximately 20 percent of the agency leader’s time is spent on external affairs, and Agranoff (2003) asserted that the functions of the home agency dominate the leader’s attention, we hypothesize that the greater the number of full- and part-time workers, the lower the perceived effectiveness of the leader’s network.

Second, we control for the position to which the emergency manager officially and administratively reports. A manager can report directly to either an elected official such as a county commissioner or to another administrator, or he or she can be the lead official in the county, thus reporting to no other entity (e.g., such situations occur in Texas). Reporting to a county commissioner could presumably lead to better relationships with some key external stakeholders. An emergency manager needs to gain the support of stakeholders both inside and outside the county government, as does any county-level public manager. Furthermore, other research on local government documents the role that politics can play in the extent of collaboration (Krueger & McGuire, 2005; Teske & Schneider, 2003). We thus hypothesize that an emergency manager who reports to a county commissioner will view the network as being more effective. This control variable is measured as a categorical variable with the value of 1 signifying that the emergency manager reports to a county commissioner.

Third, a continuous variable, total FEMA disaster declarations, measures the number of FEMA disaster declarations in the county during the five-year period from February 2003 to February 2008. Data for this variable were collected from
the FEMA Web site for all responding counties. This variable is measured in terms of the number of declarations that occurred during the emergency manager’s tenure in that position. Therefore, for emergency managers who were hired after February 2003, the count of disaster declarations only includes those declarations that occurred after they were hired. Wise (2006) suggested that learning takes place from our experiences with emergencies. Certainly, the aforementioned National Response Framework is an outgrowth of the predominantly negative experiences of the response to Hurricane Katrina in 2005. As noted, the intent of that framework is to improve relationships between local emergency management agencies and other important actors in the local network. We thus hypothesize that previous experience with a disaster enables the emergency manager to learn new and better ways to build an effective network; thus, the greater the number of declarations, the greater one’s perception of the network’s effectiveness.

Three control variables measure the frequency of emergency management activity for three specific tasks: sharing of equipment and supplies, joint response planning, and coordination of mitigation and preparedness activities. These tasks correspond to the mitigation, preparedness, and response phases of emergency management. Using the same five-point Likert scale that was used for determining the frequency of leadership behaviors, the county emergency manager was asked to assess how often he or she participated in the three tasks. As previously reasoned, improvements and adaptations to one’s network are made based on prior experience. McEntire (2007) argued that familiarity with other actors and the relationships that are established with these actors provide the foundation for productive collaboration. We thus hypothesize that the more frequently the emergency manager shares equipment, plans, and coordinates within the network, the greater will be his or her perception of the network’s effectiveness.

In addition to assessing the effectiveness of the manager’s network, the questionnaire also asked, “How effective is your emergency management department in meeting your county’s needs?” The respondent answered this question using a five-point Likert scale labeled very ineffective, ineffective, neither effective nor ineffective, effective, and very effective. This control variable has a range from 1 (very ineffective) to 5 (very effective). We presume that a leader’s positive perception of his or her home agency will be positively associated with that leader’s perception of the effectiveness of the network.

Finally, we include two control variables that address the level of professionalization of the emergency manager. One variable measures whether the emergency manager has received any certification either from the International Association of Emergency Managers, which sponsors training programs known as the Certified Emergency Manager and the Associate Emergency Manager; from FEMA through its Professional Development Series courses; or from the state within which the county is located. Previous empirical research using similar measures demonstrates
that training is positively correlated with the extent of collaboration (McGuire, 2009). Thus, we hypothesize that an emergency manager who has received such a certification will assess the network as being more effective than managers who have not had training. If the emergency manager reported that he or she earned at least one certification, a value of 1 was given to this variable, and zero otherwise. The other control variable addresses education. The questionnaire asked, “What is the highest level of education you have completed?” The respondent was instructed to select one response corresponding to less than high school, high school diploma,
college degree, postgraduate degree, or a degree in emergency management. If the emergency manager reported that he or she completed at least a college degree, a value of 1 was given to this variable, and zero otherwise.

The descriptive statistics and measurement codes are presented in Table 3.

**Findings**

As previously described, the measure of perceived network effectiveness is based on a five-point Likert scale and is therefore an ordinal variable. McKelvey and Zavoina (1975), Winship and Mare (1984), and Long (1997) noted that the usage of linear regression techniques with an ordinal dependent variable, such as ordinary least squares, produces misleading results because such circumstances violate the linear regression model assumptions. Therefore, in cases such as this study, “prudent researchers should use models specifically designed for ordinal variables” (Long, 1997, p. 115). One such model is the ordered logit model.

A key assumption made in an ordered logit model, known as the proportional odds assumption, is that the slopes for each probability curves are equal; this assumption is often violated (Long, 1997). To assess whether the assumption holds in our model, the Brant Test (Brant, 1990) was performed. The results of this test indicated that the proportional odds assumption was violated and that the violation was associated with two of the control variables: the measure of the perceived effectiveness of the county emergency management agency and the number of full-time employees.

In cases where the proportional odds assumption is violated, it is suggested that “alternative models should be considered that do not impose the constraint of parallel regressions” (Long, 1997, p. 145). Other models we examined included the stereotype logistic model (Anderson, 1984) and the generalized ordered logit model (Williams, 2006). The significance and direction of the variable coefficients in these models were the same as those determined using the ordered logit model. Because the findings using the ordered logit model were the same as those found when using the models that relaxed the proportional odds assumption and because the ordered logit model is more parsimonious than the other models analyzed, the ordered logit model is used in the analysis.

Table 4 contains ordered logit estimates for each of the model variables. Based on McKelvey and Zavoina’s (1975) $R^2$, 70 percent of the variation in perceived network effectiveness is explained by the leadership behavior and control variables employed in the model. Hagel and Mitchell (1992), Veall and Zimmermann (1996), and Windmeijer (1995) found that McKelvey and Zavoina’s $R^2$ “most closely approximates the $R^2$ obtained by fitting the linear regression model” (Long & Freese, 2006, p. 196).

As shown in Table 4, two of the four leadership behavior variables (mobiliz-
Table 4. Ordered Logit Model of County Emergency Managers’ Perceptions of the Effectiveness of Emergency Management Networks

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>y-standardized coefficient</th>
<th>Fully standardized coefficients</th>
<th>p-value</th>
<th>95% confidence interval</th>
<th>Robust standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation behaviors</td>
<td>-0.108</td>
<td>-0.033</td>
<td>-0.020</td>
<td>0.755</td>
<td>-0.786</td>
<td>0.570</td>
</tr>
<tr>
<td>Framing behaviors</td>
<td>-0.871</td>
<td>-0.263</td>
<td>-0.163</td>
<td>0.061</td>
<td>-1.782</td>
<td>0.041</td>
</tr>
<tr>
<td>Mobilizing behaviors</td>
<td>1.414</td>
<td>0.427</td>
<td>0.288</td>
<td>0.001</td>
<td>0.596</td>
<td>2.232</td>
</tr>
<tr>
<td>Synthesizing behaviors</td>
<td>1.522</td>
<td>0.460</td>
<td>0.269</td>
<td>0.002</td>
<td>0.537</td>
<td>2.510</td>
</tr>
<tr>
<td>No. of full-time workers</td>
<td>-0.010</td>
<td>-0.003</td>
<td>-0.028</td>
<td>0.543</td>
<td>-0.043</td>
<td>0.023</td>
</tr>
<tr>
<td>No. of part-time workers</td>
<td>-0.016</td>
<td>-0.005</td>
<td>-0.073</td>
<td>0.035</td>
<td>-0.031</td>
<td>0.001</td>
</tr>
<tr>
<td>Reports to county commissioner</td>
<td>-0.400</td>
<td>-0.121</td>
<td>-0.060</td>
<td>0.092</td>
<td>-0.856</td>
<td>0.064</td>
</tr>
<tr>
<td>Total FEMA disaster declarations</td>
<td>0.022</td>
<td>0.007</td>
<td>0.009</td>
<td>0.806</td>
<td>-0.152</td>
<td>0.195</td>
</tr>
<tr>
<td>Sharing of equipment and supplies</td>
<td>-0.547</td>
<td>-0.165</td>
<td>-0.143</td>
<td>0.005</td>
<td>-0.932</td>
<td>-0.162</td>
</tr>
<tr>
<td>Joint response planning</td>
<td>0.591</td>
<td>0.179</td>
<td>0.146</td>
<td>0.003</td>
<td>0.206</td>
<td>0.976</td>
</tr>
<tr>
<td>Coordination of mitigation and preparedness activities</td>
<td>0.354</td>
<td>0.107</td>
<td>0.091</td>
<td>0.079</td>
<td>-0.041</td>
<td>0.750</td>
</tr>
<tr>
<td>Perceived effectiveness of the emergency management agency</td>
<td>3.040</td>
<td>0.918</td>
<td>0.588</td>
<td>&lt;0.001</td>
<td>2.448</td>
<td>3.632</td>
</tr>
<tr>
<td>Professional certification</td>
<td>0.004</td>
<td>0.001</td>
<td>0.001</td>
<td>0.989</td>
<td>-0.543</td>
<td>0.551</td>
</tr>
<tr>
<td>College degree</td>
<td>-0.220</td>
<td>-0.066</td>
<td>-0.032</td>
<td>0.364</td>
<td>-0.695</td>
<td>0.255</td>
</tr>
</tbody>
</table>

Notes: Sample size = 505. McKelvey and Zavoina’s $R^2$ = 0.700. Dependent variable = County emergency managers’ perceptions of the effectiveness of emergency management.
ing and synthesizing) are statistically significant at \( p < 0.05 \). The use of framing behaviors had a \( p \)-value of .061. Additionally, all three of the emergency management activities are statistically significant: Sharing equipment and supplies and joint response training are statistically significant at \( p < 0.05 \), and coordination of mitigation and preparedness activities is statistically significant at \( p < 0.10 \).

The perceived effectiveness of the county emergency management agency is the most substantively significant variable and is significant at \( p < .05 \). Finally, the number of part-time workers is statistically significant at the \( p < 0.05 \) level, and the dichotomous variable for the form of county government is statistically significant at \( p < 0.10 \).

In addition to the \( p \)-values, Table 4 includes the \( y \)-standardized and the fully standardized coefficients. Both found that interpretations of the results of ordered regression models should be based on either the fully standardized or \( y \)-standardized coefficients. The interpretation of the variables presented in this paper are based on the \( y \)-standardized ordered logit coefficients (Long, 1997; Mckelvey & Zavoina, 1975; Winship & Mare, 1984). That is to say that a unit increase in an explanatory or control variable increases or decreases the dependent variable, perceived network effectiveness by some number of standard deviations. The standard deviation for the dependent variable is 0.674 points on the Likert scale. In other words, a one standard deviation increase or decrease is equivalent to a 0.674 Likert scale point change.

Both the mobilizing and synthesizing leadership behaviors were found to be positively associated with the leader’s perceived network effectiveness. For each additional unit increase in the reported frequency of mobilizing or synthesizing leadership behaviors, the perception of network effectiveness is expected to increase by 0.427 and 0.460 standard deviation, respectively. This corresponds to an increase of 0.288 Likert scale point for a unit increase in the frequency of mobilizing behaviors and a 0.310 Likert scale point for a unit increase in the frequency of synthesizing behaviors. Conversely, the frequency of framing leadership behaviors was found to have a negative relation with the dependent variable, such that a one-unit increase in frequency of framing behaviors is expected to decrease the perception of network effectiveness by approximately one-fourth of a standard deviation, or 0.177 Likert scale point.

As indicated, a number of the control variables were also found to have statistically significant associations with the leader’s perception of network effectiveness. The control variable with the greatest expected effect is the measure of perceived agency effectiveness. In this case, an increase of one Likert scale point in the measure of perceived agency effectiveness is expected to increase the perception of network effectiveness by nearly one standard deviation. This corresponds to an increase of 0.619 Likert scale point. Other control variables with positive associations with the dependent variable include two of the network activities: joint
response planning and coordination of mitigation and preparedness activities. A unit increase in these variables is expected to increase the perception of network effectiveness by 0.179 and 0.107 standard deviation or 0.121 and 0.072 Likert scale point, respectively.

Unlike these two network activities, the variable measuring the frequency of sharing equipment and supplies was found to be negatively related to network effectiveness perceptions. An increase in the frequency resource sharing by one Likert scale point was found to decrease network effectiveness perceptions by roughly 0.165 standard deviation (0.111 Likert scale point). Similarly, both the form of government variables and the number of part-time workers were found to be negatively related to the dependent variable. Reporting to an elected county official was found to decrease network effectiveness perceptions by nearly one-tenth of a Likert scale point (–0.121 standard deviation). The effect of increasing the number of part-time workers was found to decrease network effectiveness perceptions by nearly one-tenth of a Likert scale point (–0.121 standard deviation). The effect of increasing the number of part-time workers was quite small (–0.005 standard deviation or –0.003 Likert scale point). The number of full-time workers, the number of FEMA disaster declarations, and the variables measuring professionalization (certification and college education) were all found to be statistically insignificant in their ability to predict perceptions of network effectiveness.

**Discussion**

The findings demonstrate that leadership plays an important role in an emergency manager’s perception of the effectiveness of their external networks, as three of the four behavior categories were found to be statistically significant predictors. Although activation was the one category of leadership behaviors found not to be statistically significant, it was the leadership behavior category that was engaged in most often (see Table 3). Therefore it can be posited that, whereas such behaviors are not integral to determining effectiveness, activation behaviors may still be an important component of network leadership. As described in the previous discussion, activation behaviors are those that are intended to identify and incorporate the resources and personnel needed to effectively attain the network’s goals. However, engaging in such behaviors does not predict managerial perceptions of network effectiveness. Apparently, working toward attracting resources to the network does not translate into network effectiveness. It is likely that activation behaviors are necessary but not sufficient for network effectiveness.

Mobilizing and synthesizing behaviors are positively related to network effectiveness perceptions. The question asked of the county emergency managers was to assess how effective the network was at meeting the county’s needs. Central to this is the establishment of the legitimacy of the network in the eyes of its stakeholders (Provan & Milward, 2001) and the development of stakeholder support for the network’s activities. Behaviors focused on such external stake-
holder management are at the heart of the mobilization behaviors. In addition to externally focused behaviors, mobilization behaviors also address the incentivization of internal stakeholders. Likewise, synthesizing behaviors are also ones that focus on the network members by attempting to increase and strengthen network relationships and thereby increase network effectiveness. A key component of this type of environment is that of mutual trust. Trust is one of the aspects that hold networks together (Agranoff, 2003) and is an important factor that substantially affects coordinated action in the absence of hierarchical relationships (Agranoff & McGuire, 2001). Such an environment is vital to the network’s ability to operate effectively. As Provan and Milward (2001) explained, network effectiveness is the product of the perceptions of stakeholders within and external to the network. Hence, frequent attention to mobilizing and synthesizing behaviors by the network’s leader is integral to that network’s ability to effectively meet the needs of its constituencies.

Framing behaviors were also found to be a significant predictor of the perceptions of network effectiveness. However, contrary to the original hypothesis, these behaviors are negatively related to the dependent variable. Contrary to the theoretical arguments posed in the literature (see Agranoff & McGuire, 2001), it appears that situations where network leaders are required to spend their time and energies frequently on defining and gaining buy-in for network roles, rules, and norms are ones that are fraught with uncertainty and lack of consensus. Under these circumstances, instead of leading a network that is operating in a unified manner, the county emergency manager may be continually attempting to achieve agreement. The literature points to the fact that organizations with greater goal alignment will generally operate with greater efficiency and be more productive. “Organizational performance is an outcome of how well . . . interdependent elements are aligned . . . [and] are working in concert to attain specific goals that ultimately help the organization fulfill its mission” (Daft, 2008, p. 216). Although time spent “clarifying goals for individuals and work groups can improve efficiency and productivity” (Rainey, 2003, p. 131), it would follow that in cases where the manager was required to spend greater time doing so would indicate that organizational goal alignment is lacking and therefore is operating suboptimally. Therefore, managers who engage in framing behaviors more frequently would do so because they sense the network is not operating as effectively as it should or could.

In addition to the findings associated with the leadership variables included in the model, a number of the findings associated with the control variables are also interesting. Although it was hypothesized that the greater the number of workers that must be managed, the lower the perceived effectiveness, this relationship was only statistically significant for part-time workers. A potential explanation for this finding is that part-time workers may require more time to manage and
direct than their full-time colleagues. Part-time workers likely do not have the same experience, procedural knowledge, or technical capabilities as the full-time workers and therefore need more supervision. The added time spent managing the part-time labor force may take away from the time that the county emergency manager can dedicate to engaging in mobilizing and synthesizing behaviors in the network.

Unlike what the collaborative literature suggests, the political variable employed in this model is negatively associated with the dependent variable. Rainey wrote that “elected officials have little political incentive to attend to ‘good government’ issues such as effective management of agencies” (2003, p. 12). Instead, they adhere to what has been termed administrative orthodoxy (Warwick, 1975), in which the elected officials focus on strict hierarchical control of the bureaucracy as a means of holding them accountable. Because a networked approach does not conform easily to this perspective of hierarchical control (Keast, Mandell, Brown, & Woolcock, 2004) and political support of the emergency management network is important to their success and effectiveness (McEntire, 2002), perhaps emergency managers who report to elected officials do not get the requisite support for their network activities from their superiors. This may result in less attention to the leadership activities required of the manager to lead the network and therefore lower perceptions of network effectiveness.

Of the three measures of the frequency of emergency management activity, joint response planning and coordination of mitigation and preparedness activities were both positively related to perceived network effectiveness. Planning and coordination efforts would likely increase the county emergency manager’s familiarization with the other network members and their agencies. McEntire (2002) found that familiarization, both in terms of understanding the capabilities of the other organizations in the network and in terms of interpersonal familiarization with individual network members, led to more effective emergency management responses. However, those networks that frequently engage in the sharing of equipment and supplies have less favorable perceptions of the effectiveness of their networks. In such situations, the county emergency manager’s focus may be on ensuring that he or she has the physical resources that are needed to execute their duties at the exclusion of cultivating relationships with network members. The worth of the network, therefore, is seen as the equipment and supplies that the network member organizations have to offer. Whereas networks that frequently engage in planning and coordination work to increase effectiveness, networks that more frequently engage in resource procurement do not see effectiveness as the objective.

Surprisingly, the number of FEMA disaster declarations declared during the emergency manager’s tenure was not found to be a statistically significant predictor of perceived effectiveness. This finding could indicate that perceptions of a
network’s effectiveness are determined regardless of experiences on which to base this opinion. Similarly, both measures of professionalization were found to not significantly influence perceived effectiveness. This was somewhat surprising, as past research has indicated that professionalization factors significantly increased intergovernmental and intersectoral activity (McGuire, 2009).

**Conclusion**

The foregoing research can serve as the foundation for future studies. The context of this study was that of the county emergency manager. We argue that they are in the best position to assess network effectiveness because they are the leaders. However, it would be of value to additionally investigate (a) how the other members of the network perceived the network’s effectiveness, (b) how their leadership behaviors played a role in this assessment, and (c) how they perceived the county emergency manager’s leadership behavior as affecting network effectiveness. For example, the other members of the network have responsibilities for emergency management both in terms of operating as a network and serving within their home agency. The networks in this study included federal and state agencies, other departments in the county, other counties, hospitals, the American Red Cross, and other civic, religious, and nonprofit groups. These entities all play differing roles in the provision of emergency management services. For example, entities such as the American Red Cross have a mission to serve during a disaster. Hospitals, on the other hand, may have a service delivery surge during a disaster but generally perform the same functions and tasks regardless of the occurrence of a disaster. Finally, other groups such as churches and other nonprofit groups may assist in emergency management activities, but their main function remains outside of this realm. Based on these differing situations, it would be interesting to understand the issues that come into play in their perceptions of network effectiveness. As network effectiveness can reasonably be seen as a symbiotic relationship, the understanding of such perspectives could shed new light on why some networks are more successful than others.

It would also be of value to determine how nonlead-entity perceptions of network effectiveness are affected by the leadership behaviors of the lead agency member or members. Our study strictly focused on the county emergency manager. However, expanding the scope to include the network members’ perceptions of effectiveness relative to the county emergency managers’ leadership behaviors would serve to give a clearer picture of how the emergency managers’ actions impact the network as a whole. Leadership in this study is found to be important, and much can be learned from investigating the impact of leadership behaviors exhibited by nonlead entity members.

The context of the study is county emergency management. Although the
impact of leadership behavior on network effectiveness is reasonably thought to be generalizable to other types of public sector networks, work should be done to investigate this in different contexts. As has been mentioned previously, emergency management networks have been functioning for quite some time. However, there are other fields of public management that have not enjoyed such a long or stable history. Therefore, work performed on new and emerging networks may yield different results. Perhaps networks whose membership is in constant flux might find that activation and framing are positively related to network effectiveness (McGuire, 2002). In leadership studies, context matters. Therefore, more work in these areas and contexts is needed.

Finally, local emergency managers can learn a great deal from these findings. The most substantively significant leadership behaviors associated with a positive assessment of the network’s effectiveness were those dealing with mobilizing external actors and synthesizing the network through such behaviors as trust building, sharing information, and looking out for the personal welfare of network members. With respect to the former category of leadership behaviors, it appears that stakeholder connections are, in fact, important for leading an effective network; a local emergency manager would be wise to develop these contacts. Encouraging support from stakeholders and keeping these stakeholders informed about network activities can go a long way toward maintaining positive perceptions of a leader’s external network. Just as Agranoff (2007) and Thomas (2003) found in their comparative case studies, the “right” people to mobilize may be those with greater connections beyond the immediate network.

This large study demonstrates the value of shaping the network in a way that does not rely on too much task-related activity. The local emergency manager clearly perceives his or her network to be less effective the more that he or she must attend to issues of structure, task, and values/vision. This study does not necessarily find such behaviors to be unimportant but rather suggests that undertaking such behavior diminishes the leader’s perceptions of the network. Framing may bog down the critical operations of the network, perhaps leading the emergency manager to view such activity as diminishing the outcomes of the network.

Practically speaking, spending time on framing behaviors in which the manager is focused on gaining consensus on formulating the goals of the network diverts time and effort from behaviors intended to achieve the network’s goals effectively. If the network is concentrating on determining what needs to be done to be effective, it is more difficult to be effective at doing it. Conversely, in situations where the need for framing behaviors is lessened, the manager can focus on mobilizing and synthesizing behaviors, which increase the perception of effectiveness. The local emergency manager thus should frame when and where necessary but concentrate on shaping the network in a way that benefits external stakeholders and develops the talents of the network members.
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