

Organizational Effectiveness in Higher Education: Faculty Informal Structure as Social Capital

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### Abstract

Higher education institutions encounter complex external environments, requiring increasing responsiveness and innovation. Research on social capital has demonstrated that highly connected employee relational networks are more creative, effective, and exhibit higher member satisfaction. The present study examines one college to demonstrate how social network analysis can be used to assess the informal relational networks of faculty members within a higher education institution. Characteristics of the faculty social network are described and mapped. The relationship between aspects of individuals' network linkages, governance participation, and their organizational commitment, satisfaction, and trust are assessed. Recommendations for building effective organizational networks, particularly through expanding participation in college governance, are provided.

## Organizational Effectiveness in Higher Education: Faculty Informal Structure as Social Capital

Higher education is no stranger to the need to be increasingly innovative and responsive to a complex and changing environment. Pressures include greater competition, constrained resources, competing priorities, complexity of student profiles and increased demands, shifts to a learning-centered orientation, and new information technology. These pressures combine with external demands for quality, cost effectiveness, community engagement, solutions to social problems, and building the economy through innovative research—all existing within a shorter decision time frame (Berberet, 2002; Kezar & Eckel, 2004; Longin, 2002). At the same time, higher education struggles with the accountability and governance structures necessary to meet these challenges in a timely fashion. Although such a multivariate complex situation necessitates a multipronged solution, building social capital through relational networks is a strategy that can play an important role in meeting the challenges of the environment that higher education faces.

Research conducted in all types of organizations provides strong support for the idea that the network of relationships among organizational members is a vital resource for responsiveness to a changing environment, innovation, member satisfaction, and commitment (Cross, Baker, & Parker, 2003; Cross, Borgatti, & Parker, 2002; Kezar & Lester, 2009a). Of course, the knowledge, skills, and abilities of organizational members themselves is a key precursor to the value of relationships between these members. Nahapiet and Ghoshal (1998) define social capital as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (p. 243). The better an organization is at developing these relational conduits for knowledge and ideas, the better it is at building creative responses to the challenges it faces, whether it be developing new products or services, entering new markets, increasing customer satisfaction, or finding ways to

fill important goals and objectives more efficiently and effectively (Cross, Liedtka, & Weiss, 2005). It is important to note that this network of relationships is distinct from the formal organizational structure—the hierarchy depicted on organizational charts. Rather, the informal structure in which organizational members from different disciplines or functional areas collaborate and share ideas is key to describing the network of relationships that build social capital.

This paper describes how social network analysis can be used to assess the social capital potential of higher education institutions and demonstrates its potential to impact faculty members' attitudes toward the organization (e.g., commitment, satisfaction). To date, there has been no application of quantitative social network analysis techniques in a higher education context. Social network analysis is a technique developed from sociology (originating with the sociogram) and mathematics in which characteristics of the relationships between a set of individuals rather than characteristics of the individuals themselves are the main point of interest (Marin & Wellman, 2011). Specialized computer programs can be used to plot the relational networks and determine how sparse or dense the network is, which members have the most connections to others, and where the network is disconnected. Some networks may exhibit subgroups or factions while others have relationships that are evenly distributed and allow information to travel with ease throughout the network. Organizational networks can also describe different types of relationships, for example, simply whether or not members know one another, whom they would ask for help, whom they communicate with frequently, etc. Previous work in social network analysis has demonstrated significant relationships between network attributes and outcome such as information diffusion (Schaefer, 2011), creativity (Perry-Smith,

2006), team effectiveness (Balkundi & Harrison, 2006; Cummings & Cross, 2003), and job satisfaction (Flap & Völker, 2001).

The current study uses the case of one higher education institution to examine the relationship between network structure and several organizational attitude variables: organizational commitment, trust, and job satisfaction. In addition, participation in various roles is assessed, e.g., institutional shared governance, faculty development activities, and interdepartmental initiatives. This research proposes that membership in such activities builds relationships that have positive implications for the attributes of organizational network structure which are beneficial for collaboration and innovation, and that individuals with network characteristics such as a large number of relationships and central placement within the structure will demonstrate greater job satisfaction, organizational commitment and trust. A network that exhibits these attributes has the potential to build an effective response to the challenges facing higher educational institutions.

The organization of the paper is as follows. First, a conceptual background on social capital and relevant previous research on organizational structure and organizational effectiveness is provided, noting the importance of member interaction for satisfaction, commitment, innovation, and problem solving. Next, an introduction to the technique of social network analysis and key research findings are provided. Rationale for the relational network variables to be used in the study is discussed. The research methodology and setting focuses on a whole-network survey and network analysis of the all faculty at a particular institution, and address relationships between network characteristics, member attitudes, and participation in governance. Finally, the study makes recommendations for improving the network structure.

**Social Capital**

Ferren, Kennan, and Lerch (2001) propose that in higher education as well as other types of organizations, the value of social capital is equal to other assets such as financial capital or human capital (expertise). Social capital can be considered as both a collective and an individual good (Lin, 2001); the embedded resources are expected to benefit both individuals' opportunities and organizational viability (Coleman, 1988; Putnam, 2000). Social capital is built through the network of relationships and corresponding resources to which an individual has access, or, at an organizational level, the aggregate of these relationships between organizational members (Lin, 2001). Resources embedded in social networks facilitate flow of information, exert influence, provide social credentials, and reinforce identity. Unlike other forms of capital, social capital is less tangible, existing within the structure of relations between actors (Coleman, 1988), rather than the actors themselves. Coleman has noted that "acquisition of information is costly, at a minimum requiring attention, which is always in scarce supply" (p. S104).

At the organizational level, social capital has three basic components: "the *network*; a cluster of *norm, values, and expectancies* that are shared by group members; and *sanctions*—punishments and rewards—that help maintain the norms and the network" (Halpern, 2005, p. 10) and improve group efficacy by facilitating coordinated action (Putnam, 2000). Coleman (1988) provided an excellent example of how these components work together when he described the wholesale diamond market in which merchants hand over bags of diamonds, worth many thousands of dollars, to other merchants to examine at their leisure. The arrangement works effectively only because of the high degree of trust and trustworthiness among the community of merchants; their close business relationship and common understanding of appropriate behavior

allows for the free flow of information without requiring expensive or complicated contracts or insurance. Social capital requires developing a sense of trust (Lesser & Storck, 2003).

Aspects of the social capital network can be characterized in various ways. An important distinction exists between bonding and bridging capital. Bonding capital reinforces group identity while bridging capital is more outward focused, seeking linkages across groups (Halpern, 2005, p. 19, see also Putnam, 2000). In both types of social capital, goodwill toward one another is key, as is allowing for some sort of behavior to take place (as in the diamond merchants). The contrast between bonding and bridging capital also parallels Granovetter's (1973) distinction between strong and weak ties, strong ties being centered around one's close support network of family and friends, while weak ties consist of acquaintances and other contacts which become useful for seeking information and other opportunities. Access and use of social resources is determined by position/location in network, (e.g., structural holes; Burt 1992).

Gladwell (2000) gave the example of religious leader John Wesley as a "connector," not only having ties to many people, but people in many different groups. New or changed ideas need a community around them where they can be nurtured and practiced. As with other forms of capital, social capital describes the resources that one's social network enables an individual to access. At the individual level, elements of social capital are: (1) number of persons within one's social network prepared to help when called upon to do so; (2) strength of relationship; (3) resources of the persons (Flap & Völker, 2001). Although size and density of the social capital network is important, ultimately the value of these relationships for social support or information determines the actual "capital."

### **Organizational Structure**

The linkages between organizational members are more complex than they may appear at first glance. Formal structure arises from the configuration of roles while informal structure arises from the process of interaction (Ransom, Hinings, & Greenwood, 1980). Like most organizations, higher education institutions have a formal organizational structure. Employees, including faculty, are placed into departmental units and have a place in a hierarchy depicted by an organizational chart. In addition to the formal structure, employees may initiate, or the organization may foster, less formal structures such as communities of practice (Cross, Nohria, & Parker, 2002; Lesser & Storck, 2003), such as reading groups, new employee seminars, informational talks. Employees may have contacts with areas of expertise or friendships within the organization that exist due to common interests inside or outside the organization.

Also like many other organizations, higher education institutions implement what is known as a parallel or collateral structure (Bushe & Shani, 1998) designed to foster participation in organizational decision making by employees throughout the hierarchy who are likely to have relevant insights. Like quality circles or other parallel structures in business organizations, shared governance models bring together employees whose work is central to the mission of the organization with other employees in supporting or management roles. Due to the cross-unit representational nature of committee elections and appointments by peers, governance relationships have significant potential implications for the social capital and network relationships within an institution. Committee members will expand the informal organizational network by connecting with others whom they may not otherwise interact, and such interactions contain the potential for new ideas.



### **Organizational Effectiveness**

Effectiveness criteria for higher education organizations include Cameron's (1978) widely-cited list: student educational satisfaction, student academic development, student career development, student personal development, faculty and administrative employment satisfaction, professional development and quality of the faculty, systems openness and community interaction, ability to acquire resources, and organizational health. Several of these criteria are particularly relevant for social capital and informal network structure, including organizational attitudes variables such as job satisfaction, organizational commitment, and trust (Cameron, 1978; Lesser & Storck, 2003). Relationships between members that provide friendship, information, help, and advice create a pleasant working environment for individuals, and a dynamic and innovative setting for the organization.

The connection between organizational effectiveness and member interaction, particularly in the context of a dynamic environment, has also been noted by other scholars. The turbulent and often demanding environments facing universities require quicker, more flexible responses (Clark, 1998) and creative and innovative strategies (Cameron & Tschirhart, 1992). Collaborative horizontal relationships can foster this necessary creativity and innovation. Because a turbulent, uncertain environment will support varied causal interpretations due to its complexity and ambiguity, individuals are likely to have very different mental models regarding the structure of an issue (Timperley & Robinson, 2000). Thus, if individuals engage in dialogue, they are more likely to improve their common understanding (Sterman, 1994). For example, awareness of systemic limitations of a particular practice is diminished if teachers interact only with departmental colleagues. Understanding is shaped by shared experiences, not just meaning and language (Eckel & Kezar, 2012).

Higher education institutions as loosely coupled systems (Weick, 1976) may mean that information diffusion is slow and indirect. However, Weick also considers educational institutions to be “richly connected networks” (p. 5) implying that alternate relational pathways exist to achieve the same end. This is consistent with social network theory in which information can travel through multiple routes on its path between two individuals (Brass, 2012). Power within loosely coupled organizations tends to be achieved through networks of influence (Kezar, 2001).

Due to the need for more a timely response to a dynamic environment, Keeling, Underhile, and Wall (2007) call for tighter coupling of horizontal and vertical structures. Horizontal connections can create a greater focus on common institutional goals. Since it is often the case that faculty are unaware of the various initiatives going on outside their own area (Kezar, 2009), informal connections can increase awareness that information, and possibly create synergies rather than duplicating efforts. The formal structure is capable of both stifling encouraging informal network development. For example, requiring that requests for information be elevated up through formal leaders creates overload for those individuals and constrains cross-disciplinary collaboration (Cross & Thomas, 2009). By requiring less vertical interaction, including meetings and approvals within the administrative unit, leaders can create time for more collaboration outside departments.

The most effective approaches to gather information, solve problems, and make decisions involves participation from throughout the organization. Timperley and Robinson (2000) found that collaborative networks gave teachers more influence over change. Cameron and Tschirhart’s (1992) study of 331 institutions of higher education found that participative decision making was positively related to the following organizational effectiveness dimensions: student academic

development, student career development, faculty/administrative satisfaction, faculty quality, acquiring resources, and organizational health. Participative decision making, and the inclusion of participants both vertically and horizontally in representation, can at least partially mitigate the negative effects of challenging environments. This is because of the need for multiple sources of information and multiple perspectives is heightened in such an environment.

“Managers and administrators must consciously resist the inertia that drives decision making upward and inward in institutions faced with turbulent environments” (p.102).

### **Social Network Analysis**

The benefits of social capital and the idea of social networks have begun to be recognized by scholars of higher education (e.g., Kezar & Lester, 2009a); however, there are no studies of faculty that make use of the quantitative social analysis techniques. Social network analyses provide a means of assessing the configuration and potential value of these informal structures for organizational effectiveness. As mentioned in the context of social capital, the support, information, and influence resources developed through the relationships between organizational members can be quite valuable, both for the individuals and the organization.

Social network analysis depicts just how the relational elements that comprise social capital are arranged. For example, in most networks a “very small number of people are linked to everyone else in a few steps, and the rest of us are linked to the world through those special few” (Gladwell, 2000, p. 37). This is the explanation for the small world phenomenon in which everyone is linked to the actor Kevin Bacon (or anyone else) in six or fewer steps, as well as the success of a study by Milgram (1967) in which he asked individuals to send a packet to someone they knew, with the eventual goal of the packet arriving at the home of a particular individual who was a stranger to the initial sender.

Social network analysis can be considered a method of mapping the social capital of an organization through the relationships between organizational members, taking into account the relationships not depicted in the formal organizational chart of reporting relationships. The informal structure is not obvious; formal leaders are able to guess only about 30% of the key brokers in a network (Cross & Thomas, 2009). Mapping the network points out which members occupy which of these informal roles, how various subgroups (e.g., departments, areas of expertise) relate to one other, whether particular subgroups dominate the information and decision making network, and where collaboration should be present but is not.

Assessing informal network structures involves the following (Cross, Nohria, & Parker, 2002; Cross & Parker, 2004): selecting the type of network relation (e.g., awareness of knowledge or skills, communication, friendship); determining the boundaries of the network—the members whose relationships will be assessed; collecting data from these organizational members, often via survey; mapping the relationships; and analyzing them using social network analysis software such as UCINET VI (Borgatti, Everett, & Freeman, 2002) which uses matrices and mathematical algorithms to determine variables such as the density of the network, the average distance between any two members of the network, and inclusion of organizational members in the network structure (Wasserman & Faust, 1994).

Particular types of network members may be evident such as boundary spanners, who maintain the sparse linkages between units; information brokers, who play a similar role within units; peripheral specialists, in whom expertise resides but who may have relatively few relational linkages; and connectors, who maintain many relationships and serve as guides for individuals seeking information throughout the network (Cross & Prusak, 2002). Experts in analyzing networks and consulting with organizations note that connectors have particular

importance, often acting as good citizens by helping others find the information they need without being rewarded. These highly connected individuals can help drive change, but they can also act as bottlenecks if too few of these connection points exist (Cross & Thomas, 2009).

Informal networks can represent a variety of relationships including friendship, communication frequency, values similarity, or information sharing. For example, Cross et al. (2003) asked members to rate the level of energy felt when interacting with each of the other network members, determining that projects within the organization which generated the most enthusiasm were led by individuals identified by others as energizing. By assessing the map of these relationships, an organization can determine characteristics of the network such as the density of relationships (what percentage of potential relationships actually exist); if there are horizontal relationships that connect different organizational units; and if there are individuals holding key positions in a network and who may act as conveners or connectors of other individuals or may hold particular influence within the network. An analysis may find, for example, that an organization is too decentralized and lacking the relationships between individuals or units that would integrate their work (Cross et al., 2002).

*Vision and values.* Shared values constitute a key way in which organizational members form relationships (Fugazzotto, 2009). Shared values create a sense of purpose, build trust, and foster collaboration (Kezar & Lester, 2009a). Support of an institution's mission is dependent upon organizational members holding similar values. Research by the Carnegie Foundation for the Advancement of Teaching found that 76% of faculty report that they support their institution's mission; however, only 43% report that they believe that faculty as a whole have a shared understanding of the mission and believe that only 51% of faculty work to support that mission. Social network analysis can highlight which organizational members are the key culture

carriers—and also determine if they are transmitting cultural values that are consistent or inconsistent with the organization's mission (Cross & Thomas, 2009). Often longer-tenured members are central in the network, having had more time to develop trusted ties, while newcomers (and new ideas) are on the periphery of a network; intentional efforts to connect these newer members across the organization can make them more central within the network (Cross & Thomas, 2009).

*Information and problem solving.* Many studies of organizational networks focus on relational linkages that work to distribute information between individuals. Cross and Thomas (2009) note the importance of informal networks in solving ambiguous problems not anticipated by formal organizational structures. They also note the importance of individuals who build relationships across organizational units, and the fragmentation that can occur if one of these individuals leaves the organization. Wegner (1987) points to the advantages of transactive memory networks in which being able to rely on other group members produces a knowledge-holding and retrieval system that is more effective even than its individual component systems. In such a differentiated system, members rely on others' expertise and contact between them yields integrative solutions to organizational problems. Organizations can structure themselves to maximize transactive memory; however, as social network analysis has shown, the informal structure also plays an important role in information sharing and innovation.

*Help and Friendship.* Although less directly related to organizational-level outcomes, friendships between organizational members and the ability to ask others for assistance constitute key connections between individuals, and have been found to contribute to job satisfaction (Ibarra, 1995).

### **Methods and Data Collection**

An electronic survey was distributed to all 175 full-time faculty members at a private, not-for-profit college. The college has 23 academic departments divided into four schools. Demographic information (sex, years with organization, department and school membership) was matched to survey responses. Data collection was conducted using a whole-network (or saturation sampling) approach which examines a set of interrelated actors that are regarded as a bounded collective (Marsden, 2005). The saturation technique (Lin, 2001) is advantageous when it is possible to map a definable social network, such as all members in one category within an organization, because it allows detailed and complete analysis of every network location as well as embedded resources in each node (member).

The survey elicited 130 responses for a 75% response rate. This response rate meets the criteria for representativeness of the full network (Kossinets, 2006) as well as similarity between respondents and non-respondents (Stork & Richards, 1992).

The survey collected data on several types of network relations using the roster method as well as some additional questions on work attitudes and participation in certain types of projects. In the roster method, respondents are free to nominate as many network contacts as they deem appropriate from the list of faculty. This format is desirable compared to a fixed-choice format because limiting respondents to a fixed number of choices tends to introduce measurement error into network data (Holland & Leinhardt, 1973).

The first network question asked respondents to assess how well they know each fellow faculty member by placing them in one of three categories: (1) "I have rarely or never interacted with them and don't know much if anything about them (not familiar with their skills or abilities)." (2) "I have interacted with them somewhat infrequently and know a little about them

and their skills and personal characteristics, perhaps by firsthand experience but perhaps more by reputation.” (3) “I have interacted with them relatively more frequently and have a pretty good firsthand idea of their skills and personal characteristics.” This question also served as a filter in that respondents recorded subsequent network relations only for those faculty members for whom they reported having relatively strong knowledge, since this relation is a precursor to other network relations, and this research is most interested in network relations among faculty who know each other beyond a certain threshold. Structuring the survey in this manner makes responding less burdensome while still keeping the advantages of the roster method. The other network relations assessed were as follows: Help (I could turn to this person for help in thinking through a new or challenging issue at work), Vision (I believe that this person shares the same vision for the College that I do), Communication (On average, I communicate with this person at least two times each month), and Friend (I would consider this person to be a personal friend, that is, someone I see for informal social activities such as going to lunch, dinner, visiting one another’s homes and so on). The definition of friendship is relatively stringent and follows the definition used in several other studies (e.g., Ibarra, 1995).

In addition to network relations, the survey asked respondents to report ways in which they developed network connections and assessed organizational attitudes. Attitude questions included questions about overall satisfaction, satisfaction with opportunities for interaction with other faculty members, a 4-item measure of organizational affective commitment (adapted from Lee & Kim, 2011; Meyer & Allen, 1991), and one item about organizational trust taken from Mayer and Davis (1999): “I perceive that people in this organization are generally dependable. For example, I perceive that people stick to their word and make sure their behaviors and actions are consistent.” All responses were reported on a 5-point Likert scale. It is common in network



research to use single-item measures of the network variables, when situational constraints limit the administration of multi-item scales (Wanous, Reichers, & Hudy, 1997).

### Results

Results of the social network analysis corresponding to attributes of the overall network are presented first, followed results of the organizational attitude questions on the survey. Further analysis addresses statistical relationships between committee participation, organizational attitudes and network characteristics. Results demonstrate favorable network characteristics and a positive relationship between characteristics of network relations, participation in educational initiatives, and organizational attitudes. A correlation matrix of key variables is provided in Table 1.

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Insert Table 1 about here

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### Social Network Analysis

Network structure was analyzed using UCINET VI (Borgatti et al., 2002) and mapped using NetDraw (Borgatti, 2002). A network graph (diagram of relationships) is provided in Figure 1, depicting the network structure of faculty members with whom they report that they Know Well. The other network relations that were assessed (Help, Vision, Communication, Friend) demonstrated a similar overall network structure, but differed in the density of the network.

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Insert Figure 1 about here

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**Density.** Density refers to the proportion of possible connections (i.e., 100%) that actually exist between individuals. High density is favorable in that it can indicate speed of information flow. The goal, however, is not to connect everyone to everyone else (Cross, Nohria,

& Parker, 2002), but rather to develop linkages throughout the organization to enable information flow. Cross and Thomas (2009) offer 30-40% as an ideal level. In the present research, of all possible connections that could exist of individuals reporting that they Know one another, 33% were indicated by respondents (41% if adjusted for non-respondents). Sixteen percent of possible relationships existed for Know Well, and Vision (11%) was the strongest among the other relations.

**Other network characteristics.** *Inclusiveness:* No individuals were isolated from the rest; all had connections to others in network for every type of relationship. *Connectivity:* All actors were reachable by all others. *Components:* An analysis examined the network structure to look for thinly connected or weak areas within the overall structure the network. Results demonstrated a single component rather than a number of subgroups or factions with few connections between them. *Hierarchy:* Results indicate that whole network is part of the same level within the structure. This is evidenced by reciprocated ties—both members reporting a relationship with each other—indicating equality.

These attributes are all favorable and indicate that the institution demonstrates a good basis for transmitting knowledge throughout the network. A relation of particular interest was Vision because agreement among organizational members is important for moving forward with organizational initiatives (Hickson, Butler, Cray, Mallory, & Wilson, 1986). The relationship graph is presented in Figure 2 with schools coded by color. More connections exist between members of the same school; however, it is still a unified structure rather than subgroups having minimal connections with one another.

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Insert Figure 2 about here

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The results of a school restructuring offered an interesting opportunity to consider how well “new” members from two departments were integrated into an existing academic unit. The Dean was very intentional about promoting interaction, including team building and interdisciplinary initiatives, much as the literature on building networks recommends. Figure 3 shows that new and old members have indeed built relationships with one another.

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Insert Figure 3 about here

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### **Organizational attitudes and participation**

**Overall job satisfaction.** Results for the survey questions assessing organizational attitudes are provided in Table 2. Eighty-nine percent of faculty respondents were very or somewhat satisfied with their job overall. There were no demographic differences in job satisfaction. Although perfect comparisons are not available, this result compares favorably other national survey results. A survey of faculty conducted by the Higher Education Research Institute (HERI, 2009) reported that 74.8% of faculty are satisfied. The National Study of Postsecondary Faculty conducted by the National Center for Education Statistics (NCES, 2004) found that 89.6% of faculty in private, not-for-profit institutions were very or somewhat satisfied (using a 4-point scale). A national study of new faculty reported by Harvard University (Study of New Scholars, 2004) reported that 88% of baccalaureate college faculty members were very or somewhat satisfied with their institution.

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Insert Table 2 about here

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**Satisfaction with level of interaction.** One particular area of job satisfaction was assessed in the present survey due to its potential relevance for the study of social network connections. Satisfaction levels with opportunities for faculty member interaction ( $M = 3.96$ ) were lower than for job satisfaction overall ( $M = 4.37$ ). In addition, female faculty ( $M = 3.76$ ) were less satisfied than were male faculty ( $M = 4.12, p < .034$ ). No other demographic differences were found. Faculty value collegial community (Berberet, 2002). Cameron (1978) includes percentage of faculty on policy-making boards or committees as an indicator of faculty satisfaction; however, there was no relationship between satisfaction and committee participation in the current study ( $r = .05$ ).

**Organizational commitment.** Respondents' mean level of organizational commitment was 4.00 on a 5-point scale. Not surprisingly, the commitment level of newer faculty members (at the institution less than 4 years, see Hagedorn, 2000) is lower than that of longer term faculty since they have yet to experience the organization sufficiently to make a judgment about commitment. There were no other demographic differences, but there were relationships with other study variables. Faculty who reported being involved with others in various settings and/or who worked together with other faculty in interdisciplinary projects reported higher organizational commitment ( $r = .22$ ). Faculty with more service on elected committees reported higher organizational commitment ( $r = .25$ ); appointed committee service demonstrated no relationship with commitment.

**Trust.** In the current study, respondents reported a mean trust level of 4.10 on a 5-point scale, relatively high in comparison to other organizational studies (e.g., Ferrin, Dirks, & Shah, 2006). Individuals ascribe a level of trust to an organizational entity, much as they do to individuals (Buskens, 2002). Trust is particularly valuable in large organizations where members

interact only infrequently (LaPorta, Lopez-de-Silanes, Shleifer, & Vishny, 2000), as may the case in horizontal connections across departments. In a complex environment, uncertainty about the consequences of decisions makes trust increasingly necessary (Luhmann, 1988). Trust has been linked to knowledge sharing, and is present in both strong and weak ties within a social network (Levin, Cross, Abrams, & Lesser, 2003). It becomes part of the culture and impacts organizational effectiveness. Trust in an organization is associated with more effective problem solving, and enhanced communication, cooperation, and information sharing processes (Levin & Cross, 2004). Organization health depends on factors such as levels of trust among faculty (Cameron, 1978; Fugazzotto, 2009).

### **Relationships between Social Network Attributes, Participation, and Attitudes**

At the individual level, a key network variable is centrality. Network centrality is measured by number of direct links an individual has to other actors in the network, or how many times an actor falls between two actors on the shortest path between them. Individuals with the most connections are located close to center of a network graph and designated the most central. In terms of demographic variables, only time at the institution was related to centrality. No statistically significant differences in centrality existed for sex, school, or status as department chair.

There were some significant relationships between individual network attributes and attitudes. Network centrality was positively related to organizational commitment (see Table 1). Strong network relations (number of reported direct links) among department members were related to higher satisfaction ( $r = .21$ ), satisfaction with opportunities for interaction ( $r = .27$ ), and organizational trust ( $r = .15$ ). Strong network relations between school members ( $r = .20$ ) and between committee members ( $r = .16$ ) were related to higher organizational commitment.

Number of network connections on the relations having to do with Vision and Communication had the strongest positive relationships with job satisfaction, satisfaction with opportunities for interaction, trust, and organizational commitment.

Participation in collaborative groups and committees also showed some significant relationships. Individuals who were involved in interdisciplinary projects demonstrated a more central position on the network graph. Elected (but not appointed) committee membership was positively correlated with network centrality. Other settings which fostered relationships (e.g., reading groups or faculty development programs) demonstrated no relationship with satisfaction.

### **Committee Participation**

In addition to the faculty survey, the research also examined participation in college governance, since the committee structure is one important way that network connections are made and information transmitted. The governance structure is composed of both elected and appointed committees. Level of campus-wide faculty committee service for the past 8 years was examined (recognizing that this does not account for all institutional service and neglects service to schools, departments, and outside the regular committee structure).

On average, 160 elected and appointed committee positions exist annually; of those, 51 are elected committee positions. Since some faculty hold multiple committee assignments, on average participation in a given year includes 117 faculty members. Examining the past eight years, on average 67% of faculty serve on at least one committee in any given year. If participation was structured such that faculty members could only serve on one campus-wide committee, then participation would increase to 72%. Approximately 31% serve on elected committees in a given year.

In addition to overall level of participation, it is informative to look at distribution of campus-wide service among faculty over time, particularly with regard to elected committee membership. On average, individual faculty have served on any campus-wide committee in the past 8 years about 71% (adjusted for when a faculty member has not been at the institution for the entire 8 years). On average, individual faculty serve on elected committees approximately 20% of the time over the past 8 years. However, the distribution of service is not even: the same 28% tend to serve repeatedly (50 of 175 faculty are above the median in terms of years of service). Of current faculty over the past 8 years, two have served nine times (more than one committee in at least one year), 1 faculty member served all 8 years, 5 faculty served 7 years, 10 faculty served 6, 14 faculty served 5 out of 8 years. Not counting new faculty members, that leaves 63 who have never been elected to a committee in the last 8 years.

### **Discussion**

#### **Recommendations**

The results indicate several recommendations. Developing informal social networks, increasing participation in campus governance, and increasing faculty job satisfaction, commitment, and trust go hand in hand. Since satisfaction is related to opportunities for faculty member interaction, and since commitment is positively associated with participation in governance and interdisciplinary initiatives, steps taken by institutions to assist faculty in developing informal networks can lead to positive organizational attitudes, increased information flow throughout the organization, and a foundation for increased representation on governance committees. Recommendations focus on expanding the pool of potential faculty who can serve the governance process well, building skills among faculty, creating future leaders, and

spreading out the service workload more evenly among faculty who participate in the governance process.

Although the present research was conducted in a relatively small institution of 2900 students and 175 faculty members, a similar analysis could be conducted within the governance structure of one college or school of a larger institution to assess relationships between members of different departments. It also should be noted that it would not be expected nor desirable for every faculty member to serve on elected committees; faculty members may not have the relevant expertise, be focusing on advanced scholarship, or be relatively new to the institution. At the college where this data was collected, the number of faculty and number of committee positions indicate that a potential goal might be to have average individual service on elected committees approach 30% of the time, thus spreading the workload among more people but confining the service to those who have relevant expertise.

**Develop relational networks prior to the need for particular service responsibilities.**

Informal networks can be encouraged by loosening top-down culture and encouraging horizontal relationships. The culture can also encourage relationships outside the natural work unit (Cross, Nohria, & Parker, 2002). Organizational assistance by providing opportunities to build networks allows them to meet colleagues efficiently, creating relationships between individuals who may not have the time to organically develop relationships due to other demands on their time (Kezar & Lester, 2009b). Examples of mechanisms through which networks can be developed include creating common gathering/break spaces, forming reading groups and faculty learning communities, and offering speakers, workshops or brown-bag lunches focused on themes such as instructional technology, teaching and learning, or faculty scholarship (Kezar & Lester, 2009b). The role of network builder can be assumed by a center for teaching and learning, a department



hosting a series of lectures, or a unit with cross-campus functionality—such as a service learning center, intercultural office, or assessment office (Kezar & Lester, 2009a). Committee service itself also provides a foundation for further committee service.

**Encourage the appointment of faculty members in their second year to campus-wide appointed committees.** This has the advantages of giving newer faculty members very early experience in the shared governance process, introducing them to institutional cultural norms, and helping them build a larger personal network which can enhance job satisfaction and organizational commitment, and potentially prepare them for future service on significant elected committees. Additionally, since people tend to nominate and vote for faculty members whom they know, this will increase the number of connections that junior faculty members have and who can more accurately discern others' capabilities. Other scholarship supports the idea that rather than sheltering junior faculty from service work, encouraging junior faculty to participate will in the long run contribute to more effective overall faculty participation by enabling junior faculty to form the habits, skills, and influence necessary to contribute significantly in the governance and leadership process (Hamrick, 2003; Kezar & Lester, 2009b). In addition, new faculty members who lack the institutional history of their colleagues can provide valuable insights, particularly if they have worked at other campuses (Simplicio, 2006).

**Junior faculty should be appointed to a committee other than one that is discipline specific** (e.g., junior biology faculty appointed to something other than the medical school admissions committee). This will help them to build relationships with faculty in other disciplines, and support the rationale discussed previously. From an organizational perspective this builds the horizontal linkages that are outside one's own department, as recommended by Cross & Thomas (2009) and Keeling et al. (2009). Kezar and Lester's (2009b) research found

that institutional service was “overwhelmingly concentrated at the department level and faculty focus much more directly on service connected to department (clerical in nature) rather than governance” (p. 719).

**Limit committee service to one elected committee.** Based on how the governance process is structured, there may be instances within a system where it is possible for faculty be elected to more than one committee. At the institution where the research took place, for example, faculty members could serve as both a representative to the faculty senate and on another committee. When multiple elected committee membership occurs, this is often the cause. Eliminating such a possibility would distribute the service burden more widely and include more people in the decision making process. Additionally, potential frustrations for individuals like time conflicts, encountering agenda items at multiple meetings, and high service workload would be reduced.

**Enforce existing practices related to service workload.** Institutions practices which limit the service burden upon any one individual may already exist; however, institutional cultural norms may create influences that run counter to these practices. For example, institutions may have rules that exempt individuals from committee service during the term of a research grant. However, particularly, in small institutions where service norms are strong, practices may not match official policy. Junior faculty may believe that it is not prudent to ask for such an exemption. Or, they may follow a middle road, not seeking to join committees, but being hesitant to resign from current committee service even though the written policies permit them to do so.

**Provide guidance for individuals during the committee nomination process.** Many institutions have some sort of means by which individuals can express interest in or remove themselves from potential nomination for particular committees. Since institutional service plays

some role in the tenure process as well as in institutional effectiveness, department chairs or other supervisors can play an important role in establishing and supporting effective institutional norms. Junior faculty, especially, benefit from guidance both to commit to committee participation expectations as well as not to overcommit. Some faculty with many other service obligations may still not feel that they are “allowed” to remove their name, so a simple reminder from a key person it is acceptable to decline service opportunities may set them at ease. At the same time, this implies that other reasons for removing one’s name may not be as valid. Deans or chairs may also give suggestions as part of feedback on professional development to faculty at all stages of their career.

**Develop a culture that values service.** In addition to individual guidance, collective socialization of new faculty members plays an important role in establishing culture. Socialization content may have teaching, research, or campus policies as its primary focus, but developing a culture related to service early on is key. Administrators can help by valuing collegiality and creating connections among faculty (Kezar & Lester, 2009b).

**Provide some professional development regarding committee service or group decision making.** Considerable research exists on best practices in group decision making. Such training could build the confidence of newer faculty as well as increase the skill level of faculty overall. Faculty generally receive no formal training for participation in shared governance, though the academy has called for faculty development programs to assume this role (Kezar & Lester, 2009b). If shared governance is to live up to its potential to help institutions to be responsive to the dynamic environment surrounding higher education, investing in training of committee members (or potential committee members) would reap considerable dividends.

**Expand the pool of faculty considered for appointed positions.** Research by Kezar and Lester (2009b) found that “administrators tend to rely on the same few faculty within a small network. That creates a burden on a small set of individuals” (p. 728). Presumably the recommendations offered above will expand the range of faculty who come to the attention of those to make appointments or who vote to nominate committee members. However, there needs to be some intentionality on the part of campus leaders as well to expand the network of participants in campus governance. Those appointing can also look intentionally at the composition of committees and seek to facilitate connections among faculty who might not otherwise come into contact with one another (Kezar & Lester, 2009a).

### **Implications**

The focus of present research has been to illustrate the potential benefits of building social capital by providing venues for informal relationships to develop. As members of different units have opportunities to interact, it creates a fertile ground for idea generation. Interdisciplinary programs, research collaborations, writing groups, etc., can germinate naturally as individuals come to know the others who share their interests. As the competitive environment surrounding higher education increases, innovative programs create distinctive competitive advantages for institutions. In addition, the opportunity to build interpersonal relationships can lead to higher employee commitment and satisfaction, which in turn can lead to higher employee retention. The governance structure is one means of eliciting cross-disciplinary fertilization of ideas, and this paper has proposed various suggestions to make the best use of the governance structure as a resource for this purpose.

To some extent, the results on committee participation in this study are understandable. As national trends have shown, faculty experience demand overload (Berberet, 2002) as they try

to respond to higher institutional expectations regarding teaching, research, relationships with external constituencies, etc., which contributes to fewer faculty being involved in campus governance (Schuster & Finkelstein, 2006). In light of competing demands on faculty members' time, it may be that faculty do not have sufficient incentive to participate in governance.

Research by Kezar and Lester (2009b) found that faculty did not describe participation in shared governance as enhancing their skills related to service, other than possibly gaining experience for formal leadership positions.

The preceding analysis originates from a particular institution; however, these recommendations have general application to educational institutions and governance structures. Many institutions have a mix of elected, appointed, standing and ad hoc committees in their governance structures. Getting new faculty members involved in some institutional service beyond their home department early on, mentoring them in relation to institutional service in order to establish expectations, providing training on effective group decision making, distributing committee responsibilities so that work does not continually fall on the same few individuals, and enforcing existing practices related to service workload are all measures that can be adopted effectively by institutions of all sizes.

### **Future Research**

As mentioned, although the present research was conducted in a relatively small institution, a similar analysis could be conducted within one college or school of a larger institution to assess relationships between members of different departments, governance participation, and to determine the need for, or assess the progress made on building social capital.

Another avenue for this type of analysis could be the informal relationships between the academic side of an institution and the supporting units, e.g., student affairs, enrollment management, operations, business office. Cross-departmental informal interactions can lead to better understanding of the mission and goals of each area, innovative solutions, and feedback about the impact of respective units on one another.

Relationships with external stakeholders could also be addressed. Increased external demands were noted previously as an element of complexity. Clark (2008) emphasizes that those academic units that engage with outside organizations and stakeholders have the largest growth. There has been research conducted on social network relationships between organizations, but not in the context of higher education.

A focus on new faculty or staff socialization (Lesser & Storck, 2002) could also benefit from social network analysis. A longitudinal study could examine network development of new faculty over time, for example. Organizations of all types face a common challenge in needing to rapidly assist employees in performing up to their full potential. Helping a new employee to build a relational network can decrease the learning curve necessary for successfully navigating organizational demands and achieving high performance. Building such relationships also assists in providing members a sense of identity within the community as well as helping them to understand the larger context in which they perform their regular functions. Lesser and Storck (2002) found that informational linkages between employees can help to more quickly address customer issues, maintain institutional memory so as not to “reinvent the wheel,” and to generate new ideas for products or services. Toward these ends, leaders should provide opportunities for individuals to make new connections, allow time and space for relationship building, and find ways to communicate the norms, culture, and language of the community.

Finally, the current research focused on governance participation and on organizational attitudes. Other specific outcomes such as leadership succession planning (Ruse & Jansen, 2008) and development of new interdisciplinary programs, which have been found to stimulate growth (Clark, 2008), are also potentially fruitful areas of focus.

### **Conclusion**

As higher education continues to face an increasingly complex environment, steps to increase responsiveness and innovation become vital. Effective governance involves collectively making decisions about how to allocate resources among competing legitimate interests. Social network analysis supports the premise that fostering social capital through a network of informal relationships can enhance cooperation, satisfaction, and organizational commitment, and lay the foundation for interdisciplinary programs and effective faculty governance. The particular organization depicted in this research is a good example of one which has a network structure with positive attributes of density and inclusiveness as well as job satisfaction and organizational commitment among faculty that can set the stage for further learning among faculty and producing creative initiatives. To some extent, that has already taken place as respondents have reported participation in interdisciplinary projects. The next step is to make use of the social capital that already exists and to develop expanded network relationships in order to create innovative solutions to challenges it faces as an institution of higher education.

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Table 1.

## Correlation Matrix

	1	2	3	4	5	6	7	8	9 <sup>a</sup>	10 <sup>a</sup>	11 <sup>a</sup>
1. Commitment											
2. Satisfaction	.690**										
3. Satisfaction with Interaction	.524**	.595**									
4. Trust	.681**	.685**	.483**								
5. Average years on elected committee	.246**	.050	.120	.090							
6. Average years on all committees	.121	.024	-.018	.083	.427**						
7. Participation in interdepartmental project	.119	.012	.025	-.102	.279**	.046					
8. Setting	.224*	.075	.085	.073	.204*	.024	.417**				
9. Centrality—help	.204*	.093	.095	.160	.163	-.033	.309**	.487**			
10. Centrality—vision	.368**	.208*	.188*	.196*	.156	-.056	.328**	.562**	.767**		
11. Centrality—communication	.186*	.159	.205*	.145	.173*	-.081	.337**	.574**	.618**	.692**	
12. Centrality—friend	.184*	.088	.067	.123	.176*	-.082	.316**	.400**	.518**	.418**	.510**

<sup>a</sup>Columns 9-11 use the Network analysis Quadratic Assignment Procedure: Jaccard coefficient correlation (used when both relations are binary)

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

Figure 1.

*Network Relational Graph for Faculty Who Know One Another Well*

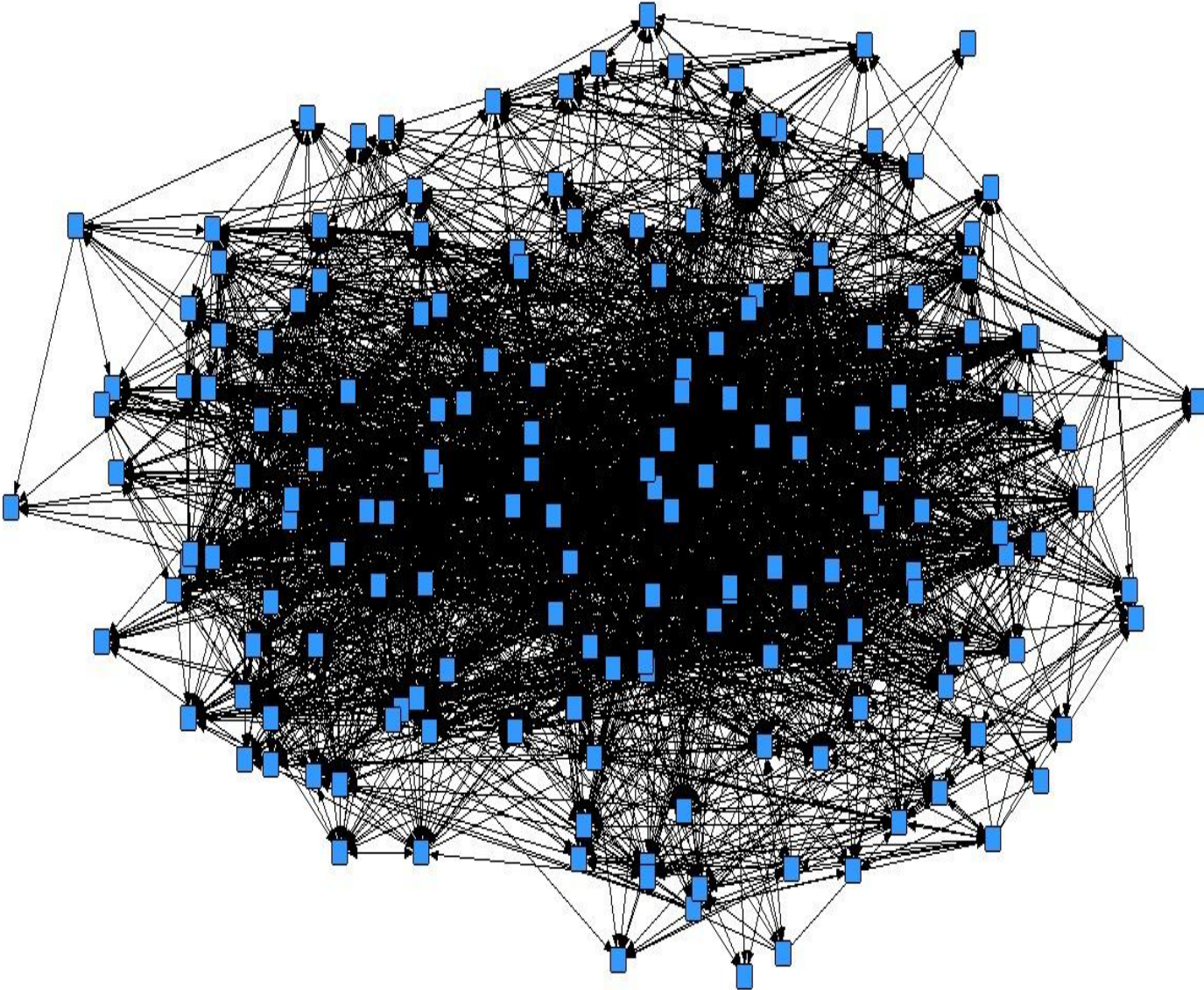




Figure 2.

*Network Relational Graph for Faculty Who Perceive They Share the Same Vision for the Institution*

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Red = School of Business, Education and Social Sciences

Blue = School of the Humanities

Green = School of Science, Engineering and Health

Grey = School of the Arts

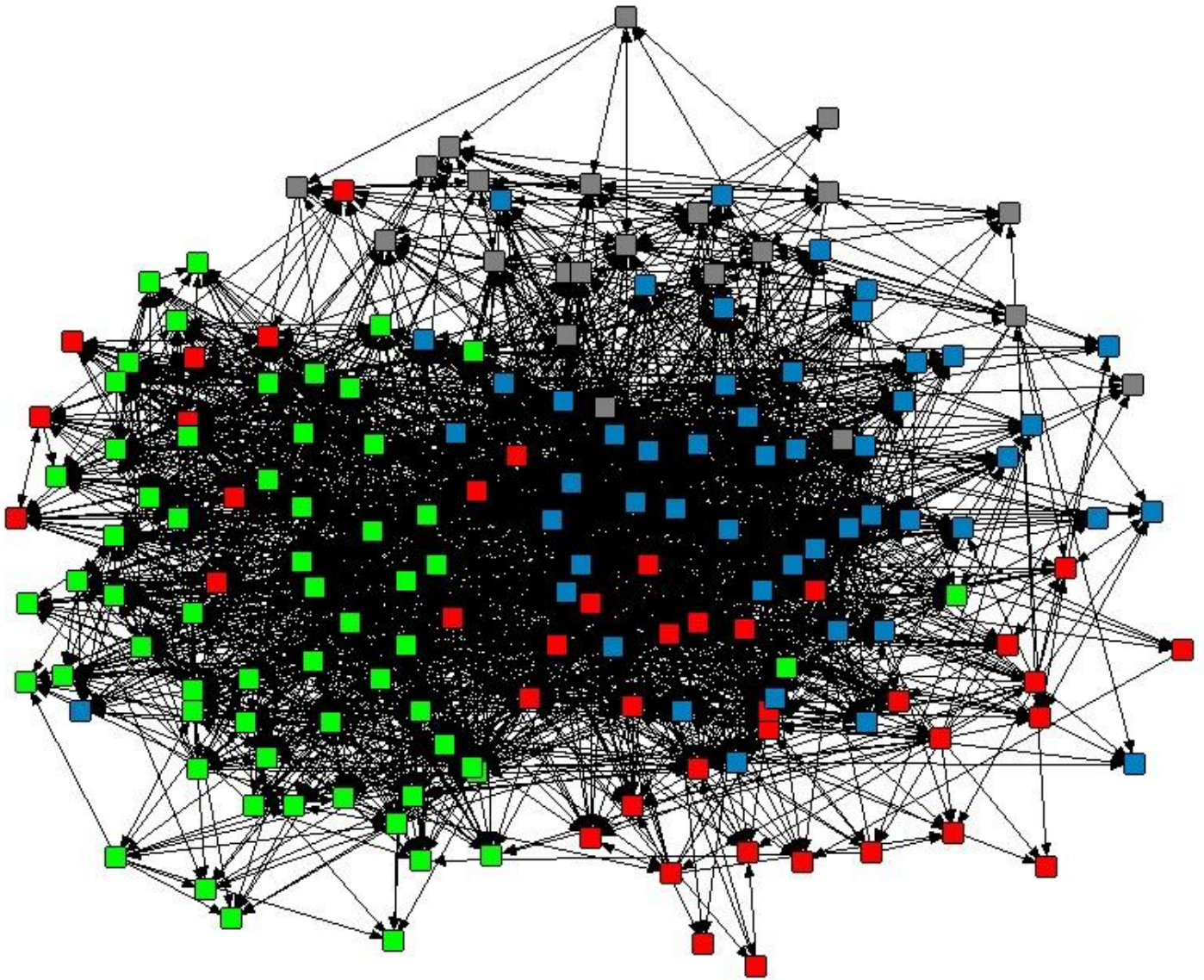


Figure 3.

*Network Relational Graph for Faculty Who Know Each Other Well Showing Integration of New School Members after Restructuring*

---

Red = School of Business, Education and Social Sciences

Blue = School of the Humanities

Green = School of Science, Engineering and Health: OLD Members

Yellow = School of Science, Engineering and Health: NEW Members

Grey = School of the Arts

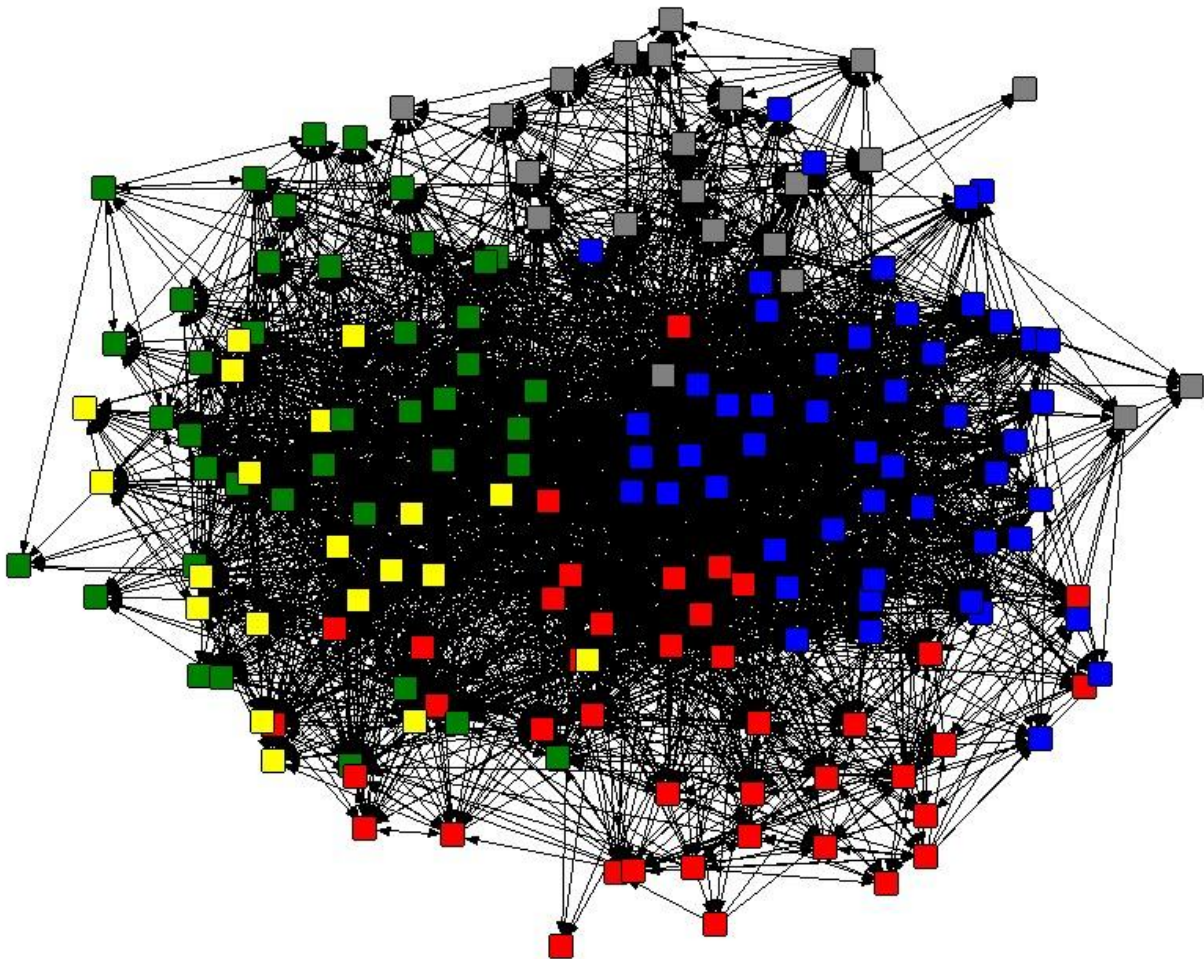


Table 2.

*Organizational Attitudes*

Measure	<i>n</i>	Mean*	Standard Deviation	Percentage
Job Satisfaction	130	4.37	.97	89% very or somewhat satisfied
Satisfaction with opportunities for interaction	130	3.96	.98	75% very or somewhat satisfied
Organizational Commitment (average of 4-item scale)	130	4.00	1.04	--
Trust	130	4.10	.99	92% somewhat or strongly agree

\*Scale 1-5