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FORMAL AND INFORMAL NETWORK COUPLING AND ITS RELATIONSHIP TO WORKPLACE ATTACHMENT

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ABSTRACT: *This study examines how the overlap between informal and formal networks in the workplace is related to the degree of attachment for individuals in work organizations. Two types of informal networks, identified by their content and structure, are commonly found in work organizations: friendship networks and trust networks. Both the content of networks and the coupling (or overlap) of individual member networks with formal authority networks are important for two kinds of attachment, organizational identification and organizational internalization. Data from a survey of employees in five, small, start-up organizations were collected during 1997 and early 1998. Tight coupling between friendship networks and formal authority networks is found to have a strong positive relationship to organizational identification. Tight coupling between trust and formal authority networks is also found to be strongly and positively related to both organizational identification and internalization. Additionally, tight coupling between trust networks and formal authority networks is more influential in predicting identification than coupling between friendship networks and formal authority networks.*

Keywords: organizational identification; internalization; network coupling

Organizational research has long recognized the importance of employee involvement in the workplace, as well as the nature and strength of employee/workplace attachments, especially for employee retention and commitment (Dutton, Dukerich, and Harquail 1994; van Knippenberg and van Schie 2000). O'Reilly and Chatman (1986) initially distinguished among three ways in which individuals will be attached to their workplace or other organizations: compliance, identification, and internalization. Compliance refers to public compliance or a behavioral change in order to gain resources such as jobs, pay, or friendship in the workplace. However, since the late 1980s, and particularly since 1998 (see Ricketta 2003 for a review), organizational

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research and theory has largely focused on the concept of organizational identification and the link between the self-concept and organizations. Identification results from a desire for group affiliation, occurring when work is a locus of personal identity and an object of emotional investment (Ashforth and Mael 1989; O'Reilly and Chatman 1986). Ashforth and Mael's (1989) conceptualization provides a distinctively cognitive aspect to organizational identification, linking it to self-definitions and separating it from organizational commitment (Allen and Meyer 1990; Mowday, Steers, and Porter 1979; O'Reilly and Chatman 1986).¹ A third type of workplace attachment, internalization, refers to the private acceptance of organizational values and their incorporation into one's belief system. In this study, we focus on organizational identification and internalization because of the stronger degree of attachment that they imply. Ultimately, these stronger attachments are processes whereby individuals perceive themselves as members of distinct groups with shared emotional involvement and consensus about the evaluation of the group.

Given the heavy use of the organizational identification construct, as well as the increased emphasis in business and popular publications on the internalization of workplace values and culture (Stewart 1996; Trice and Beyer 1993), it is surprising that we know so little about how identification and internalization are related to interpersonal network relationships in the workplace, particularly friendship and trust networks. Our goal here is to examine how friendship and trust networks are unique and how they relate to workplace attachment.

Although work relationships may be collegial and friendships may form, we suggest that friendship does not necessarily operate in the workplace in the same way that it does outside of work, where friends are expected to consistently care about each other and give social support. In the workplace, friendship ties are likely to connect those who are most similar to the focal individual (see Heider's, 1958, balance theory) on the basis of salient commonalities such as the roles they perform, common interests based on work responsibilities, or liking; workplace friends may provide help in job adjustment and success (DiMaggio 1992; Kanter 1983). But workplace friends also may strengthen dissatisfaction with the organization, either by conveying negative information or creating unpleasant work conditions. Therefore, while the presence of workplace friendships is likely to be related to work attachment—particularly organizational identification—the nature of those relationships, their content, and how they link to the larger organizational structure also will be important.

Additionally, there is little evidence that workplace friendships lead to an acceptance and internalization of organizational values. Friendships in the workplace are not necessarily such that colleagues automatically accept information and influence from coworkers. The nature of relationships that include internalization requires a stronger basis beyond simple collegiality—one that includes trust in the source of information and influence.

In this research then, we focus not directly on friendship and trust but on their features as content, conveyed over network ties. In work relationships, we are concerned specifically with the nature of these networks of ties that connect workers to each other, as well as how these ties link workers to the work organization. We suggest that when network ties are multiplex (convey more than one kind of content),

they provide a stronger link to the workplace; not only is multiplexity important for workplace attachments, but the content of multiplex ties is also important. Therefore, we focus on how the overlap of friendship and trust networks with formal networks predicts two kinds of workplace attachment: organizational identification and internalization. Friendship networks in the workplace, when they overlap with the formal structure of the work organization, are related to organizational identification. Likewise, when trust networks overlap with the formal authority structure, the overlap will be related to organizational identification. Additionally, when trust networks, because they are more purely personal than friendship networks, more closely overlap with formal structures, they will be more strongly related to the internalization of organizational norms. After a brief discussion of friendship networks and trust networks, we present an argument for how the degree of overlap correlates with the two types of workplace attachment.

INFORMAL NETWORKS AND NETWORK OVERLAP

Friendship Networks

In examining the workplace, researchers distinguish between friendship relationships that include affect, liking, and social support, and other types of relationships where information, goods, or resources are exchanged but there is less emotional attachment. A significant amount of research has focused on how, for any individual actor, these friendship ties form a kind of social support network where ties are based on the exchange of liking and sociability (see Brass and Burkhardt 1992; Granovetter 1973; Ibarra 1992; Podolny and Baron 1995 for variations of this concept). These friendship networks not only provide informal ways in which to get work done, they also provide ways for employees to interact both within the workplace and in non-job-related activities outside of the workplace.

Podolny and Baron (1997) develop a typology of informal ties, including friendship ties, distinguished by their content and by their type depending on whether the ties primarily link persons or primarily link positions. Using this conceptualization in the workplace, friendship relationships will be person-to-person in that they are not usually made up of ties linking positions. However, they are based in part on positional relationships and the formal structure of the organization because friends are chosen from among those with whom employees come in contact. Because same-level coworkers often are physically proximate to each other, share many features of the workplace, and have more in common with each other, they are more likely to be a part of each other's friendship networks.

For this project, we define friendship networks as informal networks of linkages or ties based on the exchange of liking and sociability. Both of these features are important for identification and will be discussed later in comparing the use of friendship networks with the use of trust networks.

Trust Networks

Trust networks are another type of informal network important for attachment in the workplace. While trust is conceptualized in a variety of ways in social scientific

research (see Boix and Posner 1998; Ross and Mirowsky 2003, Yamagishi and Yamagishi 1994 for some other conceptualizations), it is important to point out that the focus of this research is on trust *networks*, not on trust itself as an individual attribute (such as a sign of behavioral predictability or reputation). Trust ties, as we conceptualize them, specify a direct relationship between two actors, not between an actor and an inanimate object or between an actor and unknown actors.

Additionally, consistent with social psychological research, trust ties are used for risk-taking and to provide opportunities to demonstrate risk-taking (Kollock 1994; Light, Kwuon, and Zhong 1990; Molm, Takahashi, and Peterson 2000). Work organizations, with varying levels of uncertainty and risk, are perfect places for those who take risks to demonstrate their trust. A trust relationship gives an employee the potential to take risks in the workplace, giving up control of outcomes, or intentionally becoming dependent upon coworkers, without actually performing those behaviors. Workers may be linked through trust ties when the potential for risk-taking, control-acquiescing, and dependency exists.

One way in which risk-taking may be demonstrated is through the exchange of delicate information. Krackhardt and Hanson (1993) define trust networks as those used by members for sharing delicate, political information and for providing support for one another, particularly in times of crisis. In the workplace, we expect that those we trust will give us information, particularly sensitive information to which we may not have access from other sources.

Using Podolny and Baron's (1997) conceptualization for classifying networks, the ties in a trust network are clearly person-to-person, making trust networks more person-centered than friendship networks. Additionally, trust is not publicly displayed in the same way as social support and liking, so trust networks are less position-based than friendship networks. At organization-sponsored social functions, friendship and social support displays will necessarily be visible between positions, but trust behaviors are not likely to be publicly recognized and, in fact, need not be displayed at all.

Trust networks are similar to friendship networks in that they provide critical political and emotional support so they often overlap with friendship networks, however they are neither made up of all of the same ties nor do they look the same (Kuipers 1998). Resources such as social support and liking do not necessarily come from those we trust in the workplace, and we may not always trust our friends. Trust networks are held together by ties of loyalty and respect, where members may share delicate or political information and ties are uniquely used for risk-taking (see Cook 2005; Cook et al. 2005 for further discussions of the relationship between trust networks and risk-taking).

NETWORK COUPLING AND WORKPLACE ATTACHMENT

When networks are made up of different types of ties, conveying different content, they are less likely to be functionally equivalent (Podolny and Baron 1995) and we expect friendship networks and trust networks will be used differently in the workplace. One way to compare different informal networks for functionality and use is to look at how closely they match the formal authority structure. When

informal networks match the formal structure, either informal contacts may have been patterned (consciously or unconsciously) after the formal structure or the formal structure may have emerged as a result of frequent interaction through informal network relationships. When ties convey both informal content (trust or sociability) and formal authority relations, the multiplex ties overlap. The degree of overlap (of formal and informal ties) will be related to workplace commitment depending upon the content conveyed by the overlapping resource ties (discussed below). (For an example, although not directly addressing network overlap, Lamertz [2006] shows how informal and formal workplace ties correlate differently with members' citizenship behaviors.)

Drawing on Ibarra's (1992) use of Orton and Weick's (1990) conceptualization of coupling elements for networks,² we see informal and formal networks as elements within a system and examine the extent to which they overlap or are tightly or loosely coupled. Networks are *tightly coupled* when they contain all or many of the same ties and they are loosely coupled when they contain few of the same ties. Networks are *not coupled* or are decoupled when they contain none of the same ties. If we compare different types of networks, we find that they may (1) include ties among exactly the same members and be tightly coupled, (2) include ties among only a few of the same members and be loosely coupled, or (3) be completely decoupled from each other with none of the same ties among members.

In the following section, we specify the conditions for network coupling or overlap in the workplace. While a variety of informal networks exist in the workplace (e.g., advice, strategic information, buy-in, etc.), we are interested only in friendship and trust networks and the unique features of each that, when coupled with formal authority networks, are strongly related to organizational commitment.

The Process of Identification

The process of identification in the workplace usually begins when a new employee is hired by the organization.³ We are interested in how network coupling is related to organizational attachment and a typical organizational setting meets the conditions of scope for predicting such a relationship: (1) informal interaction and (2) intergroup differentiation are possible. Organizations provide an environment within which individuals may interact informally. They will be aware of similarities and differences between themselves and others both within and outside of the organization, making intergroup differentiation possible. Additionally, potential informal contacts not prescribed by the work organization are available, enabling the formation of informal ties.

Friendship Network Overlap and Identification

Formal authority networks in the workplace—direct ties to those employees above and below the focal actor in the authority structure (Podolny and Baron 1997)—limit interaction between and among actors through features of their formal positions and the corresponding responsibilities, expectations, and communications required to get work done. We assume that individuals will relate to each other largely on this basis.

We are interested in how formal authority networks become salient as social categorizations and help to predict organizational identification. We use predictions from social identity theory (Hogg and Abrams 1988) to explain this process. Membership categorizations become salient based on *accessibility* and *fit* so that individuals may draw on readily accessible social categorizations to make sense of their social surroundings and to reduce uncertainty (Oakes 1987; Oakes, Haslam, and Turner 1994). Because formal authority networks both enable and constrain proximity (see previous discussion), they provide in-group and out-group categories in the workplace. Through an accentuation process (Tajfel 1957, 1959) of classifying characteristics into two categories (exaggerating similarities and differences), features of coworkers, the work organization, or the work-group become salient. In determining in-groups, therefore, workers make comparisons with out-groups and categorize their own organization as their in-group.

The fit of the categorization (e.g., how well it accounts for similarities among individuals) is also important for the salience of membership categories. In formal authority networks, individuals are similar in how their positions are linked and, because they are motivated to make categorizations that favor the in-group fit, the work organization membership will be most salient.

In the workplace, when coworkers are accepted into their work group or organization, they also receive confirmation of their organizational membership⁴ through their inclusion in the informal structure. From the previous definition of friendship networks, friendship ties of liking and sociability are one mode through which group acceptance may be confirmed. Initially, these relationships will be personal—not prescribed by the work organization. When informal friendship networks are coupled with formal authority networks, however, as group membership becomes salient, the basis of the evaluation of feeling for other people (e.g., liking in friendship networks) is transformed from a personal identity (based on personal relationships) to prototype-based depersonalized social attraction (Hogg 1993). This *social attraction*, grounded in group membership (see Hogg 1985, 1987; Hogg and Turner 1985a, 1985b), evokes the in-group category, increasing the strength of the in-group fit.

In short, although formal authority networks provide the accessibility and fit for the salience of organizational membership categorization, when formal authority networks and informal friendship networks are tightly coupled, the fit changes and in-group similarity is increasingly accentuated through friendship as a new basis for the relationship. And friendship heightens the salience by strengthening the in-group fit. In the process, network coupling and the resulting categorization based on overlapping networks will become the contextually salient basis for thinking, perceiving, and behaving within the organization. And when networks are more tightly coupled (and there is greater overlap), we expect that members will increasingly identify with the organization and behave accordingly.

Hypothesis 1: The more tightly friendship networks and formal networks are coupled, the greater an individual's organizational identification.

Trust Network Overlap and Identification

Trust networks are different from friendship networks. In addition to the conditions necessary for friendship networks to form in the workplace, trust networks require sufficient time to develop (Levin, Whitener, and Cross 2006). We assume that individuals in the workplace will seek and encourage trust ties in order to create opportunities for risk. That is, they will encourage relationships where they may take risks without fear of harm. (For example, employees in a marketing department may make suggestions for a new product placement program, taking a risk and making themselves vulnerable with coworkers who could either steal or "torpedo" their idea and do them harm.) When members have been in organizations a sufficient amount of time (and that will vary for each member), we assume that they will form trust networks.

Trust relationships are formed through attraction to unique individuals with whom social support, respect, and loyalty are exchanged. Coworkers will be personally attracted to others in their trust networks based on these personal relationships (Hogg 1992, 1993). That additional attraction will be transferred to the in-group category when the in-group category is evoked in the context of social attraction (see above argument). When formal authority networks and informal trust networks are tightly coupled, again, the fit changes and in-group similarity is increasingly accentuated through a new basis for the relationship: trust. The salience of the social categorization based on formal authority networks coupled with trust networks will be similar to the salience from the coupling of other formal and informal networks. Therefore, we hypothesize:

Hypothesis 2: The more tightly trust networks and formal networks are coupled, the greater an individual's organizational identification.

Like friendship networks, trust networks also are used in conveying identities and social support. Trust networks, however, are more likely to have fewer members than friendship networks (Kuipers 1998). According to social identity theory, individuals balance conflicting motives for inclusion within groups with distinctiveness from groups (Brewer 1991). Smaller groups are better able to satisfy the need for distinctiveness (unique features do not disappear into the crowd), and therefore, individuals are more likely to identify with smaller groups because identification with larger groups poses a threat to their distinctiveness. In this way identification with a small group may facilitate identification with the larger organization within which the small group is embedded. Additionally, trust networks are more likely to consist of interpersonal ties that are more homophilous, closer, and longer in duration (Kuipers 1998). Trust networks allow more individual distinctiveness than friendship networks (while also accentuating similarities) because relationships are more person-to-person and may be used for risk-taking to differentiate oneself from the group. The increased motivation for individual distinctiveness satisfied by smaller, stronger, trust networks will be positively correlated with increased organizational identification.

On the basis of these points, we predict that when formal authority networks are coupled with trust networks, the already stronger identification properties of

trust networks will be greatly enhanced by formal authority networks. This leads to a third hypothesis:

Hypothesis 3: Organizational identification will be greater when trust and formal authority networks are more tightly coupled than when friendship and formal authority networks are more tightly coupled.

The Process of Internalization

The process of internalization is different from the process of identification in several ways. When in-group categories become salient, individuals identify with the in-group, and those identities influence behavior. That process describes identification. The internalization process, however, is more stable (Hogg and Turner 1987), beginning with self-categorization and leading to changes toward in-groups in values and beliefs. The changes in values or beliefs do not necessarily require membership salience of the group category (brought about through accessibility and fit) to have an effect because, once changes occur, they remain within an individual's belief system.⁵ And once values and beliefs change, they may change again, but, again, the change doesn't require the membership salience of the category. Membership salience is necessary only for a behavioral confirmation or demonstration of values or beliefs and is not a part of the internalization process.

Trust Network Overlap and Internalization

According to social comparison theories, in order for a value or belief to change, there must be some form of personal attraction (Festinger 1953) facilitating the transfer or confirmation of the values or beliefs. Since trust networks are one type of network based on personal attraction, they will facilitate the transfer or confirmation of values and beliefs. When that facilitation is extended to the values and beliefs of groups and organizations, social attraction is also necessary. Through the accentuation process, work groups and organizations serve as in-groups so organization members will be socially attracted to their formal authority networks. The social attraction will strengthen the transfer or confirmation of values and beliefs.

Personal attraction and social attraction are necessary, but not sufficient, conditions for belief and value change, however. The mode in which the information or identities are transferred to induce a change is also important and will determine whether the change occurs. (The mode of transfer of resources, information, identities, values, or beliefs refers to the types of networks and the nature of the ties.) Because when individuals give up old values and beliefs and adopt new ones they are risking erroneous beliefs and mistaken values, in order for a transfer of values and beliefs, the mode will include risk-taking.

Trust networks encompass features important for internalization, particularly those related to risk-taking, necessary for organizational internalization. Additionally, when networks are tightly coupled, the mode of information and identity transfer changes. The ties become multiplex and convey more than one type of information or identity.⁶ When formal authority networks are tightly coupled with trust networks, the ties convey both information and identities on *prescribed*

relationships as well as the potential for *risk-taking*. The transfer of information and identities (from formal networks) is part of a package that includes risk-taking. The mode of transfer of information and identities for formal authority network/trust network ties will be less resistant to new ideas including the values and beliefs of the in-group because the risk required in order for in-group values and beliefs to be internalized is acceptable. This suggests a fourth hypothesis:

Hypothesis 4: The more tightly trust networks and formal networks are coupled, the greater an individual's internalization of organizational values and beliefs.

So trust networks are more closely related to both identification and internalization. Comparing degree of overlap for trust and friendship networks with formal authority networks, separately, should reveal how they are used differently in the workplace: for the formation of identities and for facilitating the private acceptance of organizational or group values.

DATA AND MEASURES

Research Design

We conducted a survey of all employees at each of five organizations. Survey booklets consisted of three types of questions: network-generating questions, questions about the nature of network relationships, and identification, internalization, and job satisfaction questions. A pre-test of the booklet was conducted in March 1997 on ten employees in a local organization and minor revisions were made. Survey booklets were distributed to all of the employees in each of the five organizations. At each organization, an employee liaison assisted in notifying employees to expect the survey and in reminding employees to complete and return it. Employee participation was not required by the organizations. Questionnaires were distributed beginning April 1, 1997, with the first organization, Org1, and the final questionnaire was received from employees at Org5 on March 1, 1998. The bulk of the questionnaires were received during the summer months. Two hundred and thirty surveys were distributed.

Sample

Because we are concerned with how informal and formal network overlap is related to various outcomes, we include organizations with differing formal network structures: two formal organizations with clearly specified hierarchical authority structures; two firms with more participatory, flatter formal structures and some project- or group-based decision-making; and one organization that lies between these variations from very hierarchical to more participatory. All five organizations are similar in terms of size (ranging from twenty-five to seventy-five employees), age (relatively new organizations, ranging from 7 to 12 years old), financial goals (all for-profit), and industry and work content (media buying). Because variation on these characteristics has been shown to have some effects on employees, organizations were chosen to be similar on these characteristics. We

also selected organizations to reflect the variation in regions of the United States; one organization and one branch of another organization are in East Coast states, two are in the Midwest, and two are in the West.

Procedures for Survey Implementation

We distributed the survey instrument to all full-time and part-time employees of the five selected organizations. In order to obtain a higher response rate among personnel, we worked with a single liaison at each participating organization, all of whom performed exactly the same procedures assisting in introducing the study, administering the survey instrument, and issuing follow-up reminders.⁷ A total of 148 respondents returned their surveys, resulting in an overall response rate of 64.3 percent. The response rates range from 44.4 percent in Org1 to 50 percent in Org2, 61.1 percent in Org3, 83.3 percent in Org5, and 83.6 percent in Org4. Eight of the surveys were incomplete on at least one of the network questions and could not be used for the network analysis in this study, but they are usable for overall summary analyses of the respondents.

From discussions with upper level managers we were able to collect and compare the characteristics of the non-respondents with characteristics of those who responded to the survey. Some general conclusions can be drawn about the representativeness of the sample. Table 1 shows little difference between the two groups on gender and race. Job level of non-respondents is 51.8 percent in Level 4,

TABLE 1
Percentages of Characteristics of Survey Respondents: Five Start-Up Organizations, 1997-98 (N = 230)

<i>Characteristics</i>	<i>Respondents</i>	<i>Non-Respondents</i>
Gender		
Female	64.3	63.8
Male	35.7	36.1
Race/Ethnicity		
American Indian, Aleut, or Eskimo	1.4	0.0
Asian or Pacific Islander	5.0	2.4
Black, not Hispanic	.7	7.2
Hispanic	.7	0.0
White, not Hispanic	90.7	89.1
Other	.7	0.0
No Response	.7	0.0
Job Level		
1	3.6	1.2
2	15.7	8.4
3	23.6	25.3
4	32.8	51.8
5	20.0	10.8
6	4.3	1.2

Note: Column percentages may not sum to 100 due to rounding error.

while only 32.8 percent of Level 4 responded. This raises some concern that employees at the higher and lower levels of the organizations are overrepresented in the study.

In addition to survey data from individual employees, we gathered data on the formal structure of the organizations in order to identify formal authority networks. Org1, Org2, and Org4 provided copies of their organizational charts. We checked the accuracy of these charts in discussions with managers. Neither Org3 nor Org5 had formalized organizational charts. Org3, while clearly hierarchical in their formal structure, preferred not to assign job titles to their employees (although all but two respondents were able to list their own job titles in response to a question on the survey). Org5, one of the more participatory organizations, claimed to be too new and too fluid in their operations to have a chart describing the formal authority structure. Using information supplied by managers about work that needed to be done and workgroups, and employees' responses to survey questions about what work they did and to whom they reported, we constructed organizational charts for Org3 and Org5. This method of identifying formal ties is based on Fernandez's (1991) findings where employees were asked, "To whom do you report?" and "What is your job title?" Fernandez found that responses to these two questions were consistent with organizational charts. For both organizations, the process yielded clear formal authority structures even though supervisors and the supervised did not always initially identify each other.

The survey booklet is modeled after a computer-administered questionnaire distributed by Podolny and Baron (1995, 1997) and is divided into three sections. The first section is designed to obtain an accurate representation of the people employees identify as nodes in their personal networks; respondents were presented with a set of name-generating questions that asked for the names of the important individuals within each of two informal networks. Because these are ego-centric networks, we do not check for symmetry but rather define the network from the standpoints of focal individuals. For friendship networks, respondents were asked, "Who are the people in your work environment whom you regard as important sources of friendship?" For trust networks, the question asked for the names of people, again from the respondent's workplace, who are trusted and with whom they are able to take risks without fear of negative consequences. (Refer to the Appendix for complete wording of the questions.)⁸ Respondents could list up to five names in response to each name-generating question, and the same individual could be listed in more than one network. To gauge whether respondents would list more than five names if allowed, we also asked for their best guess as to the number of additional contacts they would name in each network. This was consistent with the Podolny and Baron (1995, 1997) questionnaire and helped assess whether the results showed complete networks.

The second section of the survey includes questions directed at the nature of the indicated network relationships such as the duration of the tie, the closeness of the relationship, and the frequency of personal contact for each tie. The third section is organized to include questions about organizational identification, and organizational internalization, using measures developed by Mael and Ashforth (1988) and O'Reilly and Chatman (1986). These measures for organizational identification are

preferable because they have been found to better represent a narrower, more precise construct rather than the broader notion of commitment (Ricketta 2003).

DEPENDENT VARIABLE MEASURES

Identification

While members of organizations may identify with the organization at various levels—organizational, departmental, or divisional—the organizations included in this study are relatively small, with few internal divisions, and new, with less time for the development of separate departmental cultures and loyalties. Divisional or departmental identities, if they are detectable, are likely to be weak. Additionally, this study is primarily interested in organizational identity resulting from the coupling of formal organization-level networks with personal, individual-level networks. Therefore, only questions on organizational identification were included.

The six questions for this measure are adapted from Mael and Ashforth (1988). They ask employees to respond to items about whether they are interested in what others think about their organization, whether they call the organization “we” rather than “they,” and whether they feel embarrassed when the media criticize their organization. Employees also are asked if their organization’s successes are their own successes, if it feels like a personal compliment when their organization gets praised, and if it feels like a personal insult when their organization gets criticized. The items are scored on a five-point scale ranging from “Disagree Strongly” to “Agree Strongly.” Because the third item about feeling embarrassed when their organization is criticized in the media correlated weakly with the other five items, it was removed from the scale prior to conducting the analyses in order to enhance the scale’s internal consistency and reliability. A single factor was created from the remaining five items to measure the level of identification. The factor loadings range from .623 to .779. High scores on this factor indicate greater identification with the organization.

Internalization

Internalization is the process by which people accept and support the values, norms, and attitudes of the company and incorporate them into their own belief systems. The questions for this measure were adapted from a study by O’Reilly and Chatman (1986) where the authors distinguished between identification and internalization. While identification results from a desire for group affiliation, internalization refers to the private acceptance of organizational values by individuals. The six questions are based on value similarity for individuals and organizations and are used to create a factor, measuring level of internalization. Respondents are asked to indicate if they prefer their organization for what it stands for, if their values and the organization’s values are not similar, and if they would not be as attached to their organization if its values were different. They are also asked whether their personal values have become more similar to the organization’s since joining, whether their attachment to the organization has nothing to do with the relationship between their values and the organization’s values, and

whether what the organization stands for is important. The items were scored on a five-point scale ranging from "Disagree Strongly" to "Agree Strongly." A single factor was extracted from responses to these six questions to represent organizational internalization. The factor loadings range from .708 to .868. High scores on this factor indicate greater organizational internalization.

As expected, both variables are correlated, although not so highly that they can be considered to measure the same characteristics. The correlation between identification and internalization is .625. As we would expect, these concepts are tapping related constructs. Our goal is not to argue that they are separate and distinct but rather to show how each is related differently to formal and informal network overlap.

INDEPENDENT VARIABLE MEASURES: NETWORK TIES

Network Overlap

Formal networks are the formally prescribed ties (specified either by the organizational chart and/or the job description) connecting focal individuals with co-workers. In this study, formal authority networks are those ties that connect focal actors with those who report to them and with those to whom they report; those contacts immediately above and below the focal actor in the reporting structure. Formal authority networks do not include ties linking colleagues at the same level. The number of ties identified in respondents' formal authority networks ranged from 1 to 10, with 88.6 percent of the respondents having five or fewer ties in their formal authority networks.

Informal networks are the ties obtained in response to name generator questions about specific informal networks, as discussed above. To determine overlap of these networks, lists of names from informal and formal networks are compared with each other. Network overlap is the proportion of ties that are the same in both networks, out of the total number of direct ties in the smaller of the two networks (the maximum number of same ties possible.)

CONTROL VARIABLES

Finally, several control variables are included in this study to control for factors commonly recognized to be related to the dependent variables. Demographic attributes such as gender (dummy variable, male = 1), race (dummy variable, non-white = 1), and age (measured as year born) are included. Identification and internalization are also correlated with such factors as the attractiveness of the organization, frequency of contact with the organization, and respondent's tenure and job level within the organization. Measures for these variables are also included: respondent's tenure in the organization (in months), respondent's job level (steps away from the lowest position in the organization, coded 1 = lowest level people in the firm to 6 = top person in the firm), and a set of four dummy variables for organization to control for company-specific effects. While the five organizations are similar in size, age, goals, and industry, they are located in different geographical areas within the United States and they have distinct organizational

cultures. A variable for region had no significant net effects on the dependent variables and, therefore, was excluded from the final analyses.

Then we compare friendship and trust networks on four network characteristics: size, homophily, closeness, and tie duration. The Student's *t* statistic is used to assess whether there is a significant statistical difference in means between friendship and trust networks.

Hypotheses also focus on how network coupling predicts dependent variables: identification and internalization. With factors created from different multiple indicators for each dependent variable, we use ordinary least squares (OLS) regression analysis to analyze the significance of those relationships, providing the most direct way of addressing the hypotheses.

RESULTS

The sample is made up of nearly two-thirds women and one-third men. This was characteristic of the media industry in general and media buying in particular during this time period. Many of the jobs are entry-level clerical or service positions (typically occupied by women) where employees buy print, television, or radio time; track the success of media performance; and provide reports to clients. There is a low percentage of non-whites in the organizations. Of the respondents, only 9.3 percent are from racial or ethnic minority groups. This is also characteristic for non-respondents in all of the organizations except Org2.⁹ It should be noted that the two larger organizations in the sample are located in regions of the Midwestern United States with lower populations of racial and ethnic minorities, accounting for fewer racial minority members in the sample. Other characteristics such as income and education are distributed similarly across all five organizations, for both respondents and non-respondents.

The organizations range from hierarchical (emphasize central authority structures) to slightly participatory (formal positions are related laterally) in their formal structure. None are completely participatory. The most hierarchical organization is Org4, one of the two largest organizations in the study, measured by counting the number of levels from the President or top ranking corporate officer to the employee with the least authority and no supervisory responsibilities. In the formal reporting structure, Org4 has six levels from the top to the bottom; Org1, Org2, and Org3 have five levels; and Org5 has four levels.¹⁰

All five of the organizations are service organizations with different divisions providing services to clients. Typically, teams representing multiple or several service divisions are brought together under an account manager for each client. In this way, even though organizations are more or less hierarchical, most employees participate in work outside of their workgroups and are able to make network contacts both within and beyond their workgroups or divisions.

Age ranges are also typical of the media business. The average tenure at their place of employment for respondents is slightly more than 3 years. These were relatively young organizations at the time of data collection, founded between 1985 and 1990.

In addition to descriptive statistics already discussed, Table 2 also presents variable correlations. As expected, tenure, age, job level, and income are all correlated. The

TABLE 2
Correlations among Variables: Respondents from Five Start-Up Organizations, 1997-98 (N = 230)

Variables	M	SD	1	2	3	4	5	6	7	8
1. Friendship /formal authority	0.49	0.44	1.000	0.562**	0.156	0.069	-0.17	-0.108	0.195*	0.192*
2. Trust/formal authority	0.40	0.43		1.000	0.009	-0.071	-0.116	-0.084	0.201*	0.129
3. Age (year born)	63.66	8.86			1.000	-0.096	0.232**	-0.329**	0.291**	-0.155
4. Female (dummy)						1.000	0.121	0.041	-0.343**	-0.189
5. Non-white (dummy)							1.000	-0.212*	-0.003	-0.268**
6. Tenure	37.03	34.81						1.000	-0.242**	0.085
7. Level									1.000	0.431**
8. Organization										1.000

* $p < .05$, ** $p < .01$ (two-tailed tests).

older an individual, the longer he or she has worked at the organization, the higher his or her job level, and the greater his or her income. Age, sex, race, tenure, and level in the organization are all used as control variables in this study. Correlations are weak with no correlation coefficient greater than .34, so we assume that multicollinearity is not a problem for the statistical analysis. As a further check, however, we obtained tolerance statistics for each independent variable. For all models reported, tolerance values were well above the standard 0.1 cutoff (Mertler and Vannatta 2002).

Because data are from a sample of organizations and do not include complete employee participation, we do not have a random sample and measures of statistical significance are not reliable. Furthermore, because statistical significance does not imply necessarily substantive significance, it should not be our only measure for assessing the relationship. Our small sample size of only 140 cases also limits the chances of attaining statistical significance, suggesting that we pay closer attention to the size and direction of the coefficients in our analysis.

Trust Networks and Friendship Networks

Respondents named contacts in both networks and the greatest numbers of respondents named five contacts in a network. Most networks ranged from one to five individuals. A number of employees (39.3 percent for trust networks and 65 percent for friendship networks) reported that they had additional contacts in their networks, raising concerns that there might be something distinctive about those employees who claimed to have networks larger than five members. Analyses were conducted that included dummy variables for respondents who claimed that they would name more than five alters for each of their three networks. No statistically significant effects were noted. Therefore, these dummy variables were excluded from the final analysis.¹¹

Degree of coupling (proportion of overlap) ranges from zero to one. Of the couplings of theoretical interest, friendship and formal authority networks are most tightly coupled with an average degree of coupling of .49. Trust and formal authority networks are less tightly coupled with an average degree of coupling of .40.

The bivariate correlations among selected independent variables show that the correlations for job level with other variables range from $-.003$ to $-.343$ and are statistically significant but are sufficiently low that job level does not significantly change the coefficients in the models when it is omitted.

The five items making up the identification measure indicate that members generally identify very strongly with their organizations. Hypotheses 1, 2, and 3 are concerned with variables related to organizational identification. The more tightly friendship and formal authority networks are coupled, the greater an individual's organizational identification. Additionally, the more tightly trust and formal authority networks are coupled, the greater an individual's organizational identification. When both types of coupled networks are put into the same model, we expect that trust networks coupled with formal authority networks will be better predictors of organizational identification.¹² In all three of the OLS regression models, the summed factor scores on the five items for organizational identification measures have been regressed on the network coupling variables.

TABLE 3
OLS Regression of Level of Identification on Network Overlap: Respondents from Five Start-Up Organizations, 1997–98 (N = 140)

Network Variables	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
Intercept	.248	(.729)	-.094	(.717)	-.004	(.730)
Friendship/formal network coupling	.429*	(.194)			.161	(.231)
Trust/formal network coupling			.572**	(.192)	.481*	(.231)
Control variables						
Age	.004	(.011)	.009	(.011)	.008	(.011)
Female	-.053	(.182)	.001	(.177)	-.021	(.180)
Non-white	.125	(.329)	.236	(.326)	.217	(.328)
Tenure	.003	(.003)	.003	(.003)	.003	(.003)
Job level	-.262**	(.099)	-.279**	(.098)	-.281**	(.098)
Org2	-.235	(.359)	-.331	(.357)	-.331	(.351)
Org3	.352	(.328)	.325	(.322)	.301	(.324)
Org4	.420	(.344)	.449	(.335)	.412	(.340)
Org5	-.014	(.370)	.038	(.361)	.002	(.365)
Adjusted R ²	.067		.094		.091	
F value	2.004*		2.447**		2.26*	
Degrees of freedom	130		130		129	
Number of cases	140		140		140	

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Table 3 reports the unstandardized coefficients and the standard errors for the variables. Important to note, however, is that the data in this study do not permit the causal inferences about how network overlap has an effect on the degree of organizational attachment that a longitudinal design would allow.

Consistent with Hypothesis 1, Table 3 shows a significant, positive regression coefficient for the association between degree of coupling for friendship and formal authority networks (.429, $p < .05$) and individual organizational identification (Model 1). The more tightly these two networks are coupled, the higher the level of an individual's organizational identification.

Although previous analyses demonstrate that friendship networks are distinct from trust networks, theoretically, the coupling of trust networks with formal networks should also have a positive relationship with individual organizational identification (Model 2). Like friendship networks, trust networks are ties of personal attraction and when they overlap with social attraction networks, they serve to evoke in-group categories. As predicted in Hypothesis 2, the degree of coupling for trust and formal networks has a significant, positive association with individual organizational identification (.572, $p < .01$). The coefficient is strong and in the expected direction. The more tightly trust and formal authority networks are coupled, the higher the level of an individual's organizational identification.

For control variables in both Models 1 and 2, significant negative associations are observed only for the control variable of job level.¹³ When network overlap variables are removed from the equations, the direction of the job level coefficient remains the same.

In Model 3, degrees of coupling for both types of informal networks are included in the full model. We see that the level of coupling for trust and formal authority networks is moderately and positively associated with (.481, $p < .05$) identification while the level of coupling for friendship and authority networks is not. This provides support for Hypothesis 3: the use of trust networks for identification is more important.

Internalization

While trust networks and their coupling with formal authority networks have a strong, positive association with identification, trust networks are also related to the internalization of organizational values. Responses for the six items making up the internalization measure show that, in general, respondents describe themselves as having similar values to those of their organization.

Model 1 in Table 4 regresses organizational internalization on the coupling of trust and formal networks. The degree of coupling for trust and formal networks is found to be significant and positively associated with internalization (.580, $p < .01$). The more tightly these two networks are coupled, the greater an individual's internalization of organizational values and beliefs.

TABLE 4
OLS Regression of Level of Internalization on Network Overlap: Respondents from Five Start-Up Organizations, 1997–98 ($N = 140$)

Network Variables	Model 1		Model 2	
	Coef.	SE	Coef.	SE
Intercept	.413	(.728)	.682	.749
Trust/formal network coupling	.580**	(.196)		
Friendship/formal network coupling			.256	.120
Control variables				
Age	.004	(.011)	-1.79E-04	.011
Female	.017	(.181)	-3.51E-04	.188
Non-white	.407	(.332)	.290	.339
Tenure	.001	(.003)	5.68E-04	.003
Job level	-.237*	(.101)	-.206*	.103
Org2	-.842*	(.362)	-.711	.368
Org3	.186	(.340)	.267	.336
Org4	-.151	(.371)	-.124	.354
Org5	-.200	(.332)	-.178	.384
Adjusted R^2		.123		.074
F value		2.927**		2.106*
Degrees of freedom		130		130
Number of cases		140		140

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Although degrees of coupling for both trust/formal authority networks and friendship/formal authority networks have a significant, strong to moderate, positive association with organizational identification, the same is not the case for internalization. Model 2 regresses internalization on the coupling of friendship and formal authority networks. Unlike tight coupling of trust and formal authority networks, tight coupling of friendship and formal authority networks has a very weak association with the internalization of organizational values.

It is interesting to note that there is a significant negative relationship between being in Org2 and internalization. This was the organization where one possibly more dissatisfied division was already excluded from the analysis because they did not complete the questionnaire. In our discussions with high-level employees, they suggested that Org2 has more general morale problems beyond the dissatisfied, missing division and that may account for this observed negative relationship.

DISCUSSION AND CONCLUSIONS

Although past research recognizes that trust networks in organizations are important, trust networks are often confused with other informal networks, both in their conceptualization and measurement. When researchers do incorporate trust in an analysis of network relationships (a surge of such studies have been conducted over the past 10 years), friendship is often ignored. One exception: Cross and associates attempt to untangle the dimensions of advice networks and find that safety, related to trust, is an important network feature (cf., Cross and Borgatti 2004; Cross, Borgatti, and Parker 2001). They do not, however, separate trust networks and friendships networks from advice networks.

This project was inspired by Ibarra's (1992) propositions relating the coupling of formal (prescribed) networks and informal (emergent) networks. She suggests that the archetypal forms of network organization—hierarchical and participatory—are related to the effects of network coupling. If the interdependence of network structures is important for the overall functioning of the organization, we expect that it is also important for how individuals see themselves situated in the larger organization. While this study examines network coupling effects for individuals rather than organizations, we find strong support for the importance of coupling, as Ibarra suggests. However, we find no relationship between the type of formal structure of the larger organization and the nature of that network coupling. Networks are tightly or loosely coupled, consistently across archetypal forms of organization structures.

Strong support was found for hypotheses predicting a relationship between the degree of network coupling and both identification and internalization. When formal authority networks are tightly coupled with either friendship networks or trust networks, the greater their degree of coupling the greater the organizational identification for individuals.

The coupling of friendship networks and formal authority networks does not have a similar association with internalization, but trust networks (based on personal attraction) coupled with formal authority networks do, facilitating the transfer or confirmation of values and beliefs. When individuals take on new values and

beliefs, they engage in risk-taking, which is the mode of transfer for trust networks. Risk-taking is a necessary condition for that transfer. The more tightly formal authority networks are coupled with trust networks, the greater the internalization of organizational values and beliefs. Friendship networks, while providing social support, do not facilitate risk-taking. When they are tightly coupled with formal authority networks, they have no significant association with internalization.

Both internalization and identification are ways in which individuals accept influence. This research confirms the distinction between these two types of attachment and points to how the internalization process is different. It also demonstrates the importance of trust networks in their coupling with formal authority networks and suggests that they may be important in their coupling with other network structures. Exactly how trust networks relate to other network structures in predicting internalization would be a next step in research on internalization and networks.

APPENDIX

Name-Generating Questions Used in the Questionnaire

Based upon questions used by Podolny and Baron (1995, 1997), the following name-generating questions were used to obtain information on ego-centric friendship and trust networks.

- | | |
|------------|--|
| Friendship | <p>First, we would like you to think about the people with whom you have interacted <i>on the job</i> over the last six months. Some of these individuals are probably ORGX employees, <i>but</i> some may be work associates from other organizations, friends, or past work associates. We are interested in the people who are work-related contacts, that you regard as sources of friendship. Think about people within your work environment with whom you socialize and for whom you have positive regard.</p> <p>Who are the people in your work environment, who you regard as important sources of <i>friendship</i>? (Write the names of the top five people on the lines provided.)</p> |
| Trust | <p>Thinking back over the past six months, are there any individuals that you really <i>trust</i>, <i>who have been your best sources for honest information and support, and with whom you are able to take risks without fear of negative consequences</i>? (Some of these people are probably ORGX employees, <i>but</i> some may not be.)</p> <p>We would like to ask you the names of the people in your work environment that you <i>trust</i>, <i>and with whom you are able to take risks without fear of negative consequences</i> during the past six months. You may name up to 5. Some of these individuals are probably ORGX employees, but some may not be. Some or all of them may be individuals that you named in the answer to the previous questions; some or all of these may be entirely different from those that you previously named.</p> <p>Who are the people in your work environment that you can <i>trust</i>, <i>and with whom you are able to take risks without fear of negative consequences</i>? (Write the names of the top five people on the lines provided.)</p> |

NOTES

1. These distinctions, unfortunately, have not done away with the confusions about how organizational identification should be defined, how it should be measured, or how it is distinct from commitment and internalization (see for commitment, Mowday et al. 1979 and Allen and Meyer 1990; for internalization, Hogg and Turner 1987; for organizational identification as unique, Ashforth and Mael 1989; and for a more comprehensive review, Riketta 2003). Our aim is not to settle the matter once and for all but to continue with the distinction made by O'Reilly and Chatman (1986). Because organizational identification is currently one of the most used measures of attachment in the workplace, we adopt Ashforth and Mael's (1989:34) definition as the "perception of oneness with or belongingness to" the organization. However, we do not dismiss O'Reilly and Chatman's (1986) assertion of an affective component based on attraction and a desire for maintaining a relationship with the organization. And these definitions are also combined in the commonly accepted definition of organizational identification in social identity theory (Abrams, Ando, and Hinkle 1998; Tajfel 1978). Recent research has made a distinction between the affective and cognitive components of organizational identification, however that distinction is not the goal here (see Bergami and Bagozzi 2000; Van Dick et al. 2004 for examples).
2. Ibarra (1992) hypothesizes that in hierarchical systems, informal, influence networks will be tightly coupled with authority structures; formal and informal work-flow networks will be loosely coupled; and expressive and work-flow networks will be loosely coupled. Conversely, in integrative (participatory) systems, informal, influence networks will be loosely coupled with authority structures; formal and informal work-flow networks will be tightly coupled; and expressive and work-flow networks will be tightly coupled. In the model, network coupling mediates between the organizational system and the action taken by the organization. Ibarra's hypotheses have yet to be empirically evaluated.
3. While it is also possible for those who aspire to be members or those who have been members in the past to identify with organizations, the focus of this study is limited to those who are currently members of organizations.
4. This reasoning focuses on the relationship between organizations and employees. In large organizations, however, the same arguments reasonably may be used to explain the relationship between work groups and employees.
5. Social identity theorists would argue that strong identification leads to internalization (Ellemers, Barreto, and Spears 1999; Hogg and Turner 1987) and this may be one condition for internalization. However, we argue that this is not a necessary condition and internalization may arise in other contexts.
6. For a discussion of multiplex ties, see Marsden and Campbell (1984) or, more recently, Petroczi, Nepusz, and Bazso (2007).
7. However, they differed in their support for the project and this likely influenced response rates. In three of the organizations, liaisons were very enthusiastic about the survey. Two of them were human relations officers and hoped to use the results on employee satisfaction and identification in influencing management decisions. Although I had cautioned them to take care not to influence individual responses to items on the survey, all three took it upon themselves to informally encourage employees to complete the survey booklets and return them. Response rates are highest in one of their organizations, although lowest in the other two. One liaison, in another one of the organizations, also had financial responsibilities in the firm and did not have the time to informally encourage employee participation. However, her attitude was supportive

and response rates are also very high for that organization. In the final organization, the liaison was less than enthusiastic about the study and did the minimum to assist me. All five liaisons answered questions in face-to-face interviews about the formal structure of the firms and completed their own personal survey booklets and returned them.

8. Information also was collected on other informal networks: advice, strategic information, and buy-in. In a separate analysis, each was coupled with formal authority networks. We found no relationship between these levels of informal/formal network overlap and organizational commitment.
9. See the previous discussion of respondents compared with non-respondents and the importance of sample representativeness for network analysis.
10. A variable was constructed for degree of hierarchy measured by the maximum number of levels for each organization. However, this variable had no significant net effects on the dependent variables, identification and internalization, and therefore was excluded from the final analyses.
11. Podolny and Baron (1995, 1997) used a similar question about additional network members in their 1997 analysis as a check on the completeness of content-specific networks. They also found no statistically significant effects, using dummy variables. Because the proportions of respondents who would name more than five contacts in their networks were also large, however, it is unclear how the question performed. In this study, for trust networks, 12.9 percent of the respondents named fewer than five sources in their networks yet indicated that they had additional, unnamed ties in those networks. For friendship networks, a smaller percentage of respondents (6.4 percent) indicated that they had additional, unnamed ties in their networks but did not name them in the network generating questions. This suggests that some respondents may have misinterpreted the question to refer to both work-related *and* non-work-related contacts. Then they claimed that they would name additional non-workplace network members. Although we can't be certain that the networks reported are not truncated by limiting the possible number of alters, the additional analysis indicates no significant difference between these respondents and those who reported that they had fewer than six members in their networks.
12. The correlation between friendship/formal network coupling and trust/formal network coupling is .5624. While it is statistically significant, moderate correlations (unless they are perfect) are not necessarily signs of multicollinearity. The estimated coefficients in Model 3 are consistent (and stable) with the same coefficients in Models 1 and 2.
13. Job level had a negative and statistically significant effect on individual organizational identification. The higher the job level, the lower the level of organizational identification. It is unclear why this relationship is negative although we might imagine that employees at higher levels identify more with their occupations or with the industry, particularly in small organizations.

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