

# Ethical and Strategic Issues in Organizational Social Network Analysis

**Stephen P. Borgatti**

*Boston College*

**José Luis Molina**

*Universitat Autònoma de Barcelona*

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In addition to all the usual ethical problems that can arise with any kind of inquiry, network analyses, by their very nature, introduce special ethical problems that should be recognized. This paper delineates some of these problems, distinguishing between problems that arise in purely academic studies and those that arise in managerial practice settings. In addition, the paper raises the long-term question of whether the use of network analysis for making managerial decisions will make collecting valid network data impossible in the future, seriously harming the academic field of social network research. The paper concludes with a short set of principles intended to form the basis for a set of guidelines designed to safeguard participants in social network studies and protect the long term viability of the network research enterprise.

**Keywords:** *social networks; ethics; organization; institutional review boards*

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Social network analysis is increasing rapidly in popularity, both in academic research and in management consulting. The concept of network has become *the* metaphor for understanding organizations. Academics see the network paradigm as a way to escape from the atomism of traditional social science in which individual behavior—such as adoption of an innovation—is analyzed solely in terms of the attributes of the individual (e.g., openness to change, stake in the outcome, etc.) and not in terms of interpersonal transmission, influence processes, and other relational variables. Management practitioners are interested in network methodology because it provides a way to make

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*Stephen P. Borgatti is an associate professor of organization studies in the Carroll School of Management at Boston College.*

*José Luis Molina is a professor of anthropology at the Universitat Autònoma de Barcelona.*

THE JOURNAL OF APPLIED BEHAVIORAL SCIENCE, Vol. 39 No. 3, September 2003 337-349

DOI: 10.1177/0021886303258111

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the invisible visible and the intangible tangible (Cross, Parker, & Borgatti, 2002). That is, they can use it to quantify and map such “soft” phenomena as knowledge flows and communication. The network lens has also captured the imagination of the public, as seen in games such as the Kevin Bacon game, plays such as John Guare’s *Six Degrees of Separation*, and innumerable popular books including Malcolm Gladwell’s *The Tipping Point*.

As the volume of network studies increases (whether academic or practitioner), so does the need for addressing ethical issues. On the academic side, human subject committees or institutional review boards (IRBs) have already taken notice of network studies and have had wildly different reactions to network research—not surprising, given that each board makes its decisions independently and that no written set of standards exists that would provide guidance. On the managerial side, the very effectiveness of social network analysis makes consideration of ethical issues increasingly critical as organizations start basing personnel and reorganization decisions on network analyses.

It is also important to note that the two spheres of organizational network research—academic and management consulting—are not wholly independent. Academics need organizations as sites for their research, and they need respondents to fill out network survey questionnaires honestly. If managers use network studies as the basis for personnel and organizational decisions, and particularly if they do so in an unethical manner, academics will be unable to find respondents who will answer their surveys honestly, potentially destroying much of organizational network research.

Hence, it is time that the field consider the ethical challenges posed by network research and begin developing guidelines to protect its research participants. The issue is both ethical, in the sense of protecting individuals, and strategic, in the sense of protecting the field from increasingly scarce or invalid data. The objective of this paper is to lay out some of the ethical and strategic issues posed by network-based consulting for consultants and academic researchers and to propose some guidelines that could eventually lead to a code of ethics. We fear that without adhering to some guidelines, the rush to do network analyses could make network analyses impossible in the long term.

### WHY NETWORK STUDIES REQUIRE EXTRA CARE

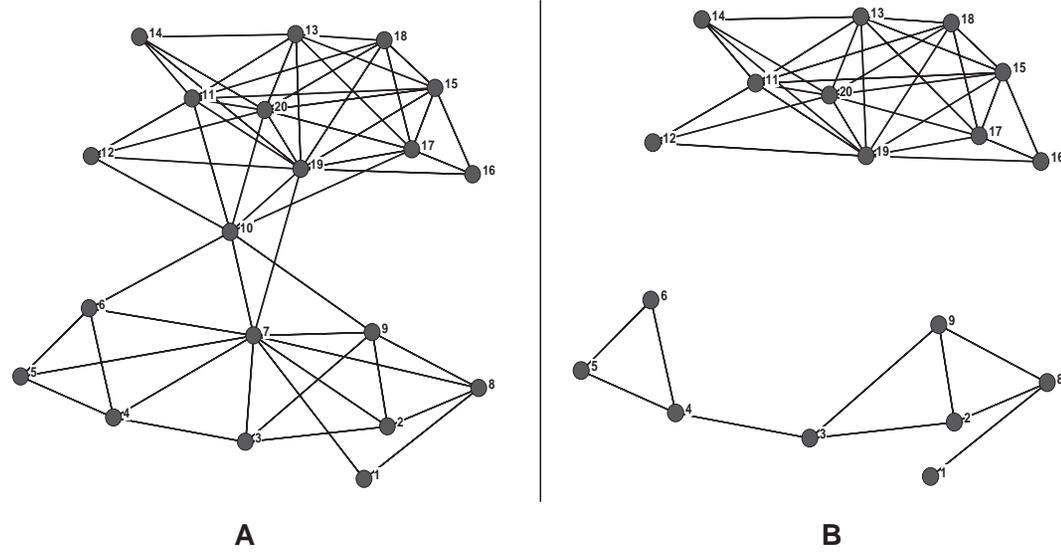
There are many ways in which network studies differ from conventional studies that make them more in need of extra care. Perhaps the most obvious difference is that in a network study, *anonymity* at the data collection stage is not possible. For the data to be meaningful, the researcher must know who the respondent was to record a link from that respondent to the persons with whom the respondent indicates having relationships.<sup>1</sup> This immediately places a special burden on both the consultant and the academic researcher to be clear to the respondent about who will see the data and what reasonably can be predicted to happen to the respondent as a result of someone seeing what he or she has responded.<sup>2</sup>

Network studies also differ from conventional studies in that missing data are exceptionally troublesome. A network map may be very misleading if the most central person is not pictured (as illustrated in Figure 1) or if the only bridge between two groups is not shown. Consequently, network researchers have a vested interest in not letting organizational members opt out of a study. This may lead them, consciously or unconsciously, to fail to point out the real ramifications of participating in the survey.

Another interesting issue that is unique to the network context is that nonparticipation by a respondent does not necessarily mean that the respondent is not included in the study. For example, if Mary chooses not to answer the survey, this does not stop other respondents from listing Mary as a friend, a source of advice, a person with whom they have conflicts, and so on. It will still be revealed that many people listed Mary as someone who was difficult to work with. An easy solution, at least for academic researchers, is to eliminate all nonrespondents from the analysis altogether. Unfortunately, as discussed above, this leads to network maps and metrics that may be highly misleading, wrecking the quality of the data. Furthermore, use of such data introduces a new ethical issue, particularly in the consulting context, as avoidably wrong decisions can be taken as a result of the distorted data. In general, it will not be possible to indicate to the manager just how the picture is misleading without revealing the very information that the researcher is duty bound to suppress.

The nonparticipation issue points to a more subtle underlying difference. Whereas in conventional social science studies respondents report on themselves, in network studies respondents report on other people who may not wish to be named. This is what has concerned some IRBs, as the people being reported on are not necessarily part of the study and therefore have not signed consent forms. To be fair, what respondents are normally reporting on is their perception of their relationship with another, which is clearly something respondents have a right to do: every respondent owns their own perceptions. However, if a respondent identifies someone as a person with whom he or she engages in illegal activities (e.g., drugs, copying software), there is a clear implication that the named party does in fact do illegal things: it is not “just” a perception. In any case, although it may be clear that people own their perceptions, it is not clear that people own the relationships they are in, and it is at least plausible to argue that neither party can ethically report on a relationship without consent of the other. Thus, the fear is that the study may be requiring or encouraging respondents to do unethical things.

A related issue concerns the kinds of relationships being studied. It is generally understood that the behavior of employees of an organization is open to scrutiny by management. Most obviously, raises and promotions are determined by how well people are perceived by management to do their jobs. How employees relate to others such as customers, subordinates, and other employees is subject to both monitoring and regulation (e.g., sexual harassment guidelines). It is also commonly understood that there are things that employees may do that are considered outside the organization’s jurisdiction, such as what they do in their own bedrooms. But what of employee friendships? In general, network researchers focus on the informal organization within an organization, the part not governed by the formal organization. A not uncommon question on network surveys is, “With whom do you socialize outside of work?” It seems



**FIGURE 1: Illustration of Missing Data**

NOTE: Panel A shows the complete network. Panel B shows what is obtained when Nodes 7 and 10 are omitted from the study.

plausible to argue that these sorts of questions fall into a gray area that is between clearly acceptable scrutiny and clearly inappropriate spying.

Another issue has to do with data display. In most social science research, it is the variables that are of interest. Respondents provide data, but they are anonymous replications—the more the better. Essentially, they are treated as bundles of attribute values. Consequently, it is rarely useful to express the results of quantitative research by providing displays of individual data with names attached. But in network analysis, the most canonical display is a network diagram that shows who is connected to whom. Far from being highly digested outputs of analysis, network diagrams are low-level displays that represent the raw data. In general, outgoing arrows from any node have a 1 to 1 correspondence with that person's filled-out questionnaire, compactly revealing each person's responses. Such displays are particularly valuable in managerial/consulting settings. Indeed, as Cross et al. (2002) indicate, placing a diagram such as that shown in Panel A of Figure 1 in front of the participants themselves—with names identified—can have a profoundly transformational effect. Of course, one can forgo this power and limit oneself to diagrams in which nodes are identified only by characteristics, such as department, office, or tenure in the organization. This can work when the interest is in larger patterns and not individuals. Yet even this approach can run into ethical problems because organizational members often can deduce the identity of one person (e.g., the only high-ranking woman in the Boston office), and once that person has been identified, his or her known associates can sometimes be deduced as well, eventually unraveling the whole network. Even when no distinguishing characteristics are given, participants can often identify themselves—for example, when a participant remembers listing exactly seven friends and no other node in the graph has exactly seven ties.

A final point of difference has to do not with the fundamental nature of network analysis but with its relative youth. Respondents today have considerable experience filling out survey questionnaires in a variety of contexts from marketing research to job applications. People already have an intuitive feel for the potential consequences of disclosing personal information in surveys. Coupled with explicit consent forms that outline some of the risks, respondents' common sense provides adequate protection. But network surveys are relatively new. Most respondents in a study have not previously filled one out, and managers receiving network information have not previously done so. As a result, it is not as clear to respondents what the consequences might be of ticking off who they talk to. Even if the survey clearly states that the data will not be kept confidential and will be reported back to the group, many respondents are unable to imagine how they will feel and what others will think when they are identified in the analysis as peripheral players. In fact, the network report will introduce a number of concepts, such as node centrality, of which the respondents were previously unaware but which will soon put them in their place in terms of network position within the group. Managers' views of their subordinates will be profoundly affected by the results of the network analysis. Hence, the argument can be made that existing standards for consent forms may not be adequate for protecting respondents in network research settings.

**TABLE 1**  
**Typology of Risks**

<i>Setting/Application</i>	<i>Type of Risk</i>	
	<i>Ethical/Respondent</i>	<i>Strategic/Field</i>
Academic	Lack of consent	Future nonparticipation
Managerial practice	Respondent fired based on survey responses	Faked responses; network change

### A TYPOLOGY OF RISKS

In the discussion above, we have intimated that some issues apply more to certain contexts (academic vs. managerial practice) than others. The contrast between the academic and the practice contexts is fundamentally about who sees the data and what the data will be used for. In the academic setting, the flow of information is from the organization to the academy, ultimately being published in academic journals. In the managerial practice setting, the information flows from the organization, is processed by the researcher (e.g., management consultant), and then flows back to the organization in processed form. However, many studies are mixtures of the two. For example, most academic studies include a quid pro quo in which the researcher gives an analysis back to management in return for being allowed to collect the data. In another less common variation, the academic researcher gives feedback (such as an evaluation of network position) directly to each respondent as an incentive to participate.

In addition to the academic/practitioner distinction, we have made reference to two different kinds of risks: a more immediate risk to our research participants and a longer term strategic risk to the network research enterprise. Cross-classifying this dimension with the academic/practice dimension generates the two-by-two table shown in Table 1. In the table, the cells give examples of the principal risks. We now examine each cell in detail.

#### Risks to Research Participants

*Academic context.* The key concerns to research participants in the pure academic setting are lack of anonymity, lack of consent on the part of persons named by respondents, and the possibility of identifying individuals by combining collateral information. Anecdotal evidence suggests that university IRBs have recognized both the anonymity and the consent issues. Anonymity can be addressed by offering confidentiality—all analyses and reports generated from the data will use disguised names or untraceable identification numbers. Where confidentiality is crucial, as in studies of stigmatized conditions such as AIDS or illegal activities such as drug use, researchers can use a third party that holds the only codebook linking names to identification numbers, so that even the researchers do not know who is who. In the extreme

case where the data are reasonably subject to government subpoena (e.g., a network study of an accounting firm under criminal investigation), the third party holding the codebook can be located in another country, outside legal jurisdiction.

The lack-of-consent issue has two aspects. First, there is the matter of collecting data on persons from whom explicit consent has not been obtained. This occurs most obviously when the survey uses open-ended questions such as “Whom did you seek advice from in making this decision?” and a respondent mentions someone not in the study. Technically, it also occurs in studies using closed-ended questionnaires because a person may give details about his or her relationship with people who ultimately decide not to participate in the survey. We do not believe this should be an issue because people’s perceptions of their fellows and their relationships with them are their own and they can choose to give those data to researchers. However, IRB’s will need to be educated on this point because most IRB guidelines specify that “third parties” (people about whom research participants give data) should be considered research participants.

More fundamentally, we suggest that collecting data about people without their permission is not *ipso facto* unethical. If we stand on a public street and observe the flow of pedestrian traffic, do we need consent from each individual we observe? One type of network data that makes this point clear is affiliations/membership data. In such data sets, we record the participation of individuals in project teams, company events, listservers, interest groups, and so on. For example, in consulting organizations, employees bill time to client projects. We can construct a collaboration network by examining who has billed time to the same projects. Typically the data are obtained not from the individuals but from public listings, observation, and organizational records. If it is ethical to use public records without asking individuals’ permission, why would it be unethical to obtain the same data by asking other individuals?

In the long term, IRBs need to be educated on this issue to permit this kind of data. In the short term, however, to satisfy an IRB on this issue, one possible approach is to send out consent forms to the population in question first. Only after the consent forms have been returned is the questionnaire (with roster of participants embedded) drawn up. This prevents data from being collected on persons not participating. Of course, signing a consent form does not guarantee that when it is time to fill out the questionnaire everyone actually does it, which means that the result can still be that some people report on relationships with people who did not participate. However, because they signed consent forms, this is probably acceptable.

The second aspect of the lack-of-consent issue has to do with data integrity. If we take steps to include in the analysis only people who were willing to participate in the study, then the resulting network will be a distortion of the “true” network (i.e., the one we would have obtained if we had not eliminated nonparticipants). Of course, all data are imperfect reflections of what is “really” going on. What makes this an ethical issue is that, in this case, we actually know that the data are distorted and we know in what way. Suppose, for example, that we had eliminated Nodes 7 and 10 in the network in Panel A of Figure 1 because these individuals did not wish to participate. The story we would be forced to tell based on the data (Panel B of Figure 1) would be very different

than what we knew to be the case. To present the network as if it were a valid representation of the truth would be disingenuous to say the least, even if disclaimers were attached.

*Managerial practice setting.* The stakes are higher in the practice setting than in the academic setting, because the purpose of the network research there is explicitly to make decisions that directly or indirectly will affect the lives of employees. For example, managers may use the measured centrality of individuals as input to a decision to fire someone. Given that network analyses can have serious positive and negative consequences for individuals, one basic issue is whether it is ethical, say, for a management consultant to perform a network analysis for an organization. In our opinion, the answer clearly is yes. That there are consequences to the network analysis (or content analysis, or psychological testing, or any other analysis) does not itself make it unethical—it just means that safeguards are needed.

One difference between making personnel decisions, such as firing a subordinate based on a manager's intuition or experience with that person, and using network analysis is that the data for the network analysis are typically collected via survey from a set of respondents that include the subordinate. If subordinates do not understand that their answers on the survey could determine their fate, this could be seen as deceptive and constitute an unethical use of network analysis. To avoid this, a survey in the practice setting should be voluntary and extremely explicit about what the consequences of answering (and not answering) might be. From this narrow perspective, it would be better to rely on nonsurvey data collection, such as project collaboration or e-mail logs, to avoid asking employees to incriminate themselves.

Another issue in the practice setting is the boundary between the professional (the organization's jurisdiction) and the private (the individual's jurisdiction). When a network researcher asks questions such as "Whom do you like?", "Whom do you talk to about political events?", "Who are your friends?" and "Whom do you socialize with outside of work?" have the researchers crossed the line into a territory that is none of their business? Some network data can be seen as formalized gossip about who is hot and who has been seen with whom. For example, Krackhardt's (1987) cognitive social structure methodology asks respondents to report not only on their own ties but also ties among all others in the group. It seems legitimate to ask whether it is appropriate to collect this information in the service of making personnel decisions.

There is no clear answer to this question. One approach is to ask whether the network relationships being measured are related directly to job performance. If they are, then the relationships can be deemed an appropriate object of managerial scrutiny.<sup>3</sup> Social capital research has amply demonstrated the importance of relationships in job performance (e.g., Burt, 1992), suggesting that making friends at work is as much a job skill as giving coherent presentations. This seems particularly defensible in modern knowledge-based organizations with flat, fluid organizational structures where knowledge-generating interactions can yield a competitive edge. It may be less defensible in a formal Weberian bureaucracy with sharp distinctions observed between the person and the position they occupy. A second approach might be to ask whether the individuals involved are empowered or weakened by the analysis. If the participants

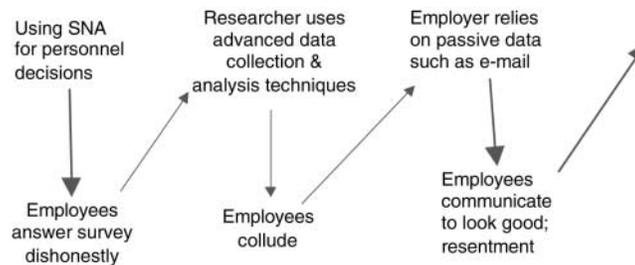
feel that they have gained insights as a result of filling out the questionnaires or receiving feedback from the researchers (and no negative side effects), then it is hard to argue that the study has been unethical.

### Risks to the Field

In the previous section it was asserted that the use of network analysis to make decisions that have major consequences for individuals in an organization cannot in itself be faulted on ethical grounds. However, there are more strategic reasons for concern. Consider the following case (based on a consulting engagement of one of the authors). A health care organization has a role called *case coordinator*, and the individuals playing this role are expected to maintain wide contacts throughout the organization to do the job effectively. A network analysis quickly reveals that two of the case coordinators do not have nearly the number and diversity of connections that are thought to be needed, even after a year and a half on the job. The manager discusses the results with the coordinators and recommends that they start making more contacts. No matter how nicely this is done, as a direct result of the network analysis, these coordinators are in effect on probation and not prime candidates for a raise. There is a real consequence for these individuals resulting from the network analysis. The question is, "How many network audits of this kind can be done before employees learn to fill out the forms strategically?" Today, we are in what could be called the golden age of social network research because most respondents seem to fill out the questionnaires quite naively. But as organizations increasingly make decisions based on network analyses, respondents will become increasingly wary. When this happens, it may be impossible to do even academic network research because employees cannot be sure what the real purpose of a network survey is. Indeed, as we discuss in another section, even in academic contexts, the researcher often agrees to share some results with management in exchange for access to the site. This situation is altogether too similar to that deceptive marketing technique in which the sales call is disguised as a marketing research survey. The consequences of the situation in the future may be outright refusals to participate in network studies, or worse, strategic responding designed to make the respondent look good, creating a validity problem.

The use of network analysis to make managerial decisions can be seen as a move that initiates a kind of dialectical arms race, as shown in Figure 2. Employees react defensively to this move by learning to answer surveys in a strategic manner. Researchers counter by using a combination of data collection and data analysis techniques to minimize the effects of strategic responding. For example, when trying to map the advice network, we can ask respondents not only whom they go to for advice but also who goes to them for advice. Then, to determine whether person A gets advice from person B, we check that A claims to receive advice from B *and* that B claims to give advice to A, recording a tie only if the two agree.

Respondents can defeat this too by agreeing beforehand to list each other on both halves of the question. If collusion becomes rampant, researchers can switch to passive techniques for data collection, such as examining project collaboration data and monitoring incoming and outgoing e-mails. Leaving aside the additional ethical issues that



**FIGURE 2: The Strategic Dialectic**

NOTE: SNA = social network analysis.

such monitoring introduces, employees can respond by communicating strategically (i.e., sending frequent e-mails to appear more connected). The validity spiral is unending.

It is worth pointing out that the response of communicating strategically to “beat the test” is not limited to e-mail and can result in genuine communication. Communication for the “wrong reasons” seems better for the organization than the response of filling out the survey falsely. However, it does mean that a kind of Heisenberg principle applies in which measuring the network (and using it for making decisions) necessarily changes the network, which might not trouble the manager but will cause serious problems for the academic researcher.

#### The Mixed Academic/Consulting Case

Perhaps the most dangerous kind of study is also the most common. This is the mixed academic/consulting case where the academic researcher does an academic study in an organization but gives a report to management in return for access to the site. Typically, the questionnaire explains the academic purposes of the survey and does not mention that management will see the results in undisguised form. Even when it does, there is rarely sufficient information given about what exactly management will see and how the results might be used, not to mention what the consequences could be for the respondent. Indeed, the conscientious academic researcher will want to resist including too much information because of the threat to the validity of the data created by strategic respondents. In this respect, the needs of academic research are at odds with the needs of managerial practice, and depending on how researchers try to resolve the conflict, the result can be a study that is either deceptive or yields invalid data.

### TOWARD A SET OF ETHICAL GUIDELINES

An obvious response to these considerations is to develop a set of ethical (and strategic) guidelines that if adhered to, would minimize harm to respondents and safe-

guard the field for future researchers. This is not an easy thing to do. Although we can easily create guidelines that exclude bad studies, it is hard to do so without excluding good ones as well. On the academic side, it is important to keep in mind that the purpose of the guidelines is to ensure continued network research for the long term, not to stop it. We believe a set of widely supported standards will make it easier for university IRBs to permit network research and will prevent a backlash in the practice setting.

As a start, we offer two basic suggestions (which contain other suggestions nested within): avoiding harm to innocents and providing value to participants.

### **Avoiding Harm to Innocents**

There are two generic ways to avoid harm to innocents: avoiding innocents and avoiding doing harm. In the purely academic application, harm can be avoided by thoroughly disguising the data (e.g., removing names and other identifying attributes) so that management cannot take action against individuals. This will not prevent large-scale responses, however, such as closing whole offices or departments that appear to have the “wrong” structure. To protect against that, academic researchers can hold on to the results until they are no longer timely.<sup>4</sup>

In the managerial application, avoiding harm is much more difficult. One approach is to make a deal with management, prior to executing the study, that would limit what could happen to individuals as a result of the study. In some cases, it may even be possible to agree that management will never see individual-level data—only data aggregated to the unit level, as when investigating communication across internal boundaries. Slightly less satisfactory is to agree that management will see individual-level data but without names. This permits management to see the shapes of networks within groups. Care must be taken, however, to avoid enough distinguishing data to deduce the identities of individuals, and the possibility of action being taken against whole departments (raised above) is still an issue.

When a promise of no harm cannot credibly be made, as in most managerial applications or academic studies in which there will be management briefing, we can take the alternative tack of avoiding innocents. To avoid innocents, what we must do is provide all participants with complete disclosure and permit nonparticipation. A person with full knowledge who chooses to participate cannot be called an innocent. Hence, if we cannot guarantee benign consequences, respondents should be given a full understanding of how the data will be processed (e.g., a sample network map), what kinds of conclusions might be drawn from the data, and what consequences might reasonably be foreseen to emerge from the study. It must be borne in mind that respondents are not usually able to imagine what can be concluded from a set of surveys in which people check off names of others. Although the academic practice of obtaining a signed consent form from participants is rarely used in managerial settings, it would be a good practice to adopt to signal concern for respondents' welfare and to reduce the possibility of ill will from respondents who participated without a second thought and only later saw the danger.

### Providing Value to Participants

Most survey data collection situations can be criticized as exploitative: the researcher receives labor from the respondent but provides little more than a token in return. Network studies are no exception. The worst situation is the practice setting where respondents are asked to provide data that may be used against them. We suggest two basic approaches to address these issues.

First (and most elementary), in all studies that require active participation from the respondents (as in survey studies), participation must be voluntary. This is usually the case in academic studies but is not always the case in the practice settings. In addition, there are gray areas where the CEO or other authority sends a note to employees encouraging their full participation. In some situations, such missives may be coercive, as when individuals will be seen as not being team players for not participating. In those cases, it may be difficult to ensure that participation is truly voluntary and to execute a study that would be ethical by these guidelines. Studies that do not require active participation from the individuals being studied (as in analyses of project collaboration data or group membership data) should be exempt from the requirement of voluntary participation.

Second, all studies should provide some kind of feedback directly to the respondents as payment in kind for their participation. Ideally, this consists of something tailored specifically for them, such as network diagrams indicating their positions in the network. Given the absence of specialized software to create individualized evaluations, this suggestion could entail a considerable amount of work on the part of the researcher. However, we feel it is the price we have to pay to safeguard the future of network research. Of course, any such feedback must be handled very carefully to avoid violating the privacy of other participants.

## CONCLUSION

Our fundamental purpose in writing this paper is to argue for the immediate development of ethical guidelines for network research in both academic and managerial settings. The reasons are both primary and secondary. The primary reasons (referred to as *ethical* in Table 1) have to do with protecting research participants from harm. With the increasing popularity of network research, particularly in the managerial practice sector, organizations will increasingly make decisions informed by network research that will have powerful consequences for individuals. The secondary reasons (referred to as *strategic* in Table 1) have to do with protecting the network research enterprise from backlash by respondents as a result of poor treatment and from being shut down by university IRBs for insufficient safeguards.

It should be noted that any practical ethical guidelines that are developed are unlikely to completely halt the learning process that is put into motion when managers routinely use network relations as a basis for performance evaluation. We discussed two kinds of learned responses: changed social behavior and misleading questionnaire

responses. The second is particularly troubling for both academic and managerial researchers because it results in invalid data.

Finally, we warn that the biggest ethical and strategic risks occur in the case of studies that blur the line between pure academic research and pure managerial practice. Studies that are conducted by academic researchers for publication purposes but that in a quid pro quo arrangement also provide a report to management must be particularly careful to provide full disclosure to respondents about the consequences of participation. If what appears to be a university research effort results in the harm of individuals, the social network analysis field as a whole will pay the consequences.

### NOTES

1. An exception is the cognitive social structure methodology developed by Krackhardt (1987) in which respondents report on their perceptions of other people's relationships rather than their own, in which case the respondent can be anonymous if the interest is in the others and not the respondent.

2. It should be noted, however, that to keep track of who has and has not filled out a questionnaire, the logistical procedures for some ordinary studies do not provide full anonymity either.

3. This principle is familiar in a number of human resource contexts. For example, laws in the United States and other countries prohibit job discrimination based on sex and age. However, where specific sexes and ages are crucial for job performance, as in fashion modeling, the laws do not apply.

4. Given the length of time it takes to get a paper published in most journals, this goal is easy to achieve.

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