# Network Research in Light of Four Traditional Criticisms

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**Abstract**

While not a new field, organizational research on social networks has grown considerably in the last few years. This paper tries to assess the current state of development of the field in light of four traditional interrelated criticisms: that the field is not theoretical, that it is all methodology, that it neglects dynamics, and that it neglects agency. The paper discusses each criticism in turn to evaluate its validity today, and to explain why, if valid, the field has not improved, or if not valid, why the criticism persists. The paper concludes that some of the criticisms, such as the neglect of dynamics, have merit, while others, such as being non-theoretical, seem hard to sustain today.

**Key Words: Social networks theory agency dynamic methodology**

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**Abstract**

While not a new field, organizational research on social networks has grown considerably in the last few years. This paper tries to assess the current state of development of the field in light of four traditional interrelated criticisms: that the field is not theoretical, that it is all methodology, that it neglects dynamics, and that it neglects agency. The paper discusses each criticism in turn to evaluate its validity today, and to explain why, if valid, the field has not improved, or if not valid, why the criticism persists. The paper concludes that some of the criticisms, such as the neglect of dynamics, have merit, while others, such as being non-theoretical, seem hard to sustain today.

Interest in social networks has been rising very quickly for several years now across a wide variety of fields. For example, in physics, more than a hundred articles on social networks have been published in the last five years alone, much of the work sparked by Milgram's (1967) small world research. Ecology is buzzing with the "network analysis" of food webs (Krause, Frank, Mason, Ulanowicz, and Taylor, 2003; Luczkovich, Borgatti, Johnson, and Everett, 2003). In military science, the cutting edge is "netwar" – how to defeat networks by organizing as networks (Arquilla & Ronfeldt, 2001). In management consulting, network mapping is fast becoming a standard diagnostic and prescriptive tool (Bonabeau & Krebs, 2002; Cross, Parker & Borgatti, 2000). And in management research, the topic of social networks was recently the theme of the Academy of Management conference, as well as of special issues of its journals, including Academy of Management Journal and Academy of Management Review.

However, network research in organizations is not new, and over the years has been subject to several strong criticisms. The goal of this paper is to assess the state of organizational network research today in light of traditional criticisms of the field. Four interrelated criticisms are considered: First, that network research is not theoretical; second, that it is "just"

methodology; third, that network research neglects dynamics; and fourth, that network theorizing neglects agency. It will be noted that the first two and the last two are especially related pairs. For clarity, however, I discuss them separately, beginning with the first one.

**Network Research is Not Theoretical**

Salancik (1995:348) famously suggested that no network theory of organization existed. He was looking for

Salancik (1995:348) argued that network research was powerfully descriptive, but not theoretical. This was a popular and perhaps valid criticism in earlier times (e.g., Barnes, 1972; Granovetter, 1979; Burt, 1980; Rogers, 1987), but is surely false today. As a specific example, Kogut (2000) presents a network theory of firm value that includes an explanation of how network structures arise in the first place (see also Kogut & Zander, 1996; Shan, Walker, & Kogut, 1994; Walker, Kogut, & Shan, 1997 for a fuller picture). As another example, the body of work developing out of Burt's theory of structural holes (1992) is clearly theoretical and wholly network-based. These are just two examples among many. Network theorizing has emerged in virtually every area of organizational inquiry, including leadership (Sparrowe & Liden, 1997; Brass & Krackhardt, 1999), power (Brass, 1984), turnover (Krackhardt & Porter, 1985; 1986), job performance (Mehra, Kilduff & Brass, 2001; Leavitt, 1951; Sparrowe, Liden, Wayne & Kraimer, 2001), entrepreneurship (Renzulli, Aldrich, & Moody, 2000), stakeholder relations (Rowley, 1997), knowledge utilization (Tsai, 2001), innovation (Perry-Smith & Shalley, 2003), profit maximization (Burt, 1992), inter-firm collaboration (Jones, Hesterly & Borgatti, 1997), and so on. More generally, social capital theory is largely network theory. Embeddedness theory

is network theory. Diffusion theory is network theory. Indeed, in subsequent pages we shall argue that almost all of the major perspectives in organizational theory, such as resource dependency and institutional theory, have incorporated or independently invented key elements of network theory.

Of course, this discussion begs the question of what is a network theory.[1] Perhaps the most fundamental characteristic of network theory is the focus on relationships among actors as an explanation of actor and group outcomes. This is in contrast to traditional explanations which focused on attributes of actors, which were treated as independent cases or replications (Wellman, 1988). For example, rather than trying to model adoption of innovation solely in terms of characteristics of the adopter (e.g., age and personality type), network theorists posit interpersonal processes in which one person imitates or is influenced by or is given an opportunity by another. Thus, I adopt an innovation such as a PDA not only because I have the right personality to do it, the right set of means and needs and so on, but also because my friend who has one has influenced me. This fundamental shift from attributes to relations entails a change in theoretical constructs from monadic variables (attributes of individuals) to dyadic variables (attributes of pairs of individuals) which constitute binary relations among a set of actors. The dyadic ties link up through common nodes to form a field or system of interdependencies we call a network. This gives some network theorizing a holistic or contextualist flavor in which explanations are sought not only within actors but in their network environments, which may include quite distal elements unknown to the actor but linked to them through chains of ties, like the butterfly effect in complexity theory (Lorenz, 1963). The effect of

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[1] For simplicity, I focus here on networks as causes rather than networks as outcomes, since the basic claim under consideration is that there exist network theories of organizational phenomena (e.g., turnover, profitability). However, it should be noted that Salancik (1995) felt that no network theory of organizational phenomena could be called a proper theory if it did not simultaneously treat both consequences and causes of network variables.

network environment is phrased in terms of providing benefits and constraints which the actor must exploit and manage. Elegant work has been done clarifying the ways in which network environments can be similar (Lorrain and White, 1971; White and Reitz, 1983). Similarly, at the group level, the fundamental hypothesis of most network theories is that the structure of a group – the pattern of who is connected to whom -- is as consequential for the group as are the characteristics of its members, just as a bicycle's functioning is determined not only by which parts comprise it, but how they are linked together. A beautiful example is provided by the work of Bavelas (1950) and Leavitt (1951), who identified centralization of a network as a key factor contributing to a group's efficiency in problem-solving for simple tasks.

At a more specific level, network theorizing consists of the interplay of the specific functions or properties of kinds of ties (e.g., acquaintance, kinship, supervisory) with the topology of ties – the pattern of interconnection. For example, suppose friends within an organization tell each other about the latest office gossip. The supposition is a claim about one of the functions of friendship ties (or the kinds of processes they support). Now, it is reasonable to propose that a person with more ties should receive more news (i.e., have greater probability of hearing any specific item), just as buying more lottery tickets improves a person's chances of winning (Borgatti, 1995). This is a bit of network theory, albeit at the simplest possible level. Now consider that if the person's friends were all friends with each other, the probability of novel information is lower than if the person's friends belonged to separate social circles, each with their own gossip (Burt, 1992). This has added a bit of topological reasoning – a common and distinctive element of network theorizing – to the theory, in hopes of improving predictive power. We can go further on the topological side by considering not only ties among the person's friends, but their ties to third parties -- we are now invoking the network notion of

structural equivalence (Lorrain and White, 1971) – such that we predict that persons whose contacts are less structurally equivalent receive more non-redundant information. Or we could return to the ties themselves and add propositions about how the strength of tie affects the probability of transmitting information (Krackhardt, 1992; Hansen, 1999). While we are at it, we can think about whether the strength of ties is independent of the pattern of ties. It seems plausible that if persons A and B share many close friends, they will very likely become at least acquainted, and may be predisposed to like each other. This implies that people are more likely to hear novel information from those they are not close with, since their social circles overlap less (Granovetter, 1973). And so on. The connections to organizational outcome variables such as job performance, mobility and turnover are obvious. It is equally obvious that we can no longer deny the existence of network theory.

Network theorists sometimes decry the loose way the term "network" is used these days, particularly in the popular press. In part, the network field is a victim of its own success, so that virtually any collectivity is now referred to as a network. What was once described as a "group", "club" or "trade association" is now a "network", and what was once "making friends" is now "building networks". More than that, much organizational work on networks is actually based on ego-networks, which purists don't regard as true networks. Ego-networks consist of the cloud of actors (called "alters") that surround a given focal node (called "ego"), together with the ties among the alters (as perceived by the ego because, in an ego-network design, the alters are not interviewed). Study designs include random samples from large populations (such as all Americans), and no attempt is made to link members of one ego-network to another. Rather, ego-level measures are computed for each ego, such as the size of the network or how well connected it is. These measures are then correlated with other variables, such as measures of success. Thus,

ego-network studies take a network perspective (e.g., a person's success is seen as a function of their ties to people with needed resources) but don't actually measure a complete network and in fact utilize data that fit well in traditional data processing paradigms.

Crusaders for network thinking rail against this "impoverished" form of network research, but rather than disparage this weak form of network analysis, the network faithful would do well to consider how far they have come. In the mid 20th century, relational thinking of any kind was mostly absent from social science research and unique to network research. Thinking in terms of individual attributes was the norm, and thinking dyadically represented a hugely different way of thinking that was not easily accepted by the mainstream. The landmark book edited by Wellman and Berkowitz (1988) is virtually devoted to getting across one revolutionary idea: dyadic relations between actors are as important as monadic attributes within actors (see in particular the essay by Wellman). Today, this battle is largely won. In organizational research today, virtually every important theoretical perspective is fundamentally relational in character. Consider the history of organizational theory in the 20th century. At the beginning of the century, management thinking looked inside the firm to explain firm outcomes – i.e., firm attributes (regarded as antecedents) were used to predict other firm attributes regarded as outcomes. For example, Weber (1922) outlined a series of characteristics, such as division of labor, hierarchical command, codified norms and so on, whose presence explained firm success. Arising soon after that, the human relations school, while containing the seeds of the relational revolution to come, was fundamentally about keeping a firm's workers happy. It was about designing a system of management (read: attributes of the firm) that would help the firm prosper (Roethlisberger & Dickson, 1939). Similarly, contingency theory began with the fit between an

organization's technology and its formal structure. Here again, one attribute of the firm was used to explain another.

However, contingency theory also provided a key bridge to the relational world by considering how the organization related to its environment (Burns & Stalker, 1961; Galbraith, 1977; Lawrence & Lorsch, 1967). But the relationship was solitary and asymmetric, linking the focal organization with "the Environment", which was largely treated as a single abstract object. Then, with the rise of dependency theory (Pfeffer and Salancik, 1978), and stakeholder theory (Freeman, 1984), we have the environment resolving into individual actors of the same kind as the focal actor – i.e., other organizations – and directly influencing each other. With institutional theory (DiMaggio and Powell, 1991), we have organizational actors both coercing and imitating each other.[2] Recent evolutionary organizational theory (Aldrich, 1999), is also heavily infused with network thinking. Related fields are also moving toward relational perspectives. In strategy, the dominance of the actor-centered resource-based view of the firm is under attack specifically because it is not relational (Dyer and Singh, 1998). Even in economics, with its heavy investment in mathematical models that assume actor independence and therefore don't handle dyadic data well, we have seen the rise of transaction cost theory (Williamson, 1975), a relational perspective. Thus, it seems clear that where organizational theory hasn't outright borrowed from network theory it has at least converged with it.

[Table 1]

Table 1 shows a simple typology of network theorizing, drawn from Borgatti & Foster (2003), in which network studies are cross-classified according to two dimensions: explanatory

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[2] Of course, DiMaggio and Powell (1991) explicitly base their notions of organizational isomorphism on core elements of network theory, citing the network concept of structural equivalence. In addition, DiMaggio (1986) uses both social network theory and network methodology in an empirical investigation, providing one of many vectors of transmission of social network concepts into institutional theory.

goal, and explanatory mechanism. Explanatory goal refers to whether the study sees itself as explaining variation in performance/success (as in social capital studies), or explaining homogeneity of attitudes, beliefs, behavior etc.(as in diffusion and social influence studies). The former studies tend to emphasize opportunities for entrepreneurial players while the latter studies emphasize environmental constraints that mold more passive actors. Thus, the explanatory goal dimension tends to map to a dimension of power or autonomy of focal actors.

Explanatory mechanism refers to whether the causal arguments in the study focus on structural or morphological concepts (labeled the "topological" perspective in the table) or on inter-agent flows and transmissions (labeled the "connectionist" perspective in the table). The former studies seem to view ties as girders that create a structure or context that both constrains and enables players, while the latter studies seem to view ties as pipes through which resources and influence flow among actors.[3]

Because of the convergence on a relational point of view by the dominant theoretical perspectives in organizational research, we can use this typology to classify many kinds of organizational research. For example, research coming from an institutional framework typically fits into the top right quadrant, in which similarity between organizations in a field is explained through such processes as common socialization and regulation, as well as imitation of organizations with which the imitating organization need not have any direct relations. Research in the resource-dependency tradition typically fits in the bottom left quadrant when the focus is on the organizational response to dependency (such as developing interlocking directorate ties with firms in industries upon which it is dependent), or the in the bottom right quadrant when the focus is on the controlling organizations (as when a large customer forces a small supplier to

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[3] It is not claimed that these two perspectives are completely separable. In particular, a deeper look at some topological arguments almost always uncovers some sense of flow across ties.

open its books and accept lower profits). Work on adoption of practices via diffusion through board co-membership, as in the adoption of poison pills and golden parachutes (Davis, 1991), falls in the bottom right quadrant as well. Work on structural sources of power and control, such as Burt (1992) and Brass (1984), fall in the top left quadrant, as when actors play their contacts off each other when the contacts cannot coordinate with each other. Work on the reasons for seeking out joint ventures and alliances in high technology industries falls mostly in the bottom left quadrant, as when technology and complementary knowledge are seen to flow through alliance ties (Powell, Koput and Smith-Doer, 1996).

**Network Research is Just Methodology**

The adoption of core network concepts into mainstream social science thinking, whether by independent invention or diffusion, has perhaps contributed paradoxically to an odd result: the claim that network analysis is "just" methodology. The claim is a curious one given the sheer quantity of articles containing network theorizing (and no methodology) that have been available for decades from a variety of different social science fields. For instance, it is often noted that Granovetter's (1973) celebrated thought-piece on the strength of weak ties – which is a very pure and very charming example of network theorizing – was extremely well-cited from the day it was published (Friedkin, 1980). The paper was all theory, and yet the field continued to be seen as methodology only.

The claim is also curious because, more than in other fields, network technical concepts are so obviously theoretically based.[4]  For example, the notion of social capital is clearly a theoretical construct, whatever one may think of its merits. Even concepts as technical as

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[4] Of course, postmodernists will remind us that all constructs and methods necessarily embody a good deal of theory, even when not explicitly recognized (Latour, 1987).

structural equivalence (Lorrain and White, 1971) and regular equivalence (White and Reitz, 1983) were explicitly created in an effort to create formal theory drawing on the insights on social role of Linton (1936), Nadel (1957), Merton (1959) and others.[5] Their work belongs to a sociological tradition of mathematical formalism exemplified by such figures as Anatol Rapoport and James Coleman. Similarly, the technical notions of clique, n-clique, k-plex and so on that sound so methodological were actually attempts to state with mathematical precision what was meant by the concept of group which Cooley (1909), Homans (1950) and others had discussed at a more intuitive level. Contrary to popular opinion, esoteric notions like the network concept of n-clique (Luce, 1950) came decades before computer implementations and measures.

What, then, accounts for the short-sighted "just methodology" attribution? How did a distinctive element of network research come to stand in for the entire field? I believe that the methodology of network research is so highly salient in part because it is foreign and formidable. The shift from individual attributes to the dyadic relations of network research entailed more than a conceptual adjustment. Wholly new measures, graphics and analytic techniques had to be developed. Statistical methods that worked for attribute data didn't work in the network context because the classical methods assumed independence of observations, which by definition was not the case with network data. Performing an analysis of network data was therefore quite daunting, entailing considerable learning of both methods and arcane computer programs (e.g., Borgatti, Everett and Freeman, 2002). Hence, it is perhaps understandable that the methodology would become the most salient feature of network research and, by a metonymous process, come to stand in for it.

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[5] Two nodes in a network are structurally equivalent to the extent they have the same relations to the same third parties. Two nodes are regularly equivalent to the extent they have the same relations to not the same third parties but equivalent third parties. Both were attempts to define social role in terms of patterns of interactions among individuals as opposed to culturally determined sets of rights and obligations.

Another reason, hinted at earlier, may be that the more accessible aspects of network thinking have been slowly absorbed (or independently invented) over the last fifty years into the mainstream of social science thought, and therefore are not considered to "belong" to network theory. That is, the ideas were absorbed before the network field had sufficient identity and legitimacy to claim or retain ownership. Hence, the homogeneity induced by actors imitating each other is seen as exclusively the province of institutional theory rather than network theory, even though this was a core concept of network research long before it entered the institutional theory discourse.[6] If this explanation has merit, we should increasingly be seeing attributions to "network theory" rather than to, say, "resource-dependency", as network research continues to gain legitimacy.

**Network Research is Not Dynamic**

A frequently heard criticism of network research is that it is not dynamic (Watts, 2003). This can mean either that insufficient attention is paid to dynamic network processes (e.g., modeling flows or actor strategies for exploiting ties) or that insufficient attention is paid to the dynamic nature of the network (e.g., modeling network evolution or processes of tie formation and dissolution). Both claims have considerable validity, particularly when applied to older network research, but both tend to be overstated as well, particularly today. We consider each in turn.

The claim that insufficient attention is paid to modeling flows is a bit broad considering the diversity of approaches in network theorizing. As noted in Table 1 (focusing on rows), network research can be divided into topological and connectionist camps. The connectionist

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[6] A fascinating empirical study of how ideas tend to be attributed exclusively to more central, higher status players is provided by Fine (1979). It is also well-known in feminist communication research (Tannen, 1994).

camp is explicitly defined by a conception of flows of resources, information and influence between actors, as found in the well-established literatures on diffusion, adoption of innovation and interpersonal influence. These literatures, by definition, can hardly be said to ignore dynamic processes. Friedkin and Johnsen (1990; 1997; 1999), to cite a well-known stream of research, have a series of papers modeling interpersonal influence processes in which they derive results for individuals and groups based on characteristics of the pairwise interactions. Even in the topological camp, dynamic processes are at the heart of the theories, as in structural hole theory where actors accrue the benefits of position only by actively exploiting their structural holes by playing alters off each other. Unfortunately, most empirical studies in the structural holes tradition take the dynamics for granted and empirically measure only the network structure: no attempt is made to measure the dynamic processes themselves.[7]

The claim that network researchers have neglected change in network structure can be divided into several separate issues. First is the issue of modeling how networks come to be – what Brass refers to as network antecedents (Brass, 2002). It is true that considerably more work has been done on consequences of network variables than antecedents. One reason for this bias toward consequences may be that network research is a relatively young field whose first order of business has been to achieve legitimacy. A reasonable approach to gaining legitimacy for the network field is to show that network variables can predict outcomes that have already been deemed important by the larger disciplines within which the network field is embedded (such as organization studies). Until network variables were known to be important predictors of valuable outcomes, there would not be much of a market for papers on how they came about or changed over time.

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[7] Lawrence (1998) makes a similar point about the field of organizational demography.

As discussed by Borgatti and Foster (2003), another reason for favoring consequences has probably been the dominance, since the 1970s, of a strong form of sociological structuralism in network research, such as represented by the works of Blau (1977), Mayhew (1980) and Wellman (1988). A fundamental proposition of this line of thinking is that action is strongly governed by the constraints and opportunities afforded by the social structure within which an actor is embedded. Thus, structure (conceived of as network) is seen as cause rather than consequence. In addition, many obvious explanations of network variables, such as appeals to personality to explain actor centrality, are anathema to the strong structuralist position because they rely on highly reified latent propensities to explain behavior. For structuralists, as for cultural materialists like Harris (1968), explaining observable concrete behavior with inferred constructs like motivation or behavior is more akin to mystification than explanation.[8]

Another issue is the lack of empirical studies that observe networks changing over time. While longitudinal network studies exist (e.g., Burkhardt & Brass, 1990), they are clearly not common. This is extremely problematic for the establishment of causality, and is perhaps the single most potent criticism of structural hole research, which has relied heavily on cross-sectional data (Burt, 1992:173-180). Of course, the overwhelming majority of all empirical social science studies are cross-sectional rather than longitudinal. In part this reflects a paucity of evolutionary thinking in the social sciences, as noted by Aldrich (1999; 2001), and in part it reflects the added costs in time and trouble of collecting data over time. Since data collection in network research is already more costly than in other social science work, longitudinal network research is particularly problematic.

Finally, there is the issue that, in theorizing about the effects of network structures, researchers seem to ignore the possibility of new ties being added. This is most evident in studies

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[8] See Kilduff & Krackhardt (1994) for an alternative view.

of brokerage in which an actor derives power from the absence of a tie between two alters (e.g., Freeman, 1979; Gould & Fernandez, 1989; Burt, 1992). The theories make sense only to the extent that alters are unable to form a direct tie and bypass the broker that joins them (Aldrich & Whetten, 1981), which, according to dependency theory (Emerson, 1962), they would surely do if they could. Thus, an implicit scope condition of all such structural theories must be that they apply only to relations of a type that is not easily or quickly created, such as trust or friendship (or, of course, kinship).

Still, there is considerably more work on network change than is popularly believed. In particular, certain areas of investigation are dominated by work on network change. For example, the overwhelming majority of recent work on inter-organizational networks (e.g., Gulati & Gargiulo, 1999) is about explaining how and why organizations form ties (whether interlocking directorates or alliances or supply chains) and how they select partners (i.e., predicting which ties will form). Similarly, the field of friendship formation, which goes back to sociometric work in the 1950s by Newcomb (1961), is by nature about network change (e.g., Zeggelink (1994). Predicting which ties will form is clearly about network change, even if authors do not label it as such. Considerable network research in the public health context is concerned with network formation and stability (). Finally, nearly 100% of the enormous body of articles on networks contributed by physicists in the last few years has focused on the evolution of such social networks as the world-wide web, co-authorship among scientists, and collaboration on movie projects. They posit interesting processes of network growth, such as the preferential attachment model in which nodes entering the network preferentially form links with nodes that already have many links, creating a network structure known as "scale-free" in which the distribution of

ties to nodes is not normally distributed but rather follows a power law. A review of this work is provided by Newman (2003).

Ironically (in light of the view that the network field is all methodology), one handicap in studying network change has been the lack of methodological tools and statistical models for modeling network change, but this situation is changing rapidly with the development of new statistical models and accompanying computer programs (e.g., Snijders, 2001; Robins and Pattison, 2001; Banks and Carley, 1996). Another crucial development has been the growth of simulation approaches to studying network change (Skvoretz, 1985; Zeggelink, 1994), most recently utilizing complex adaptive agents to simulate organizational systems (e.g., Carley, 1991, 2002);

## Network Research Lacks Agency

Another old chestnut about network research is that it is all structure and no agency (Emirbayer & Goodwin, 1994; Stevenson & Greenberg, 2000). Certainly one of the key historical influences in network research has been the structuralist sociological tradition, which has indeed emphasized structure over agency. There is an old saying, attributed to Duesenberry (1960) by Granovetter (1985), to the effect that economics is about how people make choices while sociology is about how people have no choices to make. However, even in the early days of network research there has been another current with a different stance. The massive social support literature and the social resource theory of Lin (1982) have always had an entrepreneurial flavor in which actors harvest resources for their own gain. Granovetter's book "Getting a Job" (1974) as the title suggests, is not without agency; the same is true of such

classics as Kadushin's "Why People go to Psychiatrists" (1969), Lee's "The Search for an Abortionist" (1969) and Boissevain's (1974) influential study of agency and brokerage.

Today, the social capital perspective (left column of Table 1) is extremely popular (if not dominant) and clearly weighs in on the agency side of the scale. Even the embeddedness literature, which in Granovetter's hands (1985) was carefully balanced, has acquired a decidedly instrumental cast (e.g., Jones, Hesterly & Borgatti, 1997, who see embeddedness as minimizing transaction costs). Similarly, the Dutch rational actor school of network research (e.g., Stokman, Ziegler & Scott, 1985; Zeggelink, 1994; Stokman, van Assen, van der Knoop, and van Oosten, 2000) is also agency-oriented, as is much of the simulation work on networks (e.g., Zeggelink, 1994). Finally, much work on knowledge flows portrays an active search for information in the network (Borgatti & Cross, 2003; Hansen, 1999).

If the balance of network research was once tilted toward structure, it might well be the opposite today. This has advantages and disadvantages. The advantage is that agency-based theorizing tends to be simpler and more intuitive, enhancing acceptance of the field. The disadvantage (as network purists will point out) is that, taken to the extreme, it brings us back to the essentialist, individualist explanations of a century ago. In the end, it seems clear that the fundamental tenet of network theorizing – that network structure and position provide agents with opportunities and constraints – contains the seeds of both over and under-socialized views of network actors, and which view dominates depends more on larger intellectual currents than it does on the network enterprise itself.

## SUMMARY

The objective of this paper has been to assess the current state of network research by examining whether past criticisms of the field still hold water. I believe that the first criticism –

that network research is not theoretical – is clearly false today. In my view, network research has always been theoretical, but in the past an intimate connection to the field was required in order to know this. Today, with widespread familiarity with network concepts and terminology, along with articles self-identifying as employing "network theory", it is much easier to see the theoretical elements of network research.

Similarly, I feel that the second criticism – that network research is "just" methodology – is at best greatly exaggerated. Network research represents a different paradigm of research which has necessitated the construction of a large array of new concepts and methods. This methodology is formidable to learn and has, by a process of metonymy, come to represent the whole field for some. In addition, whether by diffusion or convergent evolution, many of the theoretical concepts of network thinking are found in the dominant theoretical perspectives such as institutional theory and resource dependence, and so have not been recognized as network theory.

The third criticism – that network research is static – has some bite. Like all social scientists, network researchers tend to avoid longitudinal research designs for obvious practical reasons. In addition, a strong structuralist orientation leads researchers to focus on the consequences of networks rather than antecedents, which in turn means that the network researcher tends to treat the network as given and therefore unchanging. However, the situation with respect to the dynamic processes enabled by network ties, such as flows of resources or interpersonal persuasion, is a bit brighter since key areas of network research – such as social resource theory, diffusion, social influence, and knowledge flows – focus explicitly on dynamics of this kind.

The fourth criticism – that network theorizing lacks agency – is more difficult to assess due to varying conceptions of agency (Emirbayer and Mische, 1998) but probably held more validity in the past and in other disciplines (such as sociology) than it does today in management research. The popularity of individual-level social capital as topic of research – one that emphasizes (rational) actors' strategic exploitation of socially accessed resources – means that a large portion (perhaps the majority) of network studies in management journals have a strong sense of agency. However, it is also true that many network studies, particularly those that explore diffusion of practices or the evolution of consensus, have very little sense of agency and in fact might be categorized as environmental determinism. Perhaps the biggest problem is that studies are frequently drawn entirely from one camp or the other, rather than exhibiting a balance between the two perspectives. Network researchers would do well to follow the example set by Wellman and Frank (2001) who study the interaction of agency and structure.

In closing, I would note that a key claim made in this paper is that the crucial element of network theorizing – the relational perspective -- is ubiquitous in organizational research today. In addition to specific network theories of a wide range of phenomena, virtually all of the major theoretical perspectives in organization studies today are fundamentally relational in character. It is the spirit of the age.

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TABLE 1.
Typology of Research on Consequences of Network Factors
(adapted from Borgatti & Foster, 2003)

|  | Performance Variation (Social Capital) | Outcome Homogeneity (Diffusion) |
|---|---|---|
| Topological (structure) | Benefits of position | Environmental influence |
| Connectionist (flows) | Social access to resources | Contagion |