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The Temporality of Ties: Essays on the Temporal Nature of Social Capital

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ABSTRACT OF THE DISSERTATION

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It is often seen as axiomatic in the social capital literature that relationships require ongoing maintenance to remain valuable. As a result, the vast majority of social network theory and research has only considered relationships that are in some way active. Seldom considered are the implications of dormant, unmaintained ties that have remained dormant—which I define as a prolonged state of suspended communication between two parties who were at one point in touch. My aim in this dissertation is to place social network scholarship on a stronger empirical and theoretical footing by examining the interaction of active and dormant ties within organizations and in social life generally. I present evidence that challenges the standard assumption that dormant ties, during dormancy, are irrelevant and can be safely ignored.

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A version of this dissertation's second study was submitted to the 2014 Academy of Management Conference, accepted, and subsequently nominated for the 2014 *Best Paper Proceedings*. As a result of this nomination, an abridged version will be published online in the *Best Paper Proceedings* during the summer of 2014. The nominated manuscript includes a co-author: Daniel Levin. The language used in this dissertation is my own. Sections of this manuscript will eventually be submitted to academic journals – possibly with co-authors – but have not at the time of this writing.

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PREFACE

In early August of 2012 I posted a Facebook message requesting assistance in bug-testing a survey application for my dissertation. A screen clipping from that post is available in Figure 1.

[=====]
 INSERT FIGURE 1
 [=====]

I had 379 Facebook “friends” at the time of the posting – a number that consisted of thirty-to-forty close friends and family members, a majority of old friends and acquaintances, and a small sum of passing acquaintances, some of whom I barely knew and have never really communicated with at length. Seven people responded to my request. 1) Sara: An old high school friend. We got in a minor political quarrel a few years ago and have not communicated since; 2) Chris: My best friend from middle and high school. I talk to him periodically, primarily via email and instant messenger but occasionally by phone; 3) Arielle G.: An acquaintance from high school. I used to drive her to school but never considered her a friend. We have not communicated in roughly ten years; 4) Nick: A friend I used to work with but have not communicated with in eight years or so; 5) Todd: A high school friend who now lives in Colorado. I do not recall the last time we communicated, but it has been three or four years; 6) Arielle M.: An acquaintance from high school. We were never friends and we do not communicate directly. However, it has become clear on Facebook that we have similar political leanings. We have each commented on each other’s Facebook posts a few times over the past four to five years. 7) Nicki: My wife’s cousin. I have only met her once. We got along

fine, but it was about two years ago since we last spoke.

The same week that I posted a Facebook message I also sent an email to fifteen of my closer contacts requesting help for the same task (see Figure 2). The list of recipients included several professional colleagues from Rutgers University. It also included my parents and in-laws, my wife, my cousin, my cousin's friend, as well as a few friends who live and work in Silicon Valley. The email indicated that I needed help bug testing for my dissertation, and contained a survey link. The nature of the survey application was such that participants were required to input their email, as well as the email of a person they planned to contact. If they successfully participated on my behalf, the application would automatically send an email from their account to the selected contact and include me as a blind-carbon copy. I could, in this way, keep track of who opted to help me, and who did not. It might be of consequence that the email's wording made it obvious that multiple people were being solicited at the same time (which may have made people more comfortable ignoring the email). Still, only four of the fifteen people that I emailed offered assistance. I communicated with all of the parties at least yearly. I communicate with most quite a bit more frequently – weekly or every two weeks, if I had to generalize. I trust, and care for, every person who I emailed.

[=====]
 INSERT FIGURE 2
 [=====]

It is significant that my older, dormant contacts outnumber active contacts on Facebook by a wide margin. I continued by finding ten other people on Facebook with whom I no longer communicate. I chose ten for this task, rather than fifteen, because it was difficult to identify older contacts that I felt comfortable soliciting for assistance. I

pulled down email addresses from their Facebook profile page when these were available. On a few occasions, emails were not available, so I used the Facebook email provided to every user (email addresses to Facebook email accounts to users' inboxes on Facebook). I sent roughly the same bug-testing solicitation message that I sent to my active contacts earlier, except with an added bit of explanatory text that was also intended to reduce the awkwardness of my request: "I'm sorry if this is out of the blue. I'm working on my dissertation and I can use all of the help I can get." As above, the solicitation message was not private. It was sent to multiple people, and my introduction "Hi guys," would have been obvious to recipients that this was so. Eight of the ten people I reached out to offered assistance. It is perhaps noteworthy that one contacted party has been inactive on Facebook for a quite a while (this person has not posted anything). This difference in activity may be significant, given that I used this person's Facebook email to contact them. It's not clear to me that they have received the message.

[=====]
 INSERT FIGURE 3
 [=====]

I do not present these examples as authentic experiments. Nor, of course, do I intend to embarrass friends and colleagues who ignored my solicitations for help. I view all of the people I emailed favorably, and am confident that they view me in more or less the same light. But these statistics are noteworthy: Of the seven people who responded to my Facebook post, all but one represented an old or dormant contact – a person with whom I used to communicate regularly, but have not communicated, in any significant sense, for two or more years. When we include my Facebook post and email solicitations together, assistance offerings from old contacts outnumber assistance offerings from

active contacts by a margin of fourteen to five.

These statistics do not make sense if conventional theory is to be taken as a reliable guide. Conventional theory tells us “relationships die out if they are not maintained” (Coleman, 1990: 321; Nahapiet and Ghoshal, 1998: 259). It tells us that, as communication between two parties comes to an end, the relationship dissolves with “whatever social capital [the relationship] contained” (Burt, 1992: 58). In this light, any inclination that someone had to help me should have correlated strongly with how recently, and regularly, we communicated at the time of my posting. Many of those who offered assistance should not have been willing or motivated to do so. Their perceptions of goodwill toward me should have been minimal, given the amount of time that had passed since we last spoke. The dim prospect of reciprocity should have been a further disincentive to invest time and energy on my behalf. Many from these older relationships *did* offer assistance, however. And that they did is very much relevant to this research.

CHAPTER I: INTRODUCTION

There is a large body of evidence linking social, economic and organizational opportunities and outcomes to “social capital”, i.e., others whom we know and can call on for assistance. To summarize this literature crudely: Relationships are important. They influence career trajectories and wealth attainment (e.g., Granovetter, 1973; Bian, 1997; Podolny and Baron, 1997; Seibert, Kramer and Liden, 2001). They affect happiness and life satisfaction (e.g., Fowler and Christakis, 2008). At work, they affect our ability to get things done (e.g., Papa, 1990; Morrisson, 2001; Pil and Leana, 2009), predict our ability to formulate good and creative ideas (e.g., Burt, 2004; Perry-Smith and Shalley, 2003) and determine how effectively we collaborate and coordinate with other people and groups (Heckscher and Adler, 2006; Tsai, 2001). The structures, qualities and content of relationships also have implications for the effectiveness of social groups, including teams, departments and organizations (e.g., Hansen, 1999; Tsai, 2001; Regans and Zuckerman, 2001; Regans and McEvily, 2003; Oh, Labianca and Chung, 2004; Tiwana, 2008; Moolenaar, Slegers and Daly, 2011; Chung and Jackson, 2011).

This dissertation is about relationships that, by influential theoretical accounts, shouldn't matter – ties that shouldn't provide social capital. Specifically, it is about relationships that used to be active and ongoing but for which no communication has transpired in years. These “dormant ties” (Levin, Walter and Murnighan, 2011) are common in social life, possibly constituting the dominant share of one's social network at a given point in time (e.g., Killworth, Johnson, Bernard, Shelley, McCarty, 1990).

They are common in professional life, the product of inter- (Stellers, 2006) and intra-organizational (e.g., Evans and Davis, 2005) mobility. Despite their prevalence, highly influential articles have suggested that the benefits and potential contained in those ties would deteriorate and eventually disappear if two parties lose touch (Coleman, 1990; Burt, 1992; Nahapiet and Ghoshal, 1998; Adler and Kwon, 2002). For example, a highly influential paper by Adler and Kwon (2002: 22) argued that “social capital needs maintenance [...]” and add that “social bonds have to be periodically renewed and reconfirmed or else they lose efficacy.” Likewise, the vast majority of empirical work has considered ties that are active and ongoing at the point when a study is carried out, viewing the social past as dead, irrelevant.

More recent scholarship has begun to relax these assumptions, recognizing that social networks are temporally situated (e.g., Oh, Labianca and Chung, 2006; Kilduff, Tsai and Hanke, 2006). Empirically, for example, recent research has examined the informational benefits of reconnecting after extended periods of time (Levin, Walter and Murnighan, 2011; Maoret, 2013). Researchers have also considered how institutional linkages – e.g., where and with whom we worked with previously – influence attitudes and behaviors at later points in time (Soda et al., 2004; McEvily et al., 2011). Although this research suggests that past relationships may indeed have enduring implications, the relationship between relationship maintenance and social capital remains understudied and poorly understood. To this point, for example, no study has examined the implication of dormant ties that remain dormant at the point of research. Nor has research examined the historical nature of social capital *within* organizations. As it stands, the assumption that relationships must be actively

maintained remains influential in contemporary social network theory (e.g., Voigt, 2005; Dolfsma, Eijk and Jolink, 2009).

This dissertation is an effort to develop and test more historically sensitive theory of social capital. It is, in turn and more broadly, an effort to develop a more exhaustive theoretical account. I begin directly below with an extended introduction to the concept of social capital and the social network tradition. This review builds toward the assumption, explicitly stated in several highly cited articles, that relationships require maintenance to retain actual or prospective benefits. I attempt to elaborate these arguments by considering several mechanisms by which relationship maintenance might indeed help to preserve social capital – in other words, I try to enumerate rationales to defend the traditional premise that relationship maintenance *is* necessary for preserving network benefits. These arguments concern motivations to offer assistance, perceptions of social capital and motivations to solicit assistance, as well as the lifespan or longevity of socially acquired information and resources (Figure 6). This framework serves as the basis for two empirical papers that together examine three theoretically distinct questions. I conclude this manuscript with a general discussion and summary.

CHAPTER II: SOCIAL CAPITAL

The Intellectual Foundations of Social Capital

The idea that relationships are important is in no sense new to sociological thinking. Tocqueville (1832) noted long ago the abundance of associational life in America, and saw it as central to a successful democracy. Durkheim (1933) commented on the transition from ‘mechanical solidarity’, based on fixed structures of the feudal system, to a more loosely structured ‘organic solidarity’ following industrialization and nineteenth-century capitalism. Similarly, Tonnies delineated between strong, *Gemeinschaft* communities and the instrumental *Gesellschaft* associations characteristic of market systems (see Adler, Kwon and Heckscher, 2008). Marx distinguished between a class ‘in itself’ and a class ‘for itself,’ with the former representing a class who share a set of economic circumstances and the latter representing a class that becomes aware of their common, inter-dependent plight, and motivated to affect change. To Marx, cities were the likely breeding grounds for economic revolution precisely because they facilitated the social connections needed for a mass mobilization — that is, because cities through a greater abundance of ties engendered a shared consciousness so that a class of objectively exploited people would recognize their plight, garner social momentum, and overthrow capitalism. Simmel’s work dyadic and triadic networks explored group social structures more directly. Simmel showed that interactions incorporating three people were markedly different from interactions among only two, given that the former scenario permits coalitions and a more complicated form of social interdependence.

These early contributions underscored the importance of relationships, in a general sense, and the role that relationships could play in organizing and coordinating social life. They called attention to social links between individuals and experiences in social life and also to higher-order network properties, such as at the level of associations and community. The term social capital is similar in that it also calls attention to the role that relationships play in coordinating social life. It is, however, much more explicit in its emphasis on social resources. Bourdieu (1985), for instance, who was among the first to use the term and formally define the term, wrote that social capital represents “the aggregate of actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition” (p. 248). Bourdieu’s emphasis on the resources received and made possible through interpersonal relationships is noteworthy, as is his emphasis on the durability and mutuality of interpersonal ties. To Bourdieu, the origins of social capital derived from the quality or depth of relationships made possible through group involvement. In the same way that human capital requires ongoing investment on the part of its possessor, social capital, too, necessitates an active and ongoing investment by ego into the group. That is to say, ego’s membership in the group and thus her ability to tap into critical group resources is contingent upon ego’s active and ongoing participation.

Coleman (1988; 1990) also saw a fundamental utility to group participation. To Coleman, social resources obtain from trust and reciprocity obligations embedded within social structures. These benefits stemmed, in particular, from group closure, or a state of relative density or overlap in members’ relationships. Network closure, as

Portes (1998: 47) writes, “means the existence of sufficient ties between a certain number of people to guarantee the observance of norms.” Relationships in closed social systems are mutual and overlapping. Behaviors, therefore, are widely observed, and reputations must be built and maintained at the level of groups. The violation of norms in cohesive units, or an act of dishonesty directed to any particular group member by another, reverberates widely. The repercussions experienced by a violator are therefore likely to extend beyond opprobrium by the single, offended party. The group has been violated, and the violator’s reputation within the group has been made questionable in turn. Burt (2008) highlights an analogous theory in economics, “in which mutual acquaintances make behavior more public, creating an incentive for good behavior to maintain reputation.” Heider’s (1958) theory of cognitive balance postulates, along similar lines, that two individuals, E and A, who are positively connected to the same party, T, should also share a positive connection with one another. Negative sentiments expressed by E to T about A are likely to influence T’s opinions regarding A in the negative.

To take an even broader view, these theoretical processes are not unlike those proposed by evolutionary biologists and evolutionary psychologists to explain the survival of early human and primate social groups. Indeed, despite the contemporary wisdom attributing one’s success and well being in economic and social spheres exclusively to individual factors, survival in early societies was very much a collective endeavor. Evolutionary fitness favored individuals who could better access (and maintain access to) group resources. Cooperative individuals, as opposed to non-cooperative individuals, were usually better suited for the task. At the most basic

level, for example, the survival of any given individual is strongly interdependent with the survival of proximate and supportive others. This is true for the basic chores of survival, such as for finding food and shelter, as well as for safety, both from prey and from rival groups. This natural interdependence, from an evolutionary point of view, should have given advantages to cooperative behaviors (and genes) relative to less cooperative behaviors (and genes) (Wilson, 2012). Along similar lines, the innate tendency to quickly identify in-group members, and act preferentially toward in-group members, may reflect the advantages that these behaviors conferred to our ancestors from the standpoint of individual and group survival (Wilson, 2012; Fukuyama, 2011).

To tie this more directly to the concept of social capital, the benefits of individual characteristics, such as cooperativeness, was likely aided in primitive societies by accompanying social structures that made other-serving, altruistic behaviors more attractive, and self-serving behaviors decidedly less so (see MacNeill, 2011). The identification and exclusion of cheaters, to build from the theory above, was likely aided when there was a sufficient level of density in mutual acquaintances so that mistreatment by one party toward another became collective knowledge, with implications for how the offending member was treated by other members and staked claim to privileged group resources. Absent density, reputations would be determined to a far greater extent by spot transactions between isolated pairs, which would increase the likelihood of exploitation because the knowledge of exploitation would be more confined. New victims could be solicited; the social sanctions associated with cheating could be sufficiently offset, perhaps, by the availability of new targets. In this way, the human tendency toward altruistic, other-serving behaviors most likely

stemmed from fitness advantages that obtained to those of our ancestors who acted cooperatively within tightly knit social units. It was these social units that made non-cooperative, self-serving behaviors more widely known and potentially more damaging to survival (see Nowak, Tarnita and Wilson, 2009; Wilson, 1978; 1981; 2012; Fukuyama, 2011; MacNeill, 2011).

We thus find theoretical assumptions located across different scholarly traditions espousing benefits to dense and cohesive social units, characterized by ongoing participation in mutual, overlapping relationships: Cohesive social units evolve norms that can benefit group members exclusively (e.g., norms against cheating or stealing from a fellow group member). This is in part because cohesive units raise the costs associated with defecting: As game theorists recognize, the likelihood of ongoing, repeat interaction between people presents a strong disincentive for any individual to violate, or cheat, as the non-cooperative behavior will likely come at the violator's expense. Repeat interaction between people allow reputations and reciprocity expectations to solidify. However, cohesive social structures reinforce cooperative norms by allowing reputations to disseminate more broadly within the group, so that an infraction against a member by a defector has implications for the goodwill that defector will receive from other in-group members (Burt, 2008). These cooperative norms can be thought of as capital in the sense that they constitute actionable, privileged resources, for which access is conditional upon participation and adherence to established norms.

The strongest qualifications to the closure argument can be found in Granovetter's (1973) seminal research on job search and Burt's (1992) subsequent

elaboration. Granovetter challenged what he saw as an over-simplified economic model that viewed job obtainment as a product of independent, utility-maximizing agents who succeeded or failed in job search because of their industrial merits and marketability. Granovetter, not unreasonably, expected that people would rely on family members and close friends to find work. To his surprise, he observed the opposite: Job seekers more often relied on what he termed “weak ties,” or ties that were irregular and low in emotional investment. In interpreting these findings, Granovetter reasoned that strong ties are likely to be overlapping, such that everyone communicates with, and distributes the same information to, everyone else. Information in such settings becomes redundant and well worn. Weaker relationships, by comparison, are likely to be more expansive, reaching across social clusters and thus have a greater potential to expose individuals to novel information, resources and opportunities. Simply, to use Granovetter’s words, weak ties facilitate job search and obtainment because “those to whom we are weakly tied are more likely to move in circles different from our own and [...] thus have access to information different from that which we receive” (p. 1371).

Burt (1992) elaborated the structural implications of Granovetter’s work by emphasizing the absence of certain ties in addition to the presence of certain others. That is, to Burt, social capital obtained not only by ego’s connections to other people, but (necessarily) by the absence of connections by ego’s alters to the same parties. Burt wrote that a “structural hole” existed between two social units if no party from one unit, A, was connected to a party from the other, B. These gaps in social structure meant that the information, knowledge and resources resident in one unit were

structurally inaccessible by the other, and vice versa. The individual fortunate enough to broker between groups will find her or himself at the nexus of information transfer, thus securing advantage over to their more socially constrained counterparts. Thus, to Burt, social capital is less a matter of tight-knit group involvement than it is a matter falling as an intermediary between otherwise disconnected social worlds. Brokering relationships provide a “vision advantage” by allowing individuals to scan their environments broadly for unique insights, perspectives or alternative approaches to problems. Brokers are better positioned to acquire resources, and do so in a timely manner, than their more insulated counterparts (Burt, 1994; 1998). Importantly, they also operate with fewer conformity pressures, and so may find themselves more comfortable taking risks and challenging the strong, potentially restrictive norms brought on by group closure.

These theoretical orientations present a contrast: By one group of scholars, strong cohesive network structures are seen to benefit individuals because the internal structure is suited for developing trust, norms and reciprocity obligations among privileged members (Coleman, 1990). By another group, cohesive network structures are seen to breed informational redundancy and conformity pressures, and may be detrimental to the extent that a heavy investment in the group’s social structure precludes one from accessing valuable resources that reside outside of the group. Putnam (1993) brought these orientations together in a productive way by delineating between bonding and bridging social capital, where the former denotes strong, cohesive ties among people in similar social conditions and the latter encompasses more distance relationships, such as to weaker friendships (see also Woolcock, 2001).

To Putnam, bonding social capital obtains within families and among close friends. It is “inward looking,” often characterized by internal homogeneity and a strong social identity. Bridging social capital originates from those ties that connect individuals and groups to more distant others – others who are more likely to have different knowledge, information and resources. Putnam argued that bonding social capital provides the social support and security that people need get by. Bridging ties facilitate a more global diffusion of information. As such, Putnam argues, they are better for “getting ahead.”

Some writers have viewed bonding social capital as synonymous with strong, trusting ties, and more distant bridging linkages as inherently weaker. As Nahapiet and Ghoshal (1997) have pointed out, however, structural arguments relating to a group’s network structure or one’s position in a given social system are at least partly independent of the strength, or emotional intensity, characterizing a tie. Thus, while it is true that group closure may reinforce trust, goodwill and reputations through repeat interaction and the presence of mutual friends (Heider, 1958), it is also true that strong relationships solidify across social boundaries (e.g., Bian, 1997; Tiwana, 2008). In this regard, Nahapiet and Ghoshal (1997) distinguished between structural social capital, which obtains to individuals based on the pattern of relationships, or their position, within a given social structure, and relational social capital, which references the quality of particular ties (e.g., the level of trustworthiness characterizing a tie). Structural social capital has implications for the flow of resources throughout a social system, and the possibility that one’s position will make certain types of access more or less likely. To the extent that resources are selectively distributed within social

systems, based on who likes, or cares for, whom, relational social capital has strong and obvious implications for what is actually transferred. Nahapiet and Ghoshal also defined a cognitive dimension of social capital, which represents goals and mental models shared among individuals or groups.

One of Nahapiet and Ghoshal's (1997) contributions was their recognition that that social capital is dependent on participants' subjective understandings regarding goals as well as one another's relation to the advancement of those goals. Adler and Kwon (2002) have written, along similar lines, that social capital consists not only of structurally-facilitated opportunities but also on an others' motivations to act favorably on one's behalf. Social capital is more than a network, therefore. It derives from "...the goodwill available to individuals or groups" whose origins stem from "the structure and content of actors' social relations" and "effects flow from the information, influence and solidarity it makes available to the actor." (Adler and Kwon, 2002: 23; my emphasis added). It is thus beneficial for ego to have a network of others who are able and strongly motivated to invest time and energy on his or her behalf.

In addition to having a network others who are motivated to help, network benefits are also enhanced by one's willingness and motivated to pursue others who could potentially help (Lin, Vaughn and Ensel, 1981). Actors can choose not to pursue an outcome through social channels, for example, or (because of comfort or convenience) they can select non-optimal choices (Walter, Levin and Murnighan, 2013). Thus, the effective utilization of social capital should also depend on whether an individual recognizes the resource potential embedded in his or her network,

including where information is located in the network (Borgatti and Cross, 2003), and is motivated to reach out for assistance.

Summary

Thus, to re-incorporate Bourdieu's (1985) original definition of social capital, which stressed the "actual" and "potential" value of ties, one's position in social network structure, the quality of relationships, and motivational characteristics of individuals are likely both to have conveyed useful information and resources as well as create potential for productive exchanges in the future. Individuals are embedded in social structures that may encourage others to act cooperatively and also affect what an individual can access relative to others. The value of particular ties also depends relational characteristics, including trust and shared goals, as well as individual characteristics, such as motivations to offer assistance and seek assistance from others. At a given point in time, that is, social network theory predicts that certain individual benefits will have resulted from social networks and interactions that have already occurred. These networks also contain forward potential, such the structure and nature of relationships should predict benefits going forward.

Social Capital in Organizations

Organizational researchers have long noted the presence and importance of the informal organization (Crozier, 1964; Kanter, 1977), or social phenomena that deviate from the formal logic prescribed by an organization's hierarchy/authority-structure. However, the importance of understanding and guiding these processes has grown

considerably over recent decades in light of a “knowledge economy” that rewards innovativeness and responsiveness over standardization and scale. The effective knowledge organization depends crucially on collaborative processes that link previously disparate ideas and insights or recombine old ideas and knowledge in new ways (Kogut and Zander, 1992; Nahapiet and Ghoshal, 1998; Collins and Smith, 2006). It requires productive knowledge and resource sharing, between workers and units. It also requires resource channels that extend well beyond the organization’s boundaries. These collaborative processes can be proactively steered (Nahapiet and Ghoshal, 1998; Evans and Davis, 2005). Organizations bring certain people together for extended periods of time, for example, which powerfully influence the formation and dissolution of ties. Human resource policies, including compensation plans, moderate shared goals and motivations. Nevertheless, the nature of an organization’s social fabric is often complex and informal. Considerable research attention has turned toward mapping these social patterns and understanding their significance to organizational effectiveness.

One stream of scholarship, in line with the “bonding” view promoted by Coleman (1990), argues that dense networks should promote norms, trust and the more open sharing of resources. These stronger relationships should be particularly useful for the transfer of tacit or proprietary knowledge, which requires repeat interaction and a stronger motivation on the part of the helper to ensure that the other party understands and can make use of the transferred knowledge (Uzzi, 1997; Hansen, 1999; Reagans and McEvily, 2003). Empirically, for example, Leana and Pil (2006) found that trust, shared goals and collaboration between elementary school teachers

predicted school-level performance improvement on standardized tests. Pil and Leana (2009) found that students belonging to teachers who were more centrally connected with strong ties within their grade teams performed better. To the extent that these strong ties are closed, such that contacts are densely connected to one another, reciprocity expectations should rise, and fears of exploitation or opportunism should attenuate, given that social sanctions are likely to be stronger and more salient. Individuals should perceive a greater degree of psychological safety (Edmondson, 1999), which may incline them to voice ideas, even bad ones, which otherwise would carry a significant risk. Obstfeldt (2005) found that an individual whose network was dense with strong-ties, such that his or her contacts were mutually positively connected to one another, positively predicted participation in innovation in the automobile industry.

The contrasting view falls roughly in line with Granovetter (1973) and Burt (1992), arguing that closed networks, despite their benefits, may limit the inflow of resources and new information. This view sees diversity in perspective as key to creativity (Albrecht and Hall, 1991; Leonard, 2006) and innovation (Taylor and Greve, 2006). Burt (2004), for example, found that individuals who spanned structural holes were more likely to have ideas for how to improve organizational operations that were blindly rated by upper management as being “good.” Perry-Smith and Shalley (2003) found that peripheral nodes in the network were the most creative, presumably because such nodes were diversely unencumbered by the conformity pressures that accompany group cohesiveness. This view also implicates brokering ties in the acquisition of critical resources, support and opportunities (Burt, 1992; Seibert, Kramer and Liden,

2001). Papa (1990) found that spanning departments and levels of the hierarchy corresponded to increased productivity and speed of change. Burt (1992) found that managers who filled structural holes were more effective and were more likely to get promoted. Podolny and Baron (1997) found that structural holes accompanied by large, sparse networks facilitated career mobility. Seibert and colleagues (2001) found that the benefits of having diverse connections were subjectively understood, as well as objectively realized. Their research found a positive link between diverse connections outside of one's department related to perceived access to information, resources¹ and career sponsorship.

Researchers have also explored group-level network properties and the implications that follow for groups. As above, the dual foci (and tension) in this scholarship has been between the importance of cohesive networks that facilitate norms and resource and information sharing, on the one hand, and sparser, more distant linkages that facilitate search, on the other (Hansen, 1999). Regarding the former, researchers have found that positive social climates — characterized by regular interaction, trust, and shared norms — correspond to group effectiveness (Collins and Smith, 2006; Leana and Pil, 2006; Carson, Tesluk and Marrone, 2007). Network-based studies report similar findings, but suggest that the relationship between group cohesiveness and effectiveness may be curvilinear, rather than linear. Oh, Chung and Labianca (2004) found that moderate levels of group closure in strong relationships bore a positive relationship to group performance, while too much closure, or too little closure, had negative implications. Chung and Jackson (2011) also found a curvilinear relationship between team density and performance using a sample

56 biology and chemistry science and research teams located at universities. While tests into the underlying mediating processes are rare, researchers argue that overly dense teams are likely to promote norms and in-group biases that discourage external linkages and the absorption of external information (Oh, Labianca and Chung, 2006). The optimal team may thus be balanced, such that “moderate numbers of positive relationships are strong, multiplex and reciprocated and few or no negative relationships exist.” (Oh, Labianca and Chung, 2006: 573).

Group-based studies have also focused more explicitly on a group’s external linkages, and the implications that follow for group effectiveness. Oh, Labianca and Chung (2004) found that in-group bridging by members to outside leaders related to group effectiveness. Reagans and Zuckerman (2001) found that network heterogeneity related to team productivity. Weisz, Vassolo and Cooper (2004) found that teams’ external social capital related to team performance. Integrating the group’s internal and external context simultaneously, Reagans and McEvily (2003) found that the movement of knowledge — particularly tacit, complex knowledge — was facilitated by a cohesive team network with external linkages, or range, outside of the team. Yet, external linkages are not always needed or useful. The extent to which external linkages are needed appears to depend on whether the desired outcome in a given setting will benefit from the search for new resources outside of one’s group, or the exploitation of existing resources that are locally available. Misaligned structures can be counterproductive. Along these lines, Hansen, Podolny and Pfeffer (2001) found in studying new product development teams that exploratory teams completed their tasks more quickly when they possessed strong, non-redundant ties to other groups, whereas

teams that were pursuing tasks that required the exploitation of existing knowledge completed their tasks more slowly when their networks were externally focused.

CHAPTER III: NETWORK BOUNDARIES

Setting Boundaries on Relationships

To summarize: Social capital can be conceived as resources embedded within relationships and a product of the quality and structure that relationships take on (Nahapiet and Ghoshal, 1997). Proponents of dense, closed networks view mutual overlapping connections as means for fostering reputations, norms and trust. These can be valuable in organizational settings to the extent that they encourages productive norms regarding work and expectations: I may feel a strong obligation to put in time and effort to the extent that not doing so was at odds with group norms, and mutual, overlapping relationships could rapidly disseminate my non-compliance to other members. By the same token, however, group norms could discourage productivity in favor of mediocrity. Those who worked harder, longer, or generally better might be labeled “rate-busters” and be censured by members seeking to maintain the status quo. Insulated individuals and groups may also suffer from a lack of external exposure: The information at their exposure is more likely homogeneous and well worn. In organizations, it may mean that an individual or unit understands a problem from the narrow standpoint of their functional department. External connections between units may prove useful not only for coordinating work but also provide a “vision advantage” — an ability to appropriate externally located information and resources and use it for individual or group advantage. Although closure may promote trust by stability and mutual reinforcement, it does not have a monopoly on strong ties. Strong external connections may have important implications for the transference of sensitive or

complex information.

But the relationships that an actor holds (or has held) are potentially vast. Relationships solidify not only at work, but also in one's neighborhood and community, in social clubs, and so on. The sheer size and intractability of ties poses a challenge for those interested in social capital, given that relationships are difficult to measure, with any accuracy, in full (see for example McCormick, Salganik and Zheng, 2008).² Many researchers have found a resolution to this problem by "bounding" networks, or analyzing the relationships that exist among a subset of individuals that exist within a common set of geographical or institutional parameters. In organizations, these boundaries are often driven by researchers' a priori assumptions regarding the probable relevance of certain types of relationships to an outcome of interest, relative to certain others. Gaining mastery in a new job, to take a straightforward example, is likely to come about via relationships with colleagues who are already proficient in the job. Acquiring knowledge about an organization's culture or political environment is likely to come about via interactions with people familiar with such matters (Morrison, 2002). Network researchers may assume, in these instances, that intra-organizational ties will yield far greater explanatory power than, say, one's relationships outside of work. A study focused on task mastery might center even more narrowly on jobs within a department. Such should not imply that one's relationships outside of the measured boundary are not, or are even inferior forms of, social capital. It is to say that variations in the outcome of interest will more likely be explained by the intra-group subset, rather than the whole.

Laumann, Marsden and Prensky (1989) term the measurement of networks by

common attributes — such as co-involvement within a club, team, department or organization — as a nominalist approach. It is, perhaps, the most common approach to boundary specification, at least in the organizational sciences. Drawing data from a large American electronics company, for example, Burt's (2004) study of brokerage and “good ideas” used a name generator to elicit managers' communication contacts within the company: Manager respondents were asked to identify the others with whom they discussed ideas for improving the supply chain, as well as others with whom they discussed supply chain issues more generally. His a priori assumption was that “good ideas” for improving the company were likely to come about via interactions with others inside the firm. Networks were thus measured between actors who shared the firm as their common attribute. Tsai (2001) studied inter-unit relationships, and their link to performance and innovation, as moderated by absorptive capacity. Unit members were asked to indicate which others “provide [their] with new knowledge or expertise when your unit is seeking technical advice inside [their] organization.” Thus, the author assumed (and indeed found) that variation in unit performance and innovativeness could be significantly explained by way of relationships between units within the same firm. Hansen (1999) asked respondents to indicate how frequently each respondent's division interacted with other divisions within the organization, as well as how “close” their division was with all others. In schools, Pil and Leana (2009) measured the quality of relationships among teachers in elementary school grade teams. Relationships outside of the team — such as to teachers in other grades, or outside of the school — were not considered.

Organizations do not exist in vacuums, however. The collaborative enterprise

encompasses not only intra-organizational linkages but also those extending well beyond the organization's boundaries (Powell, 1991; Heckscher, 2007; Adler and Heckscher, 2011). Indeed, by approximating relationships between firms, network researchers have shed valuable light on how external social processes influence the acquisition of organizational resources (e.g., Leana and Pil, 2006), as well as the adoption of practices internally (Davis, 1991; Palmer, Jennings and Zhou, 1993; Burns and Wholey, 1993; Galaskiewicz and Wasserman, 1989; Powell, Koput, White, and Owen-Smith, 2005; McEvily, Jaffee and Tororiello, 2011). Often in these studies a boundary is set on measured linkages by way of common institutional attributes (such as organization type). Linkages within the specified boundary are then assessed either via interviews, surveys, or archival records. Baldassarri and Diani (2007), for example, measured linkages between NGOs by the standard request to organization leaders to "list up to five groups/organizations with which you collaborate most intensely." The list was then narrowed, as the interviewers asked respondents to recall the presence of linkages to specific organization types, including environmental groups, unions and community organizations. An influential study by Powell and colleagues (2005) compiled data from an online directory of organizations in the life sciences, and mapped alliance patterns between these companies by way of the presence of "any contractual arrangement to exchange or pool resources." Here, then, the common, bounding attribute was whether or not an organization was of a certain type, and represented in an online directory.

It is important to emphasize that the boundaries set by network researchers can misrepresent the nature of an actor's social capital to the extent that the set boundary

precludes relationships that carry significant explanatory power for the outcome of interest. Initially, team researchers were preoccupied with the social processes that existed within teams (c.f, Ancona, 1990). Since Gladstein's (1984) seminal research, however, team researchers have realized that internal processes may at times be secondary to productive external linkages, such as boundary-spanning ties that negotiate demands with outside stakeholders, secure resources, and/or garner political support for the team's activities (Ancona, 1990; Ancona and Caldwell, 1992; Marrone, Tesluk and Carson, 2007). Similarly, network researchers, traditionally focused on intra-organizational connectedness as an antecedent to job attitudes, have begun to recognize the importance of anchoring relationships in the surrounding community (Lee, Mitchell, Sablinski, Burton and Holtom, 2004; Cunningham, Fink, and Sagas, 2005; Mallol, Holtom and Lee, 2007). These advancements do not negate the value of ties residing within the narrower boundary but point out that the exclusion of important ties results in an incomplete picture. The problem may be heightened to the extent that omitted relationships function as substitutes for (and thus obviate, partly or in full) the relationships measured within the established social parameters. To take one example: Do strong relationships within the surrounding community in any way offset the need for strong relationships within the workplace from the standpoint of job satisfaction or organizational commitment?

The Boundary of Time

To reiterate what was written above, boundaries in network research parcel out a subset of actors, such as by proximity or by common institutional affiliation, relative to a

universe of conceivable others. Relationships are then measured within the specified subset instead of among the broader whole. In part, network boundaries are established because the measurement of all of an individual's (or group's) relationships would be a formidable if not impossible methodological task (see for example McCormick, Salganik and Zheng, 2008). Perhaps more agreeably, however, boundaries are also imposed because researchers' conceptual frameworks incline them to view certain types of actors, and certain sets of relationships, as legitimately more relevant than others in affecting their outcome of interest. In organizational settings, as cited above, research has shown that the social capital that exists within narrow social units, such as within teams or departments, has marked implications for individual and group effectiveness (e.g., Pil and Leana, 2009). Yet research has also shown that the interpersonal relationships driving organizational outcomes are broad spanning (e.g., Reagans and Zuckerman, 2001; Reagans and McEvily, 2003; Oh, Labianca and Chung, 2004; Leana and Pil, 2006). Our understanding of social capital deepens as new settings and boundaries are empirically examined. Nevertheless, a full and accurate understanding of social capital, and its relevance to individuals and groups will ultimately require the panorama, rather than piece parts disparately assembled and assessed.

At present, research into temporal boundaries has received little attention. A temporal boundary as used here represents a constraint imposed by network researchers based on time, or recency, such as the time passed since a relationship was last active or since communication between two parties last transpired. In the same way that spatial boundaries parcel out subsets of actors by way of proximity or institutional affiliation,

temporal boundaries may be used to parcel out social subsets based on the passage of time. The relationships measured and analyzed by network researchers are typically those that are in some way recent, or characterized by some generalizable communication frequency at the point of research. For example, Perry-Smith (2006) asked respondents: “Thinking back over the past two years, with whom do you communicate about work related topics.” Forret and Dougherty (2001) limited ties to those for which communication had occurred within the past year. Ibarra (1992) asked respondents to indicate people within the company “that you have personally talked to over the past couple years when you wanted to affect the outcome of an important decisions.” Other researchers have avoided specific time frames but nevertheless employ an active tense in soliciting network relations. Moolenaar, Slegers and Daly (2011) requested that participants indicate: “Whom do you go to for work related advice?”; “Whom do you go for guidance on more personal matters?” (Moolenaar, Slegers and Daly, 2011). To measure strong ties, Ibarra (1992) asked respondents to name people in the firm “who are very good friends of yours, people whom you see socially outside of work.”

Setting temporal boundaries such as these may make network research methodologically feasible by minimizing the number of actors, and hence relationships, under examination. However, these boundaries have been reinforced by explicit assumptions regarding what social capital is and how networks create value. Popular theory asserts that relationships require some degree of investment to retain their actual or potential value. When interactions between parties become less regular, or stop, the potential embedded in relationships is expected to decay (Burt, 1992; Coleman, 1990;

Nahapiet and Ghoshal, 1998; Burt, 2001). It is in this light that Coleman (1990: 321) wrote: “Relationships die out if not maintained; expectations and obligations wither over time.” Nahapiet and Ghoshal (1998: 258) wrote that “relationships [...] die out if they are not maintained.” Burt (1992) insisted that as relationships grow old “the connection, with whatever social capital it contained, dissolves.” Adler and Kwon (2002: 22) wrote that: “social capital needs maintenance.” Adding: “Social bonds have to be periodically renewed and reconfirmed or else they lose efficacy.” Similar arguments for relationship maintenance have been seen elsewhere in the literature (e.g., Voigt, 2005; Dolfma, Eijk and Jolink, 2009). Thus, there appears to be a widespread arguments that social capital requires not only an initial investment between two parties, but ongoing investments that help to preserve “the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit.” (Nahapiet and Ghoshal, 1998: 243). Articles that make claims about the theoretical nature of social capital (and their citations) are summarized in Figure 4.

[=====]
 INSERT FIGURE 4
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CHAPTER IV: UNPACKING RELATIONSHIP MAINTENANCE AND THE PRESERVATION OF SOCIAL CAPITAL

Defining Relationship Dormancy

If communication helps to maintain relationships, ties that were once active and ongoing can be said to be unmaintained after a prolonged period without communication. This dissertation defines ties that are regularly maintained as being in an active state. Ties that used to be active, but for which no communication has transpired in a long period of time, are defined as dormant (Levin et al., 2011). It is impossible (though at times productive, empirically) to set an objective temporal threshold for when, precisely, ties become dormant. Rather, this definition attempts to capture the intuition that certain relationships are active and ongoing at a given point of time, and that others, once active and ongoing, may have fallen into a latent, suspended state. At the extreme, for example, a work colleague with whom one communicates daily can be confidently viewed as an active, ongoing part of a social network. By contrast, a former college friend with whom one has not communicated in twenty years can be agreeably defined as no longer active, or dormant. Thus, I use “dormant tie” to evoke a broad category of relationship wherein two parties who used to communicate regularly no longer do.

In actual social life, dormancy is likely to operate along a gradient, or continuum, with relationships becoming more dormant as time passes without interaction and less dormant as periodic interactions interrupt periods of non-communication. A relationship that is twenty years dormant, for example, is

qualitatively different than a relationship that has only been dormant for a few years. The relationship between two people who fully reestablish regularly communication after long period of dormancy is different than the relationship between two people who reconnect once or over the span of a few days. Moreover, the state of dormancy that is subjectively experienced is likely to hinge on baseline characteristics of the relationship, including baseline familiarity and trust: A relationship in which two parties interacted regularly for a month and then stopped communicating for three years may be different than a relationship for which two parties interacted regularly for ten years and then stopped communicating for the same period of time. The term “dormant tie” is used in this dissertation to capture the intuition that relationships that were at one point active and ongoing can suspend, temporarily or indefinitely.

Relationship Maintenance and the Preservation of Social Capital

The theoretical argument for the importance of active ties is often seen as axiomatic and seldom elaborated. However, there are several reasons why this might be so – that is, why their assumption for the importance of relationship maintenance might well be correct. I illustrate these possibilities in Figure 5.

As shown in the top half of Figure 5, one reason that continued investment into a relationship might preserve social capital relates to others’ willingness to help. Simply: Other people might become less willing to invest time and energy toward another person if considerable time passes without interaction or social exchange. Along these lines, for example, scholars have noted that network benefits are partly contingent upon actors’ goodwill for one another, which inclines them to invest disproportionate time

toward advancing the other's interest (Adler & Kwon, 2002). It is conceivable that feelings of good will atrophy as relationships fall dormant. Along similar lines, network theorists have also noted that relationship maintenance helps to preserve reciprocity norms, and in turn a willingness to act preferentially toward others (Dolfsma et al., 2009).

Explanation 1: Relationship maintenance may help to preserve social capital by keeping assistance motivations in tact. In particular, people may become less motivated and willing to invest time and energy toward others as relationships fall dormant.

[=====]
 INSERT FIGURE 5
 [=====]

A second, perhaps subtler potential obstacle to the efficacy of dormant ties originates not with alter, but with ego. It concerns ego's subjective understanding of who constitutes a viable and potentially valuable part of his or her social network. The growing literature on workplace help-seeking points out that maximizing network benefits requires not only a network of known others but also initiative on the part of ego to reach out and make contact (Reinholt, Pederson, & Ross, 2011). Help-seeking inclinations are affected by norms, including whether help seeking is appropriate or common within a particular context (Bamberger, 2009). In this light, the fact that communication and help seeking between ego and the dormant alter are no longer normative could seriously undermine the potential efficacy of dormant ties by disinclining both parties from reaching out even if one believes the other is positioned to help. Indeed, people may feel guilty about not having stayed in touch (Levin, Walter, & Murnighan, 2011) and may not want to reach out if the motivation is conspicuously self-interested.

Explanation 2: Relationship maintenance may help to maintain the subjective value and viability that people assign to relationships, as well as their willingness to reach out for support. In particular, people may be less likely to view dormant ties as potential support channels and less likely to initiate contact compared to active ties.

A third possibility explored in this dissertation relates to obsolescence – in particular, the possibility that socially acquired information and knowledge could deteriorate, or somehow lose influence, with the passage of time (Soda et al., 2004; McEvily et al., 2011). This issue of the perishability of socially acquired resources addresses the question of: Do yesterday's networks continue to generate influence, today? When communications is ongoing, there are abundant opportunities for information and resource transfer organically between people. Former relationships may have created opportunities for information and resource transfer but their value may have diminished to the extent that information and resources became outdated or diffused widely (Burt, 2001; Soda et al., 2004). For example, various types of information– e.g., information about a stock tip; a job opportunity; a competitor's weakness; a market opportunity – are time sensitive, meaning that the potential benefits of the information would be lost if one failed to act within a limited time span.

Explanation 3: Relationship maintenance may help to preserve social capital by preserving timely access to information and resources. In particular, since dormant ties cannot convey up-to-date information without reactivation, they have diminished potential.

Existing Research on Dormant Ties

Extending from above, dormant relationships may be important for social network structure to the extent that the preceding possibilities are incorrect or true with theoretically meaningful qualifications. Although research into the temporal nature of social capital is rare, there have been several important studies on relationship

dormancy over recent years. The contributions of studies, summarized in Figure 5, can also be approximated using the framework above. Roughly, these studies speak to: 1) the ability to reach and out receive help from dormant ties; 2) perceptions of dormant ties' efficacy; and 3) the lifespan of socially acquired information and resources.

[=====]
 INSERT FIGURE 6
 [=====]

For example several recent studies have examined reconnection after long periods of dormancy. Recent work by Levin et al. (2011) examined how participants perceived the relative helpfulness of active and dormant ties after ego had reached out and solicited assistance. The sample consisted of Executive MBA students who were instructed to contact active and dormant ties to obtain advice a class project. Participants answered a series of questions on the value they obtained from each tie after reaching out. The authors found that reactivated dormant ties provided many of the same benefits as active ties. Specifically, the authors found that reconnecting with dormant ties that were previously strong could lead to efficiency, novelty, trust and shared perspective. Recent qualitative research by Mariotti and Delbridge (2012) suggests that firms may prefer reconnecting with dormant ties instead of forging new partnerships because of the former's established competence reliability. There is also some evidence that former relationships are subjectively valued. Qualitative research by Sellers (2006) on the collapse of Arthur Anderson reports that employees felt that they could tap into their dormant ties for career support in the future.

In addition to reconnection benefits, two recent studies have considered the durability of information and resource transfer by using firm-level archival data to map

current and former connections between firms and assessing the implications for contemporaneous performance outcomes. Soda, Usai, and Zaheer (2004), for example, found in the Italian television industry that contemporaneous network closure, instead of past closure, had stronger effects on organizational performance, a finding that may reflect the fact that performance in that industry is “predicated on keeping abreast of cultural trends, modes, and social currents.” The authors add: “Information diversity may be of little use if it is based on outdated cultural and social trends.” (p. 895). However, more recent organization-level research by McEvily, Jaffee, and Tororiello (2011) suggests that some socially acquired knowledge may indeed have lasting benefits. In particular, the authors found that law firms benefit from the past bridging connections of their partners, possibly due to imprinting at earlier stages of partners’ careers and the redeployment of imprinted knowledge at later points in time. These latter findings suggest that social interactions may be sticky – that relationships can have lasting implications, even if communication tapers off and the relationship remains in a dormant state.

Theoretical and Empirical Gaps

Collectively, these studies suggest that dormant ties may be valued and valuable, and thus that foundational theoretical assumptions may be shortsighted or incomplete. Nevertheless, several important theoretical and empirical gaps remain. One gap relates to assistance motivations and relationship dormancy – specifically, how the latter affects the former. Existing research on reactivation benefits has relied on solicitors’ personal assessments of whether information was helpful, novel, and so forth (Levin et

al., 2011). Although this research suggests that dormant ties may be willing to help, if directly solicited to do so, the research design was poorly suited to assess whether and to what degree assistance motivations are affected by relationship dormancy. Indeed, as Levin and colleagues note, a dormant tie's ability to offer useful advice may be a product of the personal and professional experiences the dormant tie has accumulated since the tie was active. In short, earlier research designs have made it difficult to distinguish between a dormant tie's willingness and motivation to offer assistance and characteristics about dormant ties that affect their capacity to offer superior informational benefits. This gap is important, given that social capital's benefits depend on others being willing and motivated to act preferentially on our behalf.

A second gap relates to the subjective value that people assign to their relationships, including dormant ties, and how this value affects, and is affected by, more traditionally studied active ties. Aside from a few qualitative accounts suggesting that organizations (Mariotti and Delbridge, 2012) and individuals (Stellers, 2006) seem to value past connections, no research has investigated the perceptual implications of dormant ties. This shortcoming extends to organizational research, where, as cited, research on intra-organizational networks has focused exclusively on active, contemporaneous ties. Researchers may be able to gain generalizable and nuanced understandings of dormant ties through social network methods. These include whether and to what degree dormant ties have implications for organizationally meaningful attitudes and behaviors and how they affect, and are affected by, active network structures. Indeed, it is interesting to consider whether the value that people assign to their dormant ties is conditioned by the availability or scarcity of active relationships,

and how particular structural characteristics of an active network affects the value of dormant ties.

The third gap relates to the durability of socially acquired resources, including the durability of socially acquired information and knowledge. Research has established that relationships have powerful implications for individuals' attitudes and behaviors but that people only maintain a small percentage of their network at a given period of time (Killworth et al., 1990). It seems likely that attitudes and behaviors result from the accumulation of social experiences, rather than cross sections that are conveniently assessable by researchers. As cited, there is some evidence that social experience leave lasting residues (McEvily et al., 2012) but available evidence is limited to archival data between social aggregates, where connections are operationalized via historical artifacts – e.g., the movement of lawyers between law firms (McEvily et al. 2012) or project members between television projects (Soda et al., 2004). Considerable insight may obtain by examining the behavioral implications of a broader social history – including how networks from the past may enhance or constrain networks in the present.

Introduction to Two Studies

This dissertation addresses these gaps via two studies. As outlined in Figure 6, these two studies build directly from the theoretical framework above. The first study considers assistance and assistance motivation between active and dormant ties via an experiment in which undergraduate students solicit assistance from two randomly selected contacts – one active tie and one dormant tie. Two outcome variables are examined: 1) participants' hypothetical motivation to offer assistance to the people they contacted and 2) whether or not assistance actually arrives. In addition to the presenting

a rationale for why relationship maintenance might enhance assistance and assistance motivations, this study also develops the competing hypothesis that relationship dormancy may in fact compel people to help if they've been solicited to do so. Indeed, I argue that not cooperating may pose a substantially greater risk for dormant ties than active ties, in part because one's confidence in their positive reputation weakens with dormancy and in part because not complying may signal a more permanent end to the relationship.

[=====]
 INSERT FIGURE 7
 [=====]

The second study delves deeper by considering the perceptual implications of intra-organizational dormant ties as well as their cognitive and behavioral implications. Notably, this represents the first study to examine the attitudinal and behavioral effects of individual dormant ties that remain in a dormant state at the point of research. It is also the first study to examine dormant ties within an organization. In terms of a perceptual outcome, I focus on organizational commitment, which has important implications for individuals and organizations. I test the hypothesis that individuals continue to value their dormant ties because they represent potential support channels that could be tapped, if needed. However, I also suggest that dormant and active ties may compete cognitively with one another. I argue that the value that people attribute to their dormant ties is not independently derived but rather dependent on the size and structure of their active network – an active network that can either obviate, or facilitate access to, one's dormant ties.

In terms of the stickiness of social interactions, the second study also examines dormant ties' implications for individual performance. I argue that while active ties can facilitate certain things that dormant ties cannot (e.g., coordinating real time information), both ties may contribute (or have contributed to) task and organization-related knowledge and that this knowledge may affect how people think and behave at work. Drawing from research on cognitive imprinting, however, there are reasons to suppose that dormant ties and active ties act interdependently, and that an abundance of professional dormant ties may, at times, offset and potentially undermine the efficacy of active ties. I find some evidence that dormant ties may function as a cognitive anchor – imprinting not only norms and cognitive schemas but also offering social confirmation that one's attitude or behavior is appropriate and effective. I suggest that this can actually undermine the efficacy of active ties by making people resistant to change. In this sense, dormant ties may indeed have negative implications for social capital but not due to their obsolescence but rather to their persistence.

The two studies are presented below. Each study is intended to stand on its own as an independent piece of scholarship, meaning that each offers its own introduction, theory and hypothesis development, methods, results, and conclusion. As I situate each study in the literature, some of the review theoretical development will naturally overlap with the review above. This dissertation concludes with a general discussion and theoretical synthesis that attempts to integrate findings from both studies to develop a fuller, more integrated account of social capital.

CHAPTER V (STUDY 1):
ASSISTANCE AND ASSISTANCE MOTIVATION IN TEMPORALLY DEFINED
NETWORKS

INTRODUCTION TO STUDY 1

The first half of Figure 7 illustrates this study's focus and contribution. In an effort to place existing assumptions on a stronger theoretical footing, I argued above that relationship maintenance could preserve social benefits by affecting others' willingness and motivation to act preferentially on our behalf. Indeed, if conventional assumptions are taken as a guide, people should become less inclined to invest time and energy toward others as relationships fall dormant. This introductory study examines this issue via an experiment in which participants reactivate active and dormant ties and solicit assistance. In addition to the standard assumption that active ties will be more willing and motivated to help, I develop an alternative hypothesis that assistance motivations may actually increase as relationships recede into dormancy, particularly if someone is directly solicited for help. In this way I offer a theoretical counter-argument to the view that relationship dormancy undermines assistance motivations.

The ability to benefit from a social network depends not only knowing others who could potentially help but also having access to others who are willing and motivated to do so (Portes, 1998; Adler and Kwon, 2002). It has long been assumed that benefits will deteriorate if relationships fall dormant (Cheal, 1988; Coleman, 1990; Nahapiet and Ghoshal, 1997; Burt, 2001; Adler and Kwon, 2002; Voigt, 2005; Dolfsma, Eijk and Jolink, 2009), in part because of a weakened interest to invest time and energy toward advancing the interests of the other with whom we've lost touch (Granovetter, 1973; Hansen, 1999; Adler and Kwon, 2005; Dolfsma, Eijk and Jolink, 2009). These assumptions were expressed by Coleman (1990), who wrote that "Relationships die out if not maintained; expectations and obligations wither over time" as well as by Adler and Kwon (2002: 22), who wrote that "Social bonds have to be periodically renewed and reconfirmed or else they lose efficacy." Indeed, scholars have suggested that relationship maintenance creates opportunities and expectations for reciprocity (Granovetter, 1973; Dolfsma et al. 1999) and preserves intimacy, friendship, and communal norms (Clark, 1984; Clark, Mills and Powell, 1986; Clark, Ouellette, Powell and Milberg, 1987; Amato, 1991).

These assumptions have been challenged by recent research suggesting that dormant ties – i.e., relationships characterized by a prolonged state of suspended communication between two parties who at one point regularly in touch – can be profitably reactivated (Levin, Walter and Murnighan, 2011). Seminal work by Levin and colleagues (2011) found that reactivating dormant ties yielded many of the informational benefits of weak ties, including novelty. Maoret (2013) found that professional basketball players benefited after relocating to teams with a former

teammate, which may suggest that learning and assimilation improvements from a lingering sense of familiarity. Research by Lim and colleagues (2013) showed that many rekindled relationships restored to pre-dormancy levels of engagement rather quickly. This recent scholarship supports the idea that past relationships are in fact not dead – that relationship can yield value after reconnection, even after long periods of dormancy.

Despite these contributions, it is presently unclear how assistance motivations are affected by relationship dormancy: Do people become less willing and motivated to assist others as relationships fall dormant? Indeed, research suggests that people can benefit from the expertise of reactivated dormant ties (Levin et al. 2013) but no research has examined whether a solicited party's motivation to invest time and energy on another's behalf is sensitive to relationship maintenance or, alternatively, relationship dormancy. Nor has research considered whether relationship dormancy affects the likelihood of assistance, after a solicitation occurs. This study addresses these gaps by examining the relationship between relationship dormancy and hypothetical assistance motivations and actual helping behavior. Building from the social capital literature and research from social psychology, this study develops competing theoretical frameworks for why relationship dormancy might affect assistance motivations. In addition to the standard view that people will be more willing and motivated to assist active ties, I also develop and test an alternative hypothesis that relationship dormancy could also motivated assistance, particularly after being directly solicited to do so.

This research makes two contributions. First, this study informs a growing

literature on the efficacy of dormant relationships by directly examining the behavior of solicited ties. Indeed, while conventional assumptions often assume, axiomatically, that assistance motivations atrophy as relationships fall dormant, no research has been able to test this directly. Earlier research into the efficacy of dormant ties relied on ego's perception of a tie's usefulness after reaching out for assistance (Levin, Walter and Murnighan, 2011). In Levin et al. (2011), for example, participants were asked to reach out to dormant ties for assistance and then report back about the helpfulness of the encounter. In addition to common method bias, this research design was poorly suited to compare active and dormant ties' relative willingness to help. For example, the study could not capture the possibility that a participant's initial request for assistance when unfulfilled. The study's findings also reflect variations in helpers' expertise (Levin, Walter and Murnighan, 2011), rather than genuine motivations to help. The present study attempts to isolate helpers' motivations by utilizing a stronger set of environmental controls, including a standardized helping task and standardized solicitation message. In doing this, this study can better disambiguate the effects of relationship dormancy on one's willingness to step forward on offer assistance.

A second, related contribution comes in giving more direct theoretical consideration to parties who are contacted by dormant ties. Existing research on relationship dormancy has focused on ego's perceptions of dormant ties (Mariotti and Delbridge, 2013; McCarty and Levin, working), the processes that guide ego's decision to reactivate (Walter, Levin and Murnighan, working), or the benefits ego gains after reaching out (Levin, Walter and Murnighan, 2011; Vissa, 2011). Although this work illustrates the experience of dormant relationships from the perspective of someone in

need of help, it says little about reactivation from the perspective of those solicited. Here, I argue that the reputational costs of not helping may at times be greater for dormant ties than active ties. For example, while relationship maintenance should strengthen trust and loyalties, it should also stabilize reputations, which in turn creates space for complacency and periodic defection because a single act of defection would be judged relative to the sum of recent interactions. By contrast, those solicited for help by dormant ties may not perceive the same security. Moreover, those solicited by dormant ties may expect to have few opportunities to make up for defection in the future.

THEORY AND HYPOTHESES

Adler and Kwon (2002) noted that network benefits depend on actors' motivations to invest time and energy toward another's personal interests. Assistance motivations are generally seen to arise from self-interest and reciprocity ambitions, genuine social commitments (i.e., goodwill; in-group loyalties), or some combination. For example, several theorists, including Burt (1992), have conceptualized social capital through the lens of social competition and several studies suggests that people indeed target their social networking to get ahead – e.g., by directing their assistance toward influential people who are positioned to help in return (e.g., Bowler and Brass, 2006). Researchers have noted that assistance and knowledge transfer is deeper and more helpful between strong ties (Hansen, 1999), often where people share a concern for one another's interests (Levin and Cross, 2004), and that friendships are underset by communal norms in which mutual helping is normative and ongoing (Clark, 1984; Clark, Mills

and Powell, 1986; Clark, Ouellette, Powell and Milberg, 1987; Amato, 1991). These social commitments may stem from relational characteristics between people (e.g., length of the relationship; affinity; earlier favors), demographic similarities (e.g., race; gender), as well as a common ideology, culture, or value framework (Coleman, 1988; Ferrary, 2003; Putnam, 1993; Portes, 1998; McPherson, Smith-Levin and Cook, 2001; Dolfsma, Eijk and Jolink, 2009).

As referenced, an influential axiom in the social capital literature is that relationships require not only initial but ongoing investment to retain value -- that social bonds, as Adler and Kwon (2002: 22) insisted, "have to be periodically renewed and reconfirmed or else they lose efficacy". This assumption appears to hinge partly on a belief that actors have limited time and resources and therefore must be selective in how (or to whom) they direct social energy. This includes whom they will help, and to what degree (e.g., Bowler and Brass, 2006). These expectations were conveyed by Coleman's (1990: 321) insistence that "expectations and obligations wither over time." Despite these assumptions, however, the link between relationship motivation and assistance is seldom, if ever, tested. This study examines the attitudes and behaviors that follow assistance requests – i.e., how do people react after being solicited for assistance? Directly below, I outline the baseline argument for why relationship maintenance might strengthen social commitments, resulting in higher assistance motivations and greater likelihood assistance. I then develop a competing argument that relationship dormancy may in fact be strongly motivating – creating opportunities as well as costs that do not exist for active ties.

Relationship Maintenance as a Motivator for Assistance

From the standpoint of individual self-interest seeking, people should be more willing to offer assistance to others if they have more to gain (e.g., reciprocity, prestige, etc.) from being helpful (e.g. Bowler and Brass, 2006). And people might be more willing and motivated to assist their active ties compared to their dormant ties to the extent that reciprocity seems more probable from the former. Along these lines, Dolsma and colleagues (2009: 325) have argued that the act of maintaining relationships directly preserves social capital by preserving reciprocity expectations: "Gift exchange creates and maintains social capital as a gift requires the receiver to give in return [...]. The indebtedness of others to the focal actor allows him to call in favors from those who are indebted to him." Thus, by this reasoning, the act of preserving relationships may keep norms for giving (and receiving) in tact, which can increase trust that an act of assistance will be reciprocated before long. Relationship maintenance helps to make these social commitments clear.

In a related way, it is possible that ongoing communication norms raise expectations that the relationship will continue for the foreseeable future, which in turn increases the perceived likelihood that a favor, offered to another, will be reciprocated simply because opportunities for reciprocity will likely persist. Communication scholars have argued that communication helps people predict others' behaviors and to make one's own behaviors more predictable in the eyes of others (Berger and Calabrese, 1975; Dainton and Aylor, 2001). The act of maintaining a relationship may therefore help to reduce uncertainty and improve confidence that an act of reciprocity will be reciprocated (Dainton, 2003). In short, therefore, one may be more willing and

motivated to offer assistance to their active ties in comparison to their dormant ties because they see a greater potential for reciprocity from active ties.

It is also possible a party will perceive a greater cost to not helping if he or she expects to interact with a solicitor for the foreseeable future. In particular, the high probability of future interactions raises the probability that defection will have to be accounted for – e.g., verbally or face to face – at some not-too-distant future point. The prospect of having this potentially uncomfortable interaction could compel a solicited party to offer assistance (Sias, Gallagher, Kopaneva and Pedersen, 2012). As an example, a professor might be more motivated to critique a paper for a colleague, after being requested to do so, if he or she expects to see her colleague at work, or at an upcoming conference, since complying would make the interaction awkward or unpleasant. Conceivably, these anxieties might be ameliorated if communication generally no longer occurs. Relationship maintenance might therefore increase assistance motivations by increasing accountability.

Relationship maintenance should also improve assistance motivations to the extent that it contributes to genuine social commitments, i.e., a sense of "goodwill" (Adler and Kwon, 2002). A relationship characterized by goodwill does not imply that absence of the reciprocity motive but rather its dilution, given an accompanying sense of sense of commitment and solidarity. For example, parties who are close and trust one another generally share a sense that the other party genuinely cares for their interests and that they would go above and beyond to advance those interests (Levin and Cross, 2004). Indeed, social psychologists note that helping behavior in these relationships is normative (Clark, 1984; Clark, Mills and Powell, 1986; Clark, Ouellette, Powell and

Milberg, 1987; Amato, 1991). These favors help communicate each party's commitment to one another – which strengthens trust and loyalty in turn (Dolfsma et al. 2009). Granovetter (1982: 209) also acknowledged this benefit, arguing that "strong ties have greater motivation to be of assistance and are typically more easily available."¹

Baseline Hypothesis 1a: Assistance motivations will be higher for active ties compared to dormant ties.

Baseline Hypothesis 2a: Following solicitations for help, assistance will be more likely from active ties compared to dormant ties.

Relationship Dormancy as a Motivator for Assistance

Despite assumptions by some social network scholars that assistance motivations will weaken in the absence of relationship maintenance, I suggest below that relationship dormancy may actually serve as a powerful motivator to act helpfully on another's behalf – potentially making dormant ties more inclined to offer assistance compared to active ties.

One rationale for this alternative view concerns the prospects of reputational gain versus reputational damage. Impression management theorists posit that individuals have a natural inclination to be seen favorably by others and to avoid being seen in a negative light (Rosenfeld, Giacalone and Riordan, 1995), perhaps in part because being seen negatively is stressful and emotionally taxing. This literature proposes that people will consciously undertake impression management strategies, which include monitoring the words and gestures that one uses, as well as directed acts of helpfulness (Mohamed, Gardner and Paolillo, 1999; Bowler and Brass, 2006), to

¹ Some scholars have viewed tie strength as a partial outgrowth of communication frequency (Granovetter, 1973; Hansen, 1999), the assumption being that these social commitments will increase with the regularity parties interact.

build positive reputations (Bolino, 1999). Although people are indeed selective in choosing targets for impression management, there is some evidence that impression management motivations may lessen as interaction frequency intensifies. For example, Goffman (1959), in one of the earliest descriptions of impression management, proposed that each individual has a “front stage”, where he or she plays a socially desirable part for an unfamiliar audience, and a “back stage”, where this guard is let down. The ability to lower one’s self-presentation may be salubrious – a reward of long-term investment into a relationship (Schlenker, 1984; Gosnell, Britt and McKibben, 2011).

The flexibility to lower impression management in the presence of familiar contacts is facilitated by more secure reputations (Baumesiter and Jones, 1978). Indeed, increased familiarity between parties has a stabilizing effect on reputations, in the sense that an isolated interaction with another person will be framed not by itself but with reference to the sum of earlier interactions (Burt, 2008). If two people mutually consider one another friends, each side is likely to be confident that the other party has interpreted these prior interactions favorably. Although mutual helping may be normative to friendships (Clark, 1984; Clark, Mills and Powell, 1986; Clark, Ouellette, Powell and Milberg, 1987; Amato, 1991), some researchers have found that close parties will periodically exploit the securities that accompany high levels of familiarity (Leary, Nezlek, Downs, Radford-Davenport, Martin and McMullen, 1994; Tice, Butler, Muaven and Stillwell, 1995; see also Gosnell, Britt and McKibben, 2011). For example, Leary and colleagues (1994) report that self-presentation motives decreased among highly familiar parties of the same sex. Tice, Butler, Muaven and Stillwell

(1995) found that self-presentation concerns were lower among friends.²

Contrary to the baseline hypothesis, then, it is possible that relationship dormancy may increase assistance motivations, following an assistance request, because reputations become more ambiguous as communication taper off and because people nevertheless have a desire to reinforce a positive impression. In support of this, scholars have noted that parties often experience uncertainty and anxiety about the state of the relationship as communication declines (Walter, Levin and Murnighan. 2012). Presumably, this is because there have been no opportunities to reinforce a positive reputation or get feedback (spoken or otherwise). It is important to stress that dormant ties are not random but often others in whom ego has invested previously and that relationships often fall dormant for benign reasons related to convenience and proximity. To the extent that a solicited party still values their reputation in the eyes of the other, then, the lack of maintenance may provide a powerful incentive to offer assistance because it provides an opportunity to re-assert a positive reputation in the face of ambiguity.

The fact that future interactions are less certain for dormant ties may also increase one's willingness and motivation to assist, rather than undermine it. An individual solicited by a dormant tie for help may expect that they will have few opportunities for interaction in the future. According to the baseline hypothesis, this should decrease assistance motivations, since it is less likely that someone will have to account for non-compliance verbally or face-to-face. However, a refusal to assist a dormant tie may also disincline the soliciting contact from reaching out in the future –

² Notably, these studies centered on self-presentation, rather than overt acts of helpfulness more narrowly.

which might effectively end the relationship. Thus, individuals solicited by dormant ties may expect that they will have few opportunities to repair a damaged reputation in the future if they are not compliant on their initial request. By contrast, active ties may foresee opportunities to make up for their non-compliance in the future. This suggests that the costs of not helping may be significantly greater for dormant ties relative to active ties.

Thus, by this alternative view, assistance motivations may thus arise from an assessment, undertaken by solicited parties, that accounts for the probability of reputational or relational damage. Although there are compelling incentives for active ties to help, there are also potentially fewer costs associated with not helping, given the prevalence of recent (reputation-reinforcing) interactions and the probability that interactions will continue in the future. From this foundation, the following hypotheses are put forward as alternative to the firsts:

Alternative Hypothesis 1b: Assistance motivations will be higher for dormant ties than active ties.

Alternative Hypothesis 2b: Following solicitations for help, assistance will be more likely from dormant ties compared to active ties.

METHODS

Data

This study employed two surveys, taken by two types of respondent. The first type of respondent is termed the “sender” and their survey the sender survey. Sender surveys were taken by undergraduate students enrolled across three Introduction to Human Resource Management classes at a large northeastern university in the United States. Senders were required to email two randomly selected contacts from their personal

social network and request that they, in turn, participate in an online activity on their behalf. The solicitation message, outlined in greater detail below, indicated that the sender's odds of winning a \$50.00 cash prize would increase if the recipient participated as requested. Senders concluded their survey by answering a series of questions about the two people they contacted. These included several hypothetical questions pertaining to their motivation to invest time and energy toward their interests. The targets of senders' solicitations are termed "receivers." Assuming that receivers indeed saw the solicitation message, they could: 1) ignore the solicitation message outright; 2) follow a link embedded in the email, but decline participation in the online activity; or 3) follow a link embedded in the solicitation email, and agree to participate on the sender's behalf. If receivers consented to help, their participation task occurred via a receiver survey. These procedures are detailed more thoroughly below.

Survey Procedures

It is difficult to design experimental situations in which people use or rely on already-established relationships for favors. This is perhaps especially so with dormant ties, since, of course, initiating communication with a dormant tie requires breaking the established norm of not communicating. In their study on dormant tie reactivation, Levin, Walter and Murnighan (2011) asked Executive MBA participants reach out to others in their social network for advice on a class project and then ask the same participants to evaluate the helpfulness of these contacts after getting in touch. One advantage of this approach is that the nature of advice requests were somewhat open and thus varied by the particular needs of a study's participants. Related, the solicitation

requests also pertained to a real-world problem (getting advice for a class project). Nevertheless, their research design was poorly suited to examine the questions posed by this study. By relying on participant's opinions about helpfulness, for example, the study could not assess whether initial solicitation requests were fulfilled or others denied. Moreover, because helpfulness depended on helpers' expertise, including knowledge non-redundancies resulting from network structure (Levin et al., 2011), the study could not distinguish whether a receiver was helpful because they were more motivated to help or (as the authors speculate) because dormancy encourage new experiences and insights that had not yet been communicated to the solicitor.

It was essential for the aims of this study that I maintained control over the types of requests, or solicitations, that went out. It was also important that I could account precisely for who participated and who did not, and when this participation occurred. Thus, this study sacrificed verisimilitude for tighter measurement and experimental controls.

The sender survey. After being informed of the study from their instructor at the start of the 2013 spring semester, all of the students enrolled across three undergraduate Introduction to Human Resource Management classes received an email invitation and survey link from the lead researcher of the study. After appending their electronic signature to IRB consent form, participants were shown a detailed explanation of the experiment. They were informed that their successful participation would require them to contact two people from their social network, and that one of these people must be someone with whom they had not communicated in two or more years. Students were strongly encouraged to decline participation and choose an

alternate writing assignment (worth the same amount of extra credit) if they were uncomfortable using their social network in this way.

If they opted to proceed, participants were asked to list the names and email address or Facebook handle of three people whom they used to be in regular touch with, but with whom they had not communicated, in any way, for two or more years. The survey then asked them to do the same for their active communication contacts, defined on the survey instrument as people with whom they currently communicate yearly or more frequently. To focus on traditional relationship types, participants were told that their selected contacts could not be family members, significant others or current roommates. Participants were also told not to contact other students enrolled in any Introduction to Human Resource Management class at their university.

After collecting the name of six possible contacts (three dormant and three active ties), the survey application selected at random one from each group and requested that students send an email or Facebook message to this contact. At this point, students were given a final opportunity to back out of the survey, and pursue extra credit via alternative means, if they were uncomfortable reaching out to the selected contact. If they chose to continue, they were required to send an email or Facebook message to the contact, and carbon copy the lead researcher to the message. The texts used in the solicitation messages are available in the Appendix. In broad outline, the messages informed the receiver that the student sender was participating in a study being conducted by researchers at Rutgers University on interpersonal relationships. They informed the receiver that the student did not write the message's content, but that the contact listed them as someone who might be willing to help them

complete a class activity. In underlined bold, the messages indicated that the student participant's odds of winning a class lottery would increase if he or she participated in a short online activity on their behalf. As an exploratory experimental manipulation, one type of message indicated that senders would be informed immediately if receivers helped on their behalf and the other indicated that their participation would be confidential. However, this manipulation had no effect and is not reported in analyses below.

In an attempt to prevent senders from taking the receiver survey on their own behalf, solicitation messages did not contain a link to the receiver survey but instead instructed willing participants to contact the lead researcher via email and request a link for the survey. They were informed that further instructions would be provided at that point.

After contacting a dormant and active receiver, senders answered a series questions about the two people whom they contacted. They centered on familiarity, trust, and relationship duration. They also asked about participants' about the social obligations they felt to receivers – including how motivated they would be to offer assistance to the same people they contacted. In an effort to confirm that students followed the experiment's instructions precisely, several questions also asked about the last time they had communicated with the selected contacts, and whether they were family members, significant others, or roommates. These quality-check questions were deliberately neutrally worded, so as to not tip off that a particular response was desirable or undesirable. Senders concluded their participation by answering a series of questions about their participation and their adherence to the experiment's rules.

Students were reassured that the questions were intended to ensure data quality, not to catch or punish them for non-compliance.

I received 130 completed sender surveys out of 155, for a response rate of roughly 83%.

The receiver survey. Once contacted by receivers, the lead researcher of the study personally responded with instructions and a link to the receiver survey. After electronically signing an IRB consent form, receivers were asked to input the email address or Facebook handle of the person who contacted them asking for help (i.e., the sender). These identifiers were used to match sender and receiver surveys and assess who received assistance. The survey instrument then asked several questions about their relationship with the sender, including the last time they had communicated before this email. It also asked them whether they had corresponded with the sender in any way about the experiment after receiving their email. Finally, receivers were asked to answer 15 attention-to-detail questions and told (incorrectly, for the time being) that their sender's odds of winning a class lottery would increase if they successfully answered all of the fifteen questions correct. These questions were easy but time consuming, consisting of letter and number matching counting questions and basic arithmetic problems.

Measures

Dependent variable: receiver assistance. A primary dependent variable in this study is whether or not the receiver fulfilled an assistance request. Receiver assistance was coded as binary, where 1 indicated that a receiver visited the receiver survey webpage,

input their sender's email or Facebook handle, and took the survey on their sender's behalf. A 0 indicated that a sender's solicitation went unfulfilled.³

Dependent variable: sender hypothetical assistance motivation. In addition to whether receivers responded, or not, I also assessed senders' hypothetical motivation to offer assistance via three questions centered on the people whom they contacted. In particular, I asked senders to rate hypothetically how motivated they would be to offer assistance to the two people they contacted. The following three questions were used: 1) "If this person I contacted for a favor, I would go out of my way to help this person"; 2) "I would be motivated to help this person, if they asked for a favor"; 3) I would invest time and energy to assist this person, if requested." Responses were recorded on a scale to seven, where higher numbers corresponded with a greater motivation to offer assistance. These items loaded well onto a single factor solution (Cronbach's alpha: .95).

Experimental Dependent variable: receiver timeliness. In part because temporal disparities became obvious as the survey process unfolded, a third, exploratory outcome variable was used in this study: timeliness – specifically, the time elapsed between a solicitation message and a survey response. I tracked the time that solicitation messages went out via the time stamp appended to each email message (to which I was CC'd). Additionally, receiver surveys recorded a time stamp that indicated when they were completed. This information was used to calculate the amount of time elapsed in hours

³ There were no cases where receiver's contacted the researcher for a survey link but did not go on to take the survey on their sender's behalf.

between a sender's solicitation and the receiver's participation on the receiver survey.

Independent variable: active and dormant ties. As noted, senders were asked to identify, answer questions about, and solicit assistance from, dormant ties as well as active ties. This information was used to create a binary variable, where dormant ties were coded as 1 and active ties 0.

Control variables. All models controlled relationship length, or how long parties have known one another, according to ego: "How long have you and [NAME] known one another?" Questions options were recoded on a scale to seven, where higher values associated with longer relationship duration. Senders participated outside of class and therefore solicitations went out at different times of day. To account for this, I also controlled "odd hour" solicitations in models predicting receiver assistance and timeliness – specifically, solicitations that occurred from 10 PM to 5 AM. I controlled for trust, operationalized via a single question: "I trust that this person cares for my best interests." Responses ranged from strongly disagree to strongly agree on a scale to seven. I controlled for whether solicitation requests were sent to senders' email or Facebook. I controlled for sender gender. Finally, I controlled for class cohort (i.e., the class to which senders belong).

Checks on Data Quality

It is potentially uncomfortable to call upon someone for a favor, especially an overtly contrived favor, such as the one sought out in this experiment. It may be particularly

uncomfortable to request a contrived favor from someone with whom one has lost touch. In light of this, several steps were taken to improve data quality. The first step was to discourage participation from people who were uncomfortable with the survey's requirements. As shown in the Appendix, the consent form signed by student senders explicated in bold, red words what would be required of them: They were told that their successful participation in the study would require them to contact someone with whom they regularly communicated, as well as someone with whom they have not communicated, in any way, for two or more years. They were told that their successful participation would require them to contact both types of contacts, and seek assistance in an online activity. They were told that their failure to adhere to the rules would disqualify them. They were told of an alternative assignment, which would require roughly the same amount of time to complete. They were strongly encouraged to decline participation, and choose the alternative assignment, if they felt uncomfortable with these requirements. It was hoped that such strong language would discourage participants who were uncomfortable with the experiment's rules and requirements. In total, 11 students declined participation after reading the study's consent form. 7 more declined participation after the survey application randomly selected two communication contacts.

The second step toward improving data quality involved a series of follow-up questions intended to identify student senders that misunderstood the experiment's requirements. After solicitations were sent out, the names of the randomly chosen contacts were displayed at the top of the survey page. Students were asked to answer a series of questions about each person whom they contacted, including the last time

communication occurred. Surveys were then disqualified if responses about a particular contact did not meet the experiment's expressed requirements. In particular, surveys were disqualified if a person identified a person as a dormant tie, contacted that person for assistance, and then in follow-up questions indicated communicating more recently than 2 years ago. This disqualified 12 surveys. The reverse would have also held: Participants would have been disqualified if the receivers who were initially indicated as being active were later indicated as dormant. However, this did not occur. As a third step to improving data quality, senders were asked a series of at the end of the survey about the honesty and/or accurateness of their participation. 4 students openly admitted that they did not follow the rules precisely and were disqualified.

I also used receiver surveys to help verify the nature of the relationship when these data were available. Identifying and removing inaccurate responses based on receiver surveys can bias estimates, given that receivers who do not participate do not have an opportunity to confirm the relationship's nature and dormancy. Fortunately, after removing the erroneous responses outlined above, the vast majority of receivers' responses corroborated with senders' (there were 2 instances of discrepant responses, and their inclusion or exclusion does not affect the estimates presented below). The IP addresses of senders and receivers were compared, as a final step toward improving data quality. Both the sender survey and receiver survey captured the participant's IP address, which could be static or dynamic. Static IP addresses remain the same, as long as someone continues to use the same Internet service provider. Dynamic IP addresses change, but only after the modem is disconnected and reconnected. Thus, while dynamic IP addresses do change, they do not change regularly. I compared the IP

addresses of senders and receivers to ensure that they were not taken at the same location. One receiver survey, identified by the student as a dormant relationship, took the survey from the same IP address as the sender. This survey was disqualified.

These quality checks significantly affected the surveys retained in the final sample: 130 students out of 155 participated in the survey (83% response rate). However, 60 sender surveys were disqualified. This left 70 surveys, and 44 returned receiver surveys out of 140 solicitations.

Statistical Procedures

I employed several different techniques to accommodate different outcome variables. Active and dormant tie observations are not independent but nested. In particular, because senders answered questions about, and solicited assistance from, two contacts (an active and dormant tie), the data can be thought of as nested within individual senders. Thus, for example, unmeasured characteristics about senders could potentially influence senders' responses about their contacts (e.g., their motivation to assist) as well as their contacts' reactions to them (e.g., the likelihood of receiving assistance). For example, a particular sender may tend to have a higher general motivation to assist, relative to others. A sender may also be more likely to receive assistance, perhaps due to some unmeasured characteristic associated with prestige or likeability. To account for this, I grand-mean centered the predictor variables and used HLM, with sender-level clustering, for models predicting sender assistance motivation. Probit regressions predicting the likelihood of response clustered standard errors by sender.

RESULTS

The average assistance motivation for active and dormant senders was 6.54 (SD: .61) and 4.65 (SD: 1.67), respectively. 21 active receivers offered assistance out of 70 sender solicitations (30% reply rate) and 23 dormant receivers offered assistance out of 70 solicitations (33% reply rate). All receivers selected as dormant contacts were said to be “2-5 years dormant” – the most recent active category for dormant ties that one could select. This may reflect the fact that the sample consists of undergraduate students, many of whose dormant contacts are from high school.

A full set of descriptive statistics and simple correlations are presented in Table 1. The length of the relationship (i.e., time that two parties have known one another) correlates positively with relationship dormancy: parties who have known one another longer are more likely to be dormant ties. Relationship dormancy shows a strong negative bivariate association with senders’ motivations to help, meaning that, on average, senders report feeling less motivated to assist the dormant ties whom they had just contacted for help compared to the active ties they had just contacted for help. Trust also associates positively with senders’ assistance motivations and negatively with relationship dormancy. The correlation between dormant ties and assistance is not significant. Similarly, senders were no more likely to receive assistance when their motivation to assist was high than when it was low. Interestingly, there is a strong negative correlation between relationship dormancy and elapsed time: Receivers contacted by dormant ties tend to respond much faster than those contacted by active ties.

The first set of hypotheses considered the link between relationship dormancy

and assistance. HLM regressions predicting senders' assistance motivations are presented in Table 2. Again, all predictor variables have been grand-mean centered. Building on the simple correlations above, trust and relationship dormancy are included as covariates in the same model, which helps assess dormancy's effect on assistance motivations more directly by controlling for potential asymmetries in tie strength. As shown, trust bears a positive and highly significant association with assistance motivation. Relationship dormancy, entered in Model 2, also retains a negative significant relationship with assistance motivation. Taken together, these results lend some support for the conventional view, predicted in Baseline Hypothesis 1a, that relationship maintenance enhances social capital by preserving assistance motivations – that is, when given a hypothetical question about motivation to assist, people tend to express higher motivation to assist their active ties than their dormant ties.

Table 3 presents probit regressions predicting receivers' actual assistance, starting in Model 3 with a full set of control variables. Model 4 introduces relationship dormancy, which shows a positive but non-significant coefficient. Thus, despite senders reporting that they feel less motivated to assist their dormant ties, I do not find evidence that the dormant ties contacted by senders were less likely to offer assistance after being solicited to do so: People were equally likely to receive assistance from their dormant ties as their active ties. This means that neither Baseline Hypothesis 1b nor Alternative Hypothesis 2b are supported with these data. These “non-findings” are nevertheless interesting considering that conventional theory asserts directly that active ties will be disproportionately willing to invest time and energy on ego's behalf. Although hypothetical assistance motivations were indeed higher for active ties, these

latter results do not lend support for that assumption: Active and dormant ties were very comparable in terms of the actual likelihood of response.

[=====]
INSERT TABLE 1
[=====]

[=====]
INSERT TABLE 2
[=====]

[=====]
INSERT TABLE 3
[=====]

Exploratory Supplemental Analyses

Although not directly hypothesized, there was a conspicuous temporal disparity between active and dormant ties in time-to-assistance. For example, Figure 1 plots assistance over time, with time broken into 5-hour intervals. The plot makes clear the large temporal disparity suggested by the correlation table: Although there was no significant difference in response likelihood over the course of the experiment, dormant ties tended to respond to solicitation requests much more promptly than active tie. Indeed, the average response time for dormant ties was slightly above 4 hours (SD: 9.35) for dormant ties and 33 hours (SD: 43.13) for active ties.

[=====]
INSERT FIGURE 1
[=====]

[=====]
INSERT TABLE 4
[=====]

DISCUSSION

The research question explored in this study is at the core of relationship dormancy's relationship to social capital, given that the benefit that one derives from their network is very much dependent on others' motivations to invest time and energy on their behalf. Despite the assumption that relationships "die out if they are not maintained," recent research suggests that dormant ties are in fact valued (McCarthy and Levin, working) and at times profitably reactivated (Levin et al., 2011). This study set to examine more directly the relationships between relationship maintenance assistance motivations by an experimental design in which individuals reached out to active and dormant ties for assistance, after rating their own hypothetical willingness to offer assistance to the same people.

I find some evidence that people tend to feel closer to (i.e., friends with) their active ties over their dormant ties and that hypothetical assistance motivations are also higher for active ties than dormant ties, even after controlling for trust. This suggests that the effects of dormancy on assistance motivations may extend beyond a sense of trust. However, it is possible that one's hypothetical assessment of their assistance motivation is poor predictor of someone's response after they've actually been solicited for help. Contrary to both alternate hypotheses, I failed to find evidence that assistance was more likely from active ties or dormant ties: Active and dormant receivers were equally likely to respond to senders' solicitation requests. The fact that active and dormant ties were equally likely to respond provides an initial, if for the time being

mild, challenge to the view that dormancy undermines others willingness to act in a helpful manner, once being asked to do so.

The substantial temporal effect – that dormant contacts responded much timelier than active ties – warrants further attention. Social network scholarship has underscored the importance of acquiring information and resources more quickly than one's competitors (Burt, 2005). It is important to note that timeliness in the case of this experiment did not actually benefit senders. It mattered only that assistance arrived while the experiment was still open (a period of three weeks). Thus, it cannot be said timeliness, in this context of the study, enhanced the efficacy of the tie. People did not benefit when their ties responded more quickly and did not suffer when their ties responded more slowly. This temporal finding is nevertheless important to the extent that it suggests a more generalizable tendency. It may be the case, for example, that people who are contacted by dormant ties are curious and excited to get back in touch, and so act quickly to assist. It may be that assistance requests from dormant ties are conspicuous – since any communication is, by definition, atypical – and that this translates to prompter attention and a prompter response.

Limitations

This study was intended as an initial exploratory investigation into assistance and assistance motivation for dormant ties. There are several important limitations. Assessing senders' assistance motivations in a hypothetical fashion has important common method bias issues. Perhaps more important, it may be difficult to assess one's assistance motivation in a hypothetical fashion. Even if one does not feel motivated to

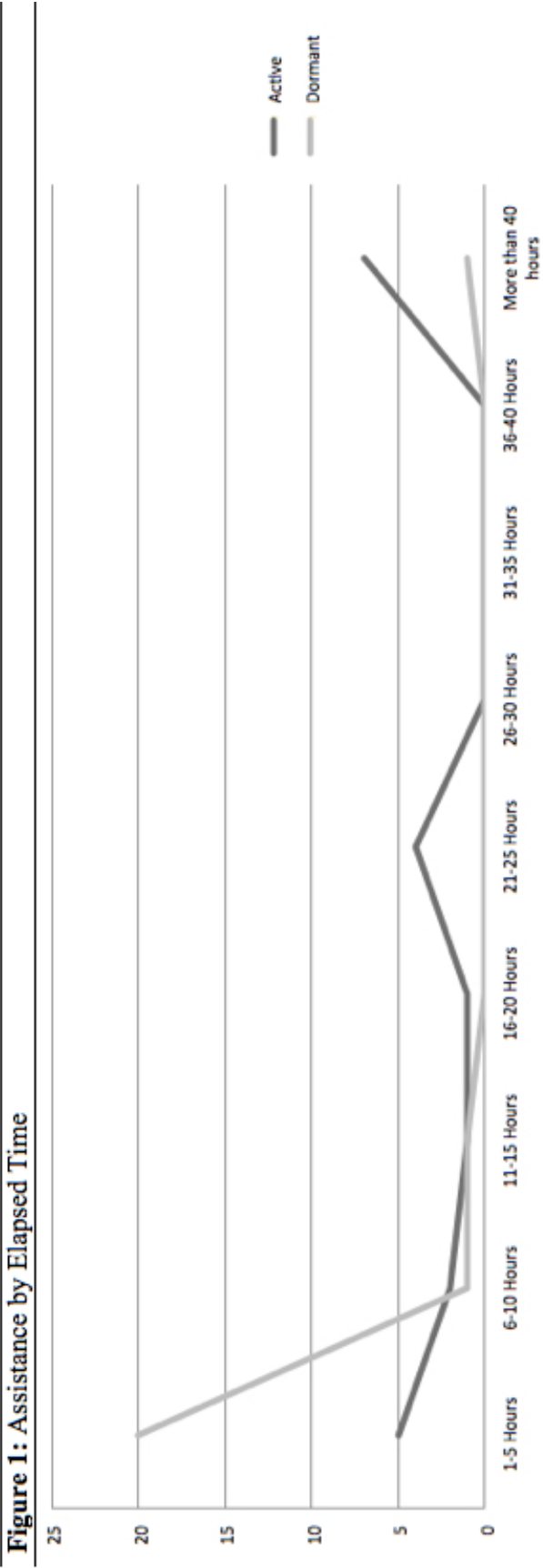
help another person, a priori, they may feel and behave differently, if they have actually been contacted. An additional limitation pertains to a superficial experimental task and the fact that receivers' assistance advanced senders' interests in a weak and indirect fashion. Assistance in social life is often considerably more meaningful – there are greater benefits and costs to not being helpful. The task used in this study helped to control for receivers' ability to help – i.e., the possibility that certain selected ties would be more likely to help by virtue of their unique knowledge, etc., rather than motivation or willingness. However, it is difficult to create an experimental condition for help seeking that controls for ability and retains verisimilitude. It nevertheless seems possible that receivers' behaviors could have been markedly different with more at stake.

The sample of undergraduate students presents another important limitation. Most of undergraduates' former ties are likely to be high school friends and acquaintances and thus recently dormant. Indeed, 100% of dormant ties were indicated as being between “2 and 5 years” dormant -- the minimum category of dormancy that participants could select. That undergraduates are also re-immersed in a new, potentially exciting and distracting social milieu presents another confounding factor. These new ties might make old ties less important, in a subjective sense (Watt and Badger, 2009). It seems possible that dormant ties may become more meaningful as people progress in age settle in with family and work obligations. Indeed, a middle-aged professional might feel differently about, and respond differently to, being contacted by an old high school or college friend. The middle-aged professional might

feel more excited and curious, which could affect their willingness and motivation to respond helpfully and promptly. These questions are left for future research.

Future Research

Despite limitations, this study presents interesting opportunities for future research. As suggested, it is important to explore these relationship dynamics with a broader, more representative sample. It is also important to examine a broader and more realistic range of solicitation requests – e.g., requests for money, feedback on one’s work, a job reference, and so on. More realistic requests should also make timeliness intrinsically meaningful, since it is in the sender’s best interests that information or opportunities arrive sooner, rather than later. Future research should also consider experimental manipulations to unpack mediating processes. One explanation for dormant receivers’ timeliness, for example, might be salience – the fact that communication with dormant ties is naturally uncommon and thus stands out. Salience could potentially be manipulated by having one group of solicitors get in touch with contacts to catch up, etc. a week or two prior to actually seeking assistance, while the other group seeks assistance without any prior catching up beforehand.



NOTES: y-axis shows the raw number of assistance requests; x-axis shows time elapsed, broken into five-hour intervals.

Table 1: Descriptive Statistics and Simple Correlations

	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9
1 Dormant Tie	0.5	0.5018	0	1	1								
2 Received Assistance	0.3143	0.4659	0	1	0.0308	1							
3 Time Elapsed (hours)	18.0998	33.6173	0.26	195.7	-0.4413*	.	1						
Sender Assistance													
4 Motivation	5.6136	1.5641	1	7	-0.6051*	0.0459	0.2821	1					
5 Relationship Length	3.25	2.8351	1	5	0.0133	-0.0712	0.0605	-0.0142	1				
6 Trust	5.7829	1.15	1	7	-0.5963*	0.0091	0.2822	0.8503*	-0.0368	1			
Solicitation sent during odd													
7 hours	0.1571	0.3652	0	1	0.0001	0.0882	0.0173	0.0587	-0.0336	0.0071	1		
8 Facebook	0.8214	0.3844	0	1	-0.0187	-0.1263	0.1805	-0.0114	0.0364	0.0001	0.2013*	1	
9 Female	0.4571	0.4999	0	1	-0.7456*	0.0891	0.3083*	0.394*	-0.1808*	0.3588*	-0.081	-0.1337	1

Note: Two-tailed tests.

* p < .05.

Table 2: HLM regression predicting sender assistance motivation

	Model 1	Model 2
Trust	0.777*** [0.0497]	0.727*** [0.0613]
Relationship Length	0.0404 [0.0491]	0.0448 [0.0467]
Facebook	0.00589 [0.169]	-0.0631 [0.173]
Female	0.262+ [0.136]	0.00264 [0.142]
Dormant Tie		-0.433* [0.193]
Constant	5.640***	5.634***
	[0.0696]	[0.0707]
Pseudo R2	0.88	0.89
Observations	124	124
Number of groups	66	66

NOTE: Robust standard errors in brackets; models also control for class cohort; all variables grand-mean centered

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$

Table 3: Probit regression predicting receiver assistance

	Model 3	Model 4
Friendship	-0.0187 [0.0771]	0.0725 [0.0883]
Relationship Length	-0.0352 [0.107]	-0.0494 [0.109]
Sent solicitation during odd hour	0.322 [0.316]	0.343 [0.318]
Facebook	-0.464 [0.313]	-0.362 [0.317]
Female	0.219 [0.267]	0.694+ [0.419]
Dormant Tie		0.784 [0.480]
Constant	-0.0278 [0.663]	-1.21 [0.929]
Observations	124	124

NOTE: Robust standard errors in brackets;
models control for class cohort; residuals
clustered by sender

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$

CHAPTER VI (STUDY 2):
THE PERCEPTUAL AND PERFORMANCE IMPLICATIONS OF INTRA-
ORGANIZATIONAL DORMANT TIES

INTRODUCTION TO STUDY 2

This study's focus and contribution is illustrated by the bottom half of Figure 7. As argued above, social capital is dependent not only on others inclinations to help but also on our perceptions (i.e., who we view as social capital) and the accumulation of past and present social experiences, which collectively frame how we think and go about our work. This study examines the implications of dormant ties from this vantage point. In particular, the study examines the perceptual implications of intra-organizational dormant and active ties, as well as performance implications.

Organizations play an important role in the formation and maintenance of social capital, i.e., the economic and other benefits that people derive from their relationships (Evans & Davis, 2005; Nahapiet & Ghoshal, 1998). Nahapiet and Ghoshal (1998) noted that organizations contribute to the development of strong social bonds by fostering repeat interaction between employees and inducing group closure—where people all know each other and develop a sense of togetherness—which supports norms, shared identity, and trust. Through flexible work assignments, job rotation, and temporary teams, many organizations also foster weaker linkages that span throughout the organization structure (Evans & Davis, 2005). For individuals, social capital also has important implications for career outcomes (Granovetter, 1973; Meyerson, 1994; Morrison, 2002; Podolny & Baron, 1997; Seibert, Kraimer, & Liden, 2001), including job satisfaction (Roberts & O'Reilly, 1979), turnover (Mitchell, Holtom, Lee, Sablinski, & Erez, 2001; Mossholder, Settoon, & Henagan, 2005), and job performance (Papa, 1990; Pil & Leana, 2009).

However, not all organizational relationships that form are maintained over time. As people move in and out of teams or departments, to take common examples, communication between parties is likely to decline sharply or stop altogether. Even if employment continues under the same employer, two people, once in regular contact, can lose touch. Their failure to communicate does not necessarily indicate that the relationship has turned sour (Levin, Walter, & Murnighan, 2011). Indeed, convenience is a powerful driver of who communicates with whom, and for how long.

Foundational conceptions of social capital have viewed these older,

unmaintained relationships as largely unimportant under the assumption that social capital requires (not only initial but) ongoing investment to retain value or influence (Adler & Kwon, 2002; Burt, 1992; Coleman, 1990; Nahapiet & Ghoshal, 1998). Similarly, the vast majority of social network theory and research has only considered relationships that are in some way active or recently utilized at the point of research. More recently, scholars have begun to relax this view, theorizing that social experiences accumulate and that “layers” of past and present networks may affect workplace attitudes and behaviors (Kilduff, Tsai and Henke, 2006). Recent research has also begun to examine the benefits of reconnecting after long periods of time – effectively encouraging people to reinitiate contact with their lost contacts to seek advice (Levin, Walter and Murnighan, 2011). As of this point, however, no research has examined the implications of dormant ties that remain in latent states at the point of research. Nearly every study from the social network literature has examined the implications of ties for which communication has recently transpired.

In contrast to the view that dormant ties can and should be ignored, this study builds on view that social network effects can be accumulative rather than transitory. Specifically, I develop the argument that—over and above people’s current network of ties—dormant ties are relevant to contemporaneous workplace outcomes in at least two ways: First, I suggest that dormant relationships represent potential resource channels that could be selectively leveraged, via reactivation, at some point in the future. The lingering sense of familiarity that emerged in earlier stages of a relationship may make dormant relationships subjectively valued by people, which can affect how they think about their organization and their place within it. I examine implications for organizational commitment in particular. Second, some of social capital’s effects may

be “sticky”, yielding influence long after communication comes to an end (McEvily, Jaffee, & Tortoriello, 2012). To the extent that previously acquired information and resources remain relevant to the problems and challenge faced in the present, I suggest that organizational behaviors, including performance, may be affected by having had social capital at earlier stages of their career. In this way, some of social capital’s effects may be sticky – affecting organizational behaviors long after communication comes to an end.

A central takeaway from this research is that active and dormant social networks can generate subjective value as well as influence organizational behaviors, even without reactivation. However, I find that this often happens in offsetting ways. First, I find evidence that active and dormant ties compete cognitively with one another: The structure and availability of one type can affect the utility that individuals assign to the other. I attribute these offsetting effects in part to perceived information and resource substitutabilities—the potential for certain temporal networks to obviate others through the overlapping information and resource potential that they make possible. Second, I find that socially imprinted residues from the past may affect, and be affected by, contemporaneous relationships, thus affecting organizational behaviors, including performance, in the present. Here, I find some evidence that strong dormant networks may at times undermine the efficacy of active ties, possibly by making people resistant to new information and ideas. Collectively, these findings suggest that dormant networks are not irrelevant relics from the social past but instead dynamic factors that guide and inform the evolving present.

This research makes several important contributions. First, this study responds to calls for research into the temporal nature of social networks (Burt, 2000; Kilduff,

Tsai and Henke, 2006) and for time-oriented organizational scholarship more generally (Ancona, Goodman, Lawrence, & Tushman, 2001). Recent research suggests that our understanding of social capital and social network structure can improve considerably by expanding the temporal boundaries of measured ties (Levin et al., 2011; McEvily et al., 2012; Soda, Usai, & Zaheer, 2004). This study attempts to clarify our understanding of social capital in temporally defined social networks by examining the implications of individuals' dormant relationships that remain in a latent, inactive state at the point of research. It is also the first study to examine dormant networks within a large organization system, among employees who have built relationships with each other but lost touch over the span of their careers.

Second, this research expands upon, and in some ways contradicts, an argument in the social capital literature that relationships require maintenance to retain value. As noted, a baseline assumption held in some social network scholarship is that past relationships can be safely ignored, whether because another person's accessibility will atrophy or because time-sensitive information or opportunity structures will vanish. While contemporaneous networks may be more salient, on average, and may be uniquely valuable in conveying and coordinating time-sensitive information, my results suggest that dormant relationships affect and are affected by the more traditionally studied active forms of social capital. The significance of dormant ties is evidenced even in the absence of reactivation. I find that this takes shape both subjectively, in terms of employees' attitudes about their organization. I also find that dormant networks have implications for performance outcomes, although the implications here are not clearly positive. In sum, whereas dormant ties may appear absent or dead, I find they have tangible and enduring implications.

THEORY AND HYPOTHESES

Organizations exist as networks of formal and informal relationships that connect individuals or work units, e.g., teams, departments (Brass, Galaskiewicz, Greve, & Tsai, 2004; Hansen, 1999; Tsai, 2001). The size and structure of social networks creates social and economic benefits and thus constitute a form of capital (Adler & Kwon, 2002; Burt, 1992). At a given point in time, network benefits can be prospective, through their capacity to generate value going forward, or realized, through social interactions and social exchanges that have already occurred and conferred value. For example, an individual may have learned about a job opportunity (Granovetter, 1973) or received a promotion (Podolny & Baron, 1997; Seibert et al., 2001) through earlier interactions within his or her social network. This same network may also contain prospective, forward-looking potential, to the extent that the same individual can tap into his or her network for information, resources, and opportunities in the future. This interpretation is consistent with Bourdieu (1986: 248), who defined social capital as “the aggregate of actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition.”

Although social network patterns change over time, the vast majority of social network scholarship has focused on the relationships that are active and ongoing at the point in time when a study is being carried out. These empirical constraints may be guided by two common theoretical assumptions: that relationships are costly to maintain and that their value or influence withers in the absence of ongoing maintenance (Adler & Kwon, 2002; Burt, 1992; Coleman, 1990; Nahapiet & Ghoshal, 1998). Coleman (1990: 321) wrote, for example, “Relationships die out if not

maintained; expectations and obligations wither over time.” Nahapiet and Ghoshal (1998: 258) use language to a similar effect. Burt (1992: 9) argued that as relationships grow old, the tie “dissolves” and takes with it “whatever social capital it contained.” Adler and Kwon (2002: 22) wrote that: “social capital needs maintenance,” adding that “social bonds have to be periodically renewed and reconfirmed or else they lose efficacy.” Similar arguments for relationship maintenance have been seen elsewhere in the literature (e.g., Dolfsma, van der Eijk, & Jolink, 2009; Voigt, 2005). Indeed, the assumed importance of relationship maintenance has been largely axiomatic and was not challenged (e.g., Kilduff, Tsai and Henke, 2006) nor examined empirically until very recently—with new research that actually calls into question the need for ongoing tie maintenance (e.g., Levin et al., 2011; McEvily et al., 2012).

The current paper advances two main research questions. First, do network ties need to be active or activated in order to matter? Prior research on network ties in general (Adler & Kwon, 2002; Burt, 1992; Coleman, 1990; Nahapiet & Ghoshal, 1998), and even the more recent research on reconnections (Levin et al., 2011), has assumed that this is the case. I suggest that this assumption may be faulty. More specifically, I investigate if a tie really needs to be active (i.e., an ongoing tie) in order for it to be valued and affect performance. Put differently, this first question asks: can dormant ties, even if they are not connected or reconnected, still affect people’s attitudes and performance in the present day? Second, if the answer to this first question is yes (i.e., that dormant ties do matter), then in what way can dormant ties substitute for the effects of active ties? In answering these two questions—do dormant ties matter, and if so, can they in any way replace active ties— I argue that dormant ties are both a shadow of a potential future as well a residual record of the past and that both these

aspects—past and future—can have a significant implications for the present. In this way, they should have direct attitudinal and behavioral implications for workers, as well as indirect implications through their interaction with active ties.

Dormant Ties as Potential Future Resources

The size and structure of a person's social network contains future potential to the extent that ties can called on for personal benefits, including social and emotional support (see Bourdieu, 1986). As a starting point, I examine the subjective significance that actors assign to their professional relationships, including their dormant ties. I focus specifically on a person's organizational commitment, a perceptual outcome that has social antecedents (Mossholder et al., 2005) and important implications for organizational effectiveness (Ingersoll, 2001). Recent research suggests that a larger supply of active relationships anchors individuals to their organization, likely through affective support and greater access to organizational information, knowledge, and resources (e.g., Morrison, 2002). Opportunities to cash in on earlier favors would also be lost or undermined upon leaving the organization (Mossholder et al., 2005). Consistent with this, Mitchell and colleagues (2001) found that employees' embeddedness, including their active personal connections, predicted turnover above and beyond job satisfaction, perceived alternatives, and job search, and Mossholder et al. (2005) found that larger social networks reduce the likelihood of voluntary turnover over time.

It is possible, however, that part of what makes people feel committed to their organization is not only that they are currently actively communicating but also the feeling that they could have positive and productive interactions whenever the need

arises. In support of this, Kilduff, Tsai and Henke (2006: 1039) conceived “the social network [...] as layer upon layer of relations, built up over time and space in the cognitions of members.” They suggested that latent layers remain quite vivid and impactful, even after years of dormancy. Indeed, recent research has shown that past relationships can be profitably reactivated (Levin et al., 2011) and that actors recognize the potential in latent ties (Mariotti & Delbridge, 2012). For example, in documenting the collapse of Arthur Andersen, Sellers (2006) noted that many former employees felt that they would be able to call upon dormant relationships if needed. Mariotti and Delbridge (2012) showed that dormant ties are valued because their expertise has been established at earlier points in time. Within organizations, then, people could feel that, if they needed to know how to do something, they could call on a dormant tie to help out, where a sense of familiarity can provide an indication of a dormant tie’s competence, expertise, or general capacity to fill a need. Personal favors or acts of helpfulness that occurred previously may also contribute to a sense that the other person is likely to reciprocate. These potential benefits are thus likely to create a feeling of connection and commitment to the organization as a whole. After all, employees who feel favorably towards, and can potentially benefit from, a large dormant-tie network within an organization should be more likely to feel favorably towards being a part of that organization. Thus, I hypothesize that dormant ties will strengthen perceptions of organizational commitment.

Hypothesis 1: Dormant-tie centrality will relate positively to organizational commitment.

Research suggests that, to a significant extent, the subjective value that people assign to relationships is fungible (Johnson, 1982). For example, belongingness theory

postulates not only that individuals have a basic, innate drive for interpersonal relationships. The theory also suggests that relationships are substitutable, such that one relationship can take the place of another so long as it fulfills the same or similar needs (Watt & Badger, 2009). To the extent that substitutable relationships are accessible, an actor's dependence on, and the perceived importance of, a particular relationship is likely to weaken. For example, social psychologists have found that the commitment that individuals perceive towards old friends is moderated by the availability of new friends at their disposal: Watt and Badger (2009) found that college students were more likely to get homesick and long for old high school contacts when they failed to successfully integrate in their new setting. Those who effectively integrated into new social clusters, on the other hand, found satisfactory substitutes for their old relationships. Similarly, social comparison theory predicts that the dissolution of ties should be less psychologically burdensome for individuals who have better social alternatives that can satiate the same or similar needs (Thibaut & Kelly, 1959).

Kilduff and colleagues (2006) theorized that former networks may endure in the minds of individuals and affect how they view their current social milieu – that these ‘ghost’ networks may continue to affect how people view and utilize their network. Active ties are probably more readily accessible than dormant ties, all else equal, because parties may be physically proximate and because communication norms likely make reaching out more convenient and comfortable (see Levin et al., 2011). In addition, active ties can provide some things that dormant ties cannot, e.g., coordinating real-time information (e.g., Tsai, 2001). Nevertheless, dormant ties do offer the possibility of a wide variety of benefits, such as very useful advice (Levin et al., 2011), access to resources (Vissa, 2011), and other support (Quinn, 2013). Thus, when an

individual's dormant network is large, any additional active ties may not offer as much additional benefit over and above the potential benefits that the dormant network is capable of providing. When a focal individual (ego) has a small dormant-tie network, however, then he or she is likely to have more to gain by connecting actively with others, both in terms of access to other people's experiences and expertise and in terms of general goodwill and feelings of connectedness. The link between active ties and organizational commitment should thus be stronger when dormant ties are few in number, because the smaller dormant-tie network cannot provide as many viable opportunities for positive and productive interactions when the need arises. Conversely, I suggest that having more dormant ties can, at least to a significant extent, help fill the social support and advice gap created by having a small active-tie network, thereby reducing the impact of active ties on organizational commitment. In short:

Hypothesis 2: Active-tie centrality will interact negatively with dormant-tie centrality in predicting organizational commitment, i.e., the link between active-tie centrality and organizational commitment will be weaker when dormant-tie centrality is high.

A more nuanced view of relationship substitutability recognizes that ties are embedded within social structures that affect the resources that ties make possible. Broadly speaking, networks can be characterized as having more vs. less brokerage or closure (Burt, 2005). Network closure, which results from mutual, overlapping connections, helps to build trust and community and engender help-giving norms among group members. In particular, mutual connections help to build social identity, which in turn strengthens in-group loyalties, goodwill, and creates social obligations (Burt, 2005; Coleman, 1990; Lazega, 2001; Obstfeld, 2005; Reagans & McEvily, 2003). The contrasting structural argument, advanced by Burt (1992), suggests that

resources become redundant when relationships overlap. To Burt (1992), connections to non-redundant contacts should be more beneficial than closed networks, because the former provide access to new information and resources located across diverse social milieu. Arguments in favor of brokerage thus recognize the substitutability of certain relationships, relative to others, and the risk that redundancy will increase when two parties share mutual connections.

According to brokerage arguments, a mutual active connection in common between ego and a dormant contact implies a structural redundancy: ego could conceivably tap into the same information and resources by reaching out to the active contact, thereby rendering the dormant tie less useful. There are, however, several reasons to expect that mutual active connections will actually increase the subjective value assigned to dormant ties, rather than detract from it. Researchers note that individuals can experience considerable anxiety when they consider reconnecting with dormant ties (Walter, Levin, & Murnighan, 2014). This may be due in part to a weakened sense of common social identity and the fact that communication is no longer normative for the relationship. However, the presence of a mutual active connection between ego and a dormant tie can help maintain a shared social identity or community, thereby increasing the subjective value assigned to the dormant tie. The connection to the third party whom they both know in common could thus preserve the sense that the two parties have a social bond and will therefore help each other when needed (Coleman, 1990). The mutual active connection could also serve as a talking point—an icebreaker, as it were—that could make the prospect of reconnection more comfortable. This suggests that the presence of mutual active connections between ego and his or her dormant ties will increase ego's organizational commitment by strengthening the perceived

accessibility and potential efficacy of the dormant ties.

Hypothesis 3: Ego will have higher organizational commitment when he or she shares mutual active ties in common with ego's dormant contacts.

Dormant Ties as Residual Past Learning

Social network researchers have noted that current relationships continually transmit valuable, up-to-date information and knowledge (Soda et al., 2004). Indeed, research has linked recent social interactions to idea generation (Burt, 2004), behaviors (Felps, Mitchell, Hekman, Lee, Holtom, & Harman, 2009), and performance outcomes (Papa, 1990). In schools, for example, social networks diffuse information, knowledge, and behavioral norms (Coburn, 2001), which can lead to superior performance outcomes. Leana and Pil (2006) linked teacher social capital at the school level to student performance on standardized tests. Goddard, Goddard, and Tschannen-Moran (2007) also report higher student achievement scores for students enrolled in schools where teachers interact more regularly concerning school improvement issues. Collectively, these studies support the idea that teachers with larger social networks will be better informed and better equipped to deliver a high-quality education to students. An open question, though, is whether such large networks need to be actively maintained ties in order to be associated with higher performance, or if dormant ties can serve a similar function.

Some research suggests that the value of past relationships declines, in part because the exchanged information and resources become obsolete or broadly inaccessible. For example, Soda, Usai, and Zaheer (2004) report that active-network closure among companies in the Italian television industry had stronger performance effects than past ties, possibly reflecting the importance of staying up-to-date with

cultural trends. In the absence of reconnection, the value of dormant relationships is limited to what has already transferred, and certain types of information (e.g., coordinating activities, stock tips, job opportunities) may be very time sensitive and thus more susceptible to perishability. However, this is likely to not always be the case, as there is evidence that past relationships can affect behaviors, and create value, over protracted periods of time. McEvily, Jaffee, and Tortoriello (2012), for example, recently showed that the prior social experiences of lawyers, aggregated to the firm level, are associated with higher law-firm growth.

Indeed, the learning perspective of social networks (Collins & Smith, 2006; Levin & Cross, 2004; Reinholt, Pedersen & Foss, 2011) recognizes that relationships play an important role in storing and relaying important organizational knowledge (Argote & Ingram, 2000). A large body of research suggests that experiences, including social experiences, may have long-lasting effects on individuals' attitudes and behaviors (Dokko et al., 2009; Higgins, 2005; McEvily et al., 2012). Research on individual imprinting, for example, points to the persisting effects of lifetime experiences (Dokko et al., 2009; Higgins, 2005), particularly experiences that occur at sensitive, formative career stages (Marquis & Tilcsik, 2013). This research has highlighted the long-term consequences of imprinting at the individual level (Dokko et al., 2009; Higgins, 2005). From a learning perspective, therefore, socially acquired knowledge should accumulate over time and contribute to the stock of knowledge at an individual's disposal (Argote, 1999). This knowledge should continue to provide value to the extent that it remains directly or indirectly applicable to contemporaneous issues or problems.

In the case of knowledge-intensive work, social networks play an especially

important role not just in an employee's declarative knowledge (knowledge about something) but also in building procedural knowledge (knowing how to do something). For example, in the case of teachers, social networks are critical in helping teachers learn how to teach (Vonk, 1993; Wildman, Magliaro, Niles, & Niles, 1992), as there are likely to be many experiences and interactions that convey knowledge that creates enduring value. For instance, tacit, socially acquired knowledge for maintaining classroom discipline, engaging students, or improving parental involvement are likely to be relevant over long periods of time. Thus, having a large dormant network can indicate that an employee has obtained a considerable amount of enduring knowledge, separate from anything learned from the employee's current network. So even though they might seem invisible and thus irrelevant, a large number of dormant ties could be a sign of accumulated, still-useful knowledge. Over and above the effects of active ties, I therefore hypothesize:

Hypothesis 4: Dormant-tie centrality will relate positively to performance.

Scholars have argued that the effects of individuals' relationships have diminishing returns (McFadyen & Cannella, 2004). This may be due in part to time-consuming tie maintenance that can typically accompany active ties (McFadyen & Cannella, 2004). In addition, the declining benefits to experience may be indicative of knowledge saturation over time (Ng & Feldman, 2010; Walter et al., 2014). Because social networks generate value through their contributions to tacit and explicit knowledge transfer (Hansen, 1999), a larger stock of dormant ties could offset the benefits of active ties by contributing to a similar, overlapping base of knowledge. As a result, it may not be necessary to have a lot of both active and dormant ties, at least from the standpoint of acquiring essential, critical knowledge and skills needed to perform well.

As a darker possibility, dormant networks could also offset the benefits of active networks if they contribute to the formation of norms and thought processes and make individuals less receptive to new information and knowledge, including information and knowledge available in their current social milieu. Researchers have noted that organizational subgroups may hold very different assumptions and behavioral norms (Dougherty, 1992), which can make knowledge integration difficult (Ancona & Caldwell, 1992). Dokko and her colleagues (2009: 54), for example, found that knowledge acquired at one point in time can act as a cognitive anchor, inhibiting “responsiveness or [individuals’] ability to reflect in new situations.” A larger intra-organizational dormant network may thus not only indicate experience but formative relationships that imprinted cognitive schemas and behavioral norms. Because these norms were imprinted through social structure within the same organization, they may indicate not only earlier social learnings but also social validation. This validation may instill confidence in one’s approach, and make people feel less compelled to change or update in accordance with others. Accordingly, someone with a large dormant-tie network may not get as much of a performance benefit from connecting with additional active ties, because he or she has already learned a lot of useful knowledge previously. In addition, perhaps because of this greater knowledge, ego may become resistant to learning new things from active ties. In contrast, someone with a small dormant-tie network is likely to obtain much more useful knowledge from increasing the size of his or her active-tie network, as there is more to learn and, perhaps, a greater willingness to learn it. I therefore hypothesize⁴:

⁴ I note that I do not hypothesize an “active-tie closure surrounding dormant ties” effect for performance, as I did for commitment (H3), because my theoretical framework

Hypothesis 5: Active-tie centrality will interact negatively with dormant-tie centrality in predicting performance, i.e., the link between active-tie centrality and performance will be weaker when dormant-tie centrality is high.

METHODS

Research Design

My study was carried out in a mid-sized public school district (10 elementary schools; 4 middle schools; 4 high schools; a technical school; and a pre-kindergarten center) in the southeastern United States. In the second half of the 2012-2013 school year, all of the district's full-time educators (excluding administrators, e.g., principals and vice principals) were emailed a link to a survey with a unique user name and password that allowed them to log in to a confidential survey website. Educators were given professional development time to take the survey and were also offered a financial incentive to participate that was based on the response rate for their school. Participants were told by their superintendent, union president, and the research team that my survey centered on their past and present relationships throughout the entire school district. Upon opening the survey webpage, reading a consent form, and agreeing to participate, participants were first asked to answer a series of attitudinal questions that centered on school climate and organizational commitment, explained more thoroughly below. Following these questions, participants were presented with a set of instructions as well as an alphabetized and color-coded list of schools in the district. They were then asked to indicate all of the schools (including their own) in the

suggests that the performance benefit of dormant ties is based on past—not current or potential—learning. As a result, it seems unlikely that active ties would necessarily continue to enhance what already occurred previously.

district where they personally knew at least one person. Specifically, they were asked to select schools if there was at least one person with whom they currently communicate yearly or more frequently (i.e., active ties) or someone with whom they used to regularly communicate but with whom they had not communicated in any way for two or more years (i.e., dormant ties).

For each school selected, the names of employees affiliated with that school were subsequently presented as part of the survey. For example, if a survey taker indicated knowing or having known people in four separate schools, then the alphabetized names of everyone currently affiliated with those four schools would be presented, one school at a time, in subsequent survey pages. I randomized the presentation order of schools to minimize the possibility that contacts at certain ones would be disproportionately overlooked due to respondent fatigue. I alphabetized the order of names within schools to make it easier to find particular contacts. For each employee name listed, two answer options were shown next to the name: (1) “I currently communicate with this person on a regular basis (that is, yearly or more frequently)”;

(2) “I used to communicate with this person on a regular basis, but have not for two or more years.” I added the term “regular basis” as I did not want respondents to include people whom they had only met once or with whom they did not have an actual relationship. Given that participants were, at times, indicating the names of people with whom they had long lost touch, participants might fail to locate certain people. I tried to account for these names by asking participants to list the first and last name of up to ten additional dormant contacts. I used these ties to augment out-degree dormant-tie centrality size and to check the robustness of the models presented below; my results were unchanged. Finally, on subsequent pages that listed only the chosen

names, respondents were asked to indicate for each name (per Levin & Cross, 2004) whether they “trust that this person will always look after my best interests” (no, neutral, or yes).

Although the dormancy cut off of two years is subjective, this decision was informed by prior network research as well as interviews with several teachers. Social network studies have often set temporal boundaries on measured ties. For example, Perry-Smith (2006: 90) asked respondents: “Thinking back over the past two years, with whom do you communicate about work related topics.” Forret and Dougherty (2001) limited ties to those for which communication had occurred within the past year. Ibarra (1992: 431) asked respondents to indicate people within the company “that you have personally talked to over the past couple years when you wanted to affect the outcome of an important decision.” Other researchers have avoided specific time frames but nevertheless employ an active tense in soliciting network relations. Moolenaar, Daly, and Slegers (2011: 1993) requested that participants indicate: “Whom do you go to for (work related) advice?”; “Whom do you go to for guidance on more personal matters?”. To measure friendship, Ibarra (1992: 431) asked respondents to name people in the firm “who are very good friends of yours, people whom you see socially outside of work.” Presumably, these network prompts would have excluded dormant ties, as operationalized in this study. I also asked three teachers (at another school district, so as not to bias the sample) to indicate when they thought a tie should be considered inactive or unmaintained. One teacher suggested that ties should be considered dormant after a year without communication. The two other interviewees countered that a year without communication would not be a sufficient amount of time, given that periodic events, including professional development gatherings, could bring

teachers together at dispersed but still regularized intervals. They suggested setting the threshold at two years, which is what I ultimately used.

Sample

One school was excluded from my sample—a technical high school that used a non-traditional curriculum and taught non-traditional students, including many adults. My network data also showed that these educators were aloof from the district’s other schools. For the remaining 19 schools, I took additional steps to clean the data. First, as negative ties can have a distorting effect on network samples (Labianca, Brass, & Gray, 1998), I excluded the 3.2% of dormant ties (and 1.5% of active ties) where one or both parties indicated “no” for the trust item, i.e., I focused all analyses only on neutral and/or trusted ties. This approach is also consistent with my theory, which focuses on potential assistance and prior learning, which are unlikely to be associated with distrusted ties. Second, my definition of dormant ties meant that such a tie could only exist for educators who had been in the district for two or more years. I retained the social network responses of first- and second-year educators, thus affecting the in-degree centrality scores for other, more senior educators in the sample. However, attitudinal responses and performance outcomes for newer educators were excluded. Finally, four respondents had peculiar response patterns: three reported having hundreds of dormant ties but no active ties, despite still working in the district; and one was an outlier that reported in excess of 300 active ties (11 standard deviations above the mean). To be cautious, I excluded these four; however, my results were unchanged. This left 700 surveys out of 973 employees (response rate = 72%) in the 19 schools.

The sample of responses used in my analyses was further reduced because of missing control data (i.e., education data and tenure data were not available for all

employees, due to missing Human Resource records) and the fact that performance data was only available for a particular category of employee (language arts teachers). This required me to analyze the data in two ways: one for models predicting organizational commitment and a second for models predicting performance. My models predicting organizational commitment include 565 responses. To alleviate concerns about non-response bias, I ran *t*-tests to see if these 565 respondents were demographically different (e.g., education level, years in district) from the larger sample; they were not. I also ran models predicting organizational commitment without the sometimes-missing control variables, i.e., models that incorporated all 700 surveys; my hypothesized results were unchanged.

My models predicting performance include data from 97 teachers. This reduction in sample size is due largely to the fact that performance assessment was newly implemented in the district, and so student-reading performance data—with matched performance data for the same students the year prior—were available for only a subset of teachers. Specifically, after accounting for the control variables and prior-year (baseline) student performance, I had 99 observations. I had social network surveys from all but 2 of these teachers, thus yielding 97 observations usable for analysis. Although I detected no demographic differences, I did notice that active networks tended to be smaller in this “performance sample” ($M=30.78$) compared to the full sample ($M=37.42$). I was informed by school leaders that these discrepancies were because the full sample incorporated a range of education professionals—school counselors, nurses, special needs teachers, learning consultants, etc.—who tend to have larger networks because their job responsibilities require them to communicate broadly throughout the school and sometimes outside of the school. Indeed, there were no

differences once I limited the comparison to just teachers. While these other professionals may have more diverse and broad-spanning collaborative obligations, language-arts teachers do communicate significantly within and across grades, and also coordinate with counselors and other professionals. Thus, I believe that this sample remains broadly appropriate for testing our performance-related hypotheses.

Measures

Main predictor variables: Active- and dormant-tie centrality. My network data yielded two non-symmetrized matrices: (1) high- and neutral-trust active ties; (2) high- and neutral-trust dormant ties. I dichotomized these matrices, with neutral and trusted ties coded as one, and all other cells, zero. The data were imported into UCINet (Borgatti, Everett, & Freeman, 2002), where degree centrality measures were created for each type of network. Degree centrality can be understood as the number of connections reported around each actor in the network. One variant of centrality, out-degree centrality, represents the number of connections that an actor reports about others. For example, if ego indicates 20 active ties and 5 dormant ties, then ego's out-degree centrality scores for active and dormant would be 20 and 5, respectively. In-degree centrality, by contrast, represents the number of connections reported by others about ego. For example, if 20 survey takers indicate an active tie with ego, and 5 indicate a dormant tie with ego, then ego's in-degree centrality scores would again be 20 and 5, respectively.

A potential limitation of in-degree centrality is that ego's networks may be underrepresented if other parties in the network overlook, or forget, ego's name. In particular, the potential for overlooked names may be especially problematic for dormant relationships, since much of my theorizing concerns the subjective

significance that people assign to their dormant ties. By contrast, a benefit of in-degree centrality over out-degree centrality is that it is not susceptible to self-report biases, such as when individuals over-represent their role in the network (see Kumbasar, Rommey, & Batchelder, 1994). Out-degree centrality scores may also suffer from common-method concerns, particularly in studies with attitudinal outcomes, such as mine. For example, ego might perceive greater organizational commitment because my network prompt has forced ego to consider these social resources, thus rendering them more salient than they would be otherwise. However, given my theoretical interest in people's perceptions of their network of dormant ties, I focus on respondents' out-degree centrality scores (but I report results for in-degree centrality as well).

Predictor variable: Percentage of dormant ties with mutual active connections. I used the active and dormant tie data to calculate the percentage of dormant ties for which at least one mutual connection was present. This measure consisted of a percentage for each respondent, in which the denominator was the total number of dormant ties in ego's network, and the numerator was the number of dormant ties for which there was at least one mutual active contact between ego and a given dormant contact. In creating this measure, I chose to use ego's perception of his or her dormant and active network, given that ego's perceptions are likely to drive his or her attitudes. In accounting for third-party ties, however, I used symmetrized data, i.e., I assumed that a tie exists if either party indicated its presence. This was an effort to account for mutual active connections as thoroughly as possible. One limitation of this measure is that it is not sensitive to multiple mutual active connections between ego and a dormant contact, e.g., a dormant tie is considered to have a mutual active connection if one active tie is shared, or if twenty are shared. However, I felt my theory

was most consistent with the idea of two people knowing no one (versus anyone) in common, as this seemed the most relevant to enhancing the perceived accessibility and potential efficacy of dormant ties.

Dependent variable: Organizational commitment. I measured organizational commitment by taking the average of two survey items adapted from Meyer, Allen, and Smith's (1993) measure of affective organizational commitment: (1) "I am emotionally attached to my school district" and (2) "I would be very happy to spend the rest of my career in my school district." (Cronbach's $\alpha = .88$), on a scale from 1 = strongly disagree to 7 = strongly agree. I focused on the overall district—rather than the school—as the relevant organization because, over the span of their careers, educators often switch schools within their district (Guarino, Brown, & Wyse, 2011). Movements to other schools may be preferable to leaving the district, as tenure, salary level, benefits, and district knowledge are generally portable within a school district but not necessarily between districts. Accordingly, just like with the network questions, I measured organizational commitment to the overall school district, rather than to a particular school location.

Dependent variable: Performance. The school district administered standardized reading assessments to students in grades 2 through 12 in May of the 2011-2012 and 2012-2013 school years. At the end of each school year, teachers were assigned a value, representing the percentage of their students who passed the reading assessment. I then linked this value with the percentage of those same students who passed their reading assessment the previous year. Thus, by controlling for prior-year performance, I can treat the focal year's results as a measure of the teacher's job performance (see Leana & Pil, 2006; Pil & Leana, 2009).

Control variables. All models control for the number of years that each employee worked in the district, given that tenure in the district may affect social network size, attachment, and performance. I also control for education (bachelors = 1; masters = 2; doctorate = 3). At the school level, I control for school type (elementary, middle, high school) and poverty, operationalized as the percentage of students on reduced or free lunch. As noted above, I also control for the percentage of students in a teacher's class who passed the reading exam the prior year, to control for baseline student performance. Models predicting organizational commitment also include a dummy variable to control for whether or not an employee is a traditional K-12 teacher (coded 1) or not (0), such as a counselor, nurse, etc.

Statistical Analyses

I used hierarchical linear modeling (HLM) in Stata 13 for hypothesis testing, given that employees in my study were nested within 19 school locations (18 for the performance outcome). HLM helps to account for the possibility that my dependent variables are affected by location-level characteristics, resulting in correlated standard errors, which would violate one of the assumptions of ordinary least squares (OLS) regression (Luke, 2004). HLM thus allows me to account for and assess individual- as well as location-level effects. As is typical with HLM, all predictor variables have been grand-mean centered for their respective samples.

RESULTS

[Insert Tables 2-6 and Figures 1 and 2 about here]

Table 1 presents descriptive statistics and correlations for the 565 observations used in the organizational-commitment regression models, which are shown in Table 2. Model 1 shows the impact of the control variables: years of experience in the district

($p < .01$) and active-tie centrality ($p < .001$) are positive and statistically significant, while teacher job title shows a negative significant association ($p < .001$). Model 2 introduces dormant-tie centrality, which is positive and statistically significant ($p < .001$), as predicted by H1. (I also tested for curvilinear effects but found none.) Model 3 presents the interaction effect between active-tie centrality and dormant-tie centrality; this interaction effect is negative and significant ($p < .001$), supporting H2. Specifically, and as shown in Fig. 1, I find that the effect of active-tie centrality on organizational commitment is weaker when dormant-tie centrality is at higher levels (and likewise that the effect of dormant-tie centrality on organizational commitment is weaker when active-tie centrality is at higher levels). These findings lend support to the idea that people see intra-organizational dormant ties as viable alternatives, especially when their active ties are in short supply. Consistent with H3, the percentage of ego's dormant ties with mutual active connections is positive and statistically significant in Model 4 ($p < .05$), suggesting that dormant ties have a greater impact on organizational commitment when ego and the dormant contact have a mutual active tie in common.

Performance regressions are shown in Table 3. Control variables are entered in Model 5. At the location level, dummy variables for elementary ($p < .001$) and middle school ($p < .001$) are positive, suggesting that performance growth is generally lower in high schools. Not surprisingly, school poverty is negative and significant ($p < .001$). At the individual level, prior-year student performance ($p < .001$) and active-tie centrality ($p < .01$) are positive and fully significant. Dormant-tie centrality, entered in Model 6, is not statistically significant. However, an analysis of simple slopes shows that the effect of dormant ties on performance is positive and significant ($p < .05$) when the amount of active ties is small (at -1 SD). This suggests that people may indeed benefit from their

dormant ties but that these benefits are limited to when active ties are in short supply; in this case, the region of statistical significance ($p < .05$) for dormant ties occurs when ego has fewer than two-dozen active ties (i.e., 23.2 or less). As predicted by H5, the interaction term entered in Model 7 is negative and significant ($p < .05$). The plotted interaction (Fig. 2) shows that active-tie centrality has weaker performance effects when dormant ties are in greater supply.

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 INSERT TABLES 1, 2, 3
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[=====]
 INSERT FIGURE 1, 2
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Supplementary Analyses and Robustness Checks

Unpacking high and neutral trust. In post-hoc analyses, I was curious to examine the effects of the separated network variables – i.e., high trust active and high trust dormant ties and neutral trust active and neutral trust dormant ties. After entering the four separate centrality measures into the same model, along with the standard control variables, high trust active ties showed the strongest significant association, followed by neutral trust active ties and high trust dormant ties. Interestingly, the effects of neutral trust active ties and high trust dormant ties are nearly identical to one another and are about 70% high trust active ties. Dormant ties rated as neutral in trust did not show a significant association to commitment. To further distinguish the effects of high and neutral trust dormant ties, I also entered them separately as moderator variables with the active tie centrality measure that combined high and neutral trust. Here, I find

that high trust dormant ties moderate the relationship between active ties and organizational commitment but neutral trust dormant ties do not. Taken together, these results seem to underscore the importance of trust for dormant ties in particular. People who actively communicate often have organic opportunities to acquire information or resources from one another. People who actively communicate are likely to be physically proximate, functionally interdependent, and/ or share a common affiliation (e.g., a team), for example. All of these factors enhance access potential because they encourage interactions in which organizational or job-related information organically transpires. In comparison, communication between dormant ties is necessarily uncommon and often inconvenient. Their benefits are generally dependent on reactivation – deliberate initiation by one party to reach out to the other. People may be reluctant to utilize weaker dormant ties, which diminishes their subjective value.

I also separately examined performance effect sizes for high and neutral active and dormant ties. Here, both high and neutral trust active ties associate with higher performance (high trust active ties carries the stronger effect) but neither high nor neutral trust dormant ties show significant associations to this outcome on their own. In terms of the moderation effects, high trust dormant ties interact negatively and significantly with active ties (high and neutral trust combined) but the interaction between neutral trust dormant ties and active ties is not significant at conventional levels. A basic prediction of social network theory is that strong, cohesive social bonds will lead to a convergence in attitudes and behaviors because frequent, intense interactions reinforce ideas and opinions and create conformity pressure (Burt, 1987). In this light, one possible explanation for the latter finding is that more positive dormant ties had stronger effects on imprinting than neutral dormant ties. In turn, I

speculate that these positive dormant ties may have been “stickier” in terms of instilling norms and behaviors that made people less willing or able to draw from their active networks in productive ways (e.g., incorporating new ideas to improve classroom instruction).

Probing causality in performance models. One challenge in this study is assessing causality with cross-sectional data. This is particularly true for teacher performance, where the direction of causality could conceivably run in the direction opposite from that hypothesized. For example, high quality teachers may have been solicited for advice more often than lesser quality teachers or may have acquired a larger network because of their prestige, in which case larger networks may be a result of high performance rather than vice versa. Although controlling baseline student performance should help to assess a teacher’s contribution to a student’s academic growth compared to the previous year, this control does not account for the possibility that certain teachers will tend to be better, on average, than their colleagues, and that their superior quality leads to larger networks. I note that the direction of causality should be less of a concern for dormant ties because I did not observe significant direct performance effects for dormant ties. Nevertheless, post hoc analyses were conducted to determine the robustness of the performance models, specifically the association between active ties and performance, by controlling for baseline teacher performance.

I attempted to control for baseline teacher performance by assessing and teacher contributions to student scores in 2012, the year prior to our study. Specifically, I calculated the residuals from an HLM regression that controlled for context (school, SES) variables and student performance in 2011 and entered the residuals from this model as covariates in original performance model (the same model shown in Model 7

of Table 3). Unfortunately, due to missing data, this control variable reduced the sample size by roughly 20%, to 80 observations. Nevertheless, the results (coefficients and p-values) from my theoretically important predictor variables are similar to the original specification presented above: Active-Tie Centrality associates positively with performance ($p < .01$) and the interaction term is negative and statistically significant ($p < .05$). As one exception, the direct effect of dormant ties actually becomes positive and marginally significant on its own with the baseline performance control. In this way, while I cannot assess performance affects overtime, I was able to ameliorate some of my concern about reverse causality by including baseline teacher performance as a covariate in my main performance model.

In-degree centrality. As a further robustness check, I analyzed the models using in-degree centralities for high and neutral trust ties, i.e., connections that were reported by others about ego, rather than vice versa. The story was largely consistent with that presented above: Active ties and dormant ties (high and neutral trust) associated positively with organizational commitment and the interaction was negative and statistically significant. As an exception, the measure for mutual active ties was not significant using in-degree centrality. However, I note that ego's perception of her dormant ties (reflected in out-degree centralities) should have more relevance to ego's organizational commitment than other's perceptions of those ties. For performance, active ties (high and neutral trust) associated positively with organizational commitment but dormant ties showed no association. Here, while the interaction between high trust and neutral active ties and high trust and neutral dormant ties was not significant at conventional levels, the interaction between high and neutral active ties and high trust dormant ties was significant. This finding makes sense: stronger

dormant ties are more likely to be remembered (and indicated) by others. These ties are likely to have had the strongest imprinting effects, and thus are the most likely to affect behaviors in the present day.

DISCUSSION

Empirical and theoretical research on the historical nature of social networks is limited. These oversights constrain our understanding of social networks' benefits and, in turn, our understanding of organizational theory. Although recent research has begun to explore the benefits of reactivation after long periods of dormancy (Levin et al., 2011), there is little research available on dormant ties that remain inactive at the point of research. Moreover, the artificial, experimentally induced reconnections used in earlier research will not necessarily occur organically. My aim in this study has been to place social network scholarship on a stronger empirical and theoretical footing by examining the interaction of active and dormant ties within organizations – dormant ties that remain inactive at the point of research. I developed and tested a series of hypotheses relating to the prospective and realized potential of social networks. Taken together, my findings challenge the dominant view that dormant ties are irrelevant relics of social network structure with little bearing on organizational attitudes and behaviors in the present. I find that they have important implications for workers and organizations, even in the absence of reconnection.

My results using network centrality (whether out-degree or in-degree centrality) show a direct effect for dormant ties on organizational commitment, as well as a negative interaction effect between dormant ties and active ties. As shown in Figure 1, I find that the effect of active ties on a person's organizational commitment is

significantly weaker when that person's dormant ties are more numerous. Conversely, the effect of dormant ties on organizational commitment is weaker when active ties are more numerous. This suggests that active and dormant ties may be partially substitutable in individuals' minds. That is, when active relationships are plentiful, people may not spend a lot of time considering their dormant ties, because social and professional needs can be fulfilled conveniently via the person's current social milieu. When active ties are sparse, however, dormant ties may represent viable opportunities for positive and productive social interactions. Therefore, dormant ties may help to close the social or professional support gap that people can experience when they have a small active-tie network.

My research also highlights the importance of baseline familiarity and trust, particularly for dormant ties. I found that high and neutral trust, acquaintance active ties and high trust dormant ties predicted organizational commitment but not dormant ties with neutral or non-positive trust levels. I suspect that this reflects the fact that active ties can facilitate benefits, including information and resource access, organically throughout the workday. People who actively communicate often do so because it is convenient – because they are proximate to one another, for example, or brought together by a common workplace institution or affiliation. This may have once been so for dormant ties, but, if it was, it is no longer. Absent a serendipitous chance encounter, gaining support from one's dormant ties generally requires that one party takes initiative and reaches out to the other (e.g. Levin et al, 2011). I suspect that people will be hesitant to reestablish contact (e.g., advice, a favor, or emotional support) with dormant contacts, particularly if they were close, and therefore will not attribute a lot of potential value to these ties. A strong baseline of trust may be necessary if dormant ties

are to be seen as viable resource channels.

The importance of relationship maintenance has presented a tension in the literature because it implies that—due to maintenance stressors and information overload (see Brass et al., 2004; Oldroyd & Morris, 2012)—individuals will be essentially taxed for increasing their network linkages. One implication of these findings is that initial investment and initial maintenance may be sufficient in some cases, at least for certain network advantages. Initial investments may help to transfer knowledge about what people know, or can access. They may also facilitate a baseline of familiarity and trust, which can then be selectively called upon as the need arises.

I also find a positive link between having mutual active connections with dormant ties and organizational commitment. This is consistent with the idea that mutual connections may help to fortify social identities, commitments, and assistance expectations. In the case of this study, mutual active connections to dormant ties may keep dormant ties top-of-mind as potential information and/or resource channels. This may be because the mutual active connection(s) mention the dormant tie periodically, which may keep one party apprised of what the other is up to and thus how he or she could potentially help. The finding may also reflect people's feeling more comfortable reaching out to dormant ties when they share mutual active ties, perhaps because the active ties represent a common ground, or talking point, between them. More to the point, this could reflect an expectation on the part of ego that the dormant contact (alter) will be more inclined to view ego favorably or offer assistance because of a shared social identity or social monitoring by the third parties who are actively tied to both ego and alter. I encourage future researchers to tease apart these potential mechanisms more thoroughly.

One broader theoretical implication of this finding is that the effects of dormancy on relationship viability are not purely dyadic but sensitive to surrounding network structure as well. Indeed, most scholarship has viewed relationship maintenance as a process that occurs between two parties (e.g., Adler & Kwon, 2001; Nahapiet & Ghoshal, 1998; Soda et al., 2004). A relationship decays (Burt, 2001) or becomes dormant (Levin et al., 2011) when two parties fail to interact with one another for an extended period of time. The finding suggests that ongoing communication between ego and a mutual connection provides a kind of relationship “preservative” that keeps the viability of the dormant tie, even without any direct maintenance or communication. An important corollary question for future research, then, is whether, as I suspect, this mutual-active-connections effect would extend from dormancy to reconnecting, i.e., are dormant ties more likely to help, after being solicited by ego, if there are mutual active ties in common?

In addition to potential value, based on the prospect of future reactivation, social networks may represent realized value at particular points in time through social exchanges that have already occurred. The predominant focus by social network researchers on recent, active relationships takes the view that the information, knowledge, and resources that transfer through relationships are fully or at least significantly transient: whatever knowledge someone acquires today will lose relevance, and value, as time passes (Soda et al., 2004). I examined the durability of network benefits via their contributions to workplace performance. Consistent with the idea that there are transient returns to network benefits, I found direct performance effects for active-tie centrality but not for dormant-tie centrality. However, I found that dormant ties do have implications for workplace performance indirectly through their

interaction with active-tie networks: Specifically, the effects of active ties on performance were weaker when dormant ties were more numerous, an effect that held even after controlling for years of experience. Interestingly, the interaction between high trust dormant ties and active ties was stronger and more significant than the interaction between neutral trust dormant ties and active ties.

These results lend some support to the idea that social networks facilitate social learning but also suggest a possible dark side to socially acquired knowledge. One possibility is that effectiveness in certain jobs, including teaching, requires a baseline of knowledge that stays relevant during large portions of one career but that the benefits of knowledge networks taper off once this foundation is in place. However, some research suggests that teachers (and ultimately their students) continue to benefit when they invest in learning and professional development over their careers (Doering, Veletsianos, Scharber, & Miller, 2009). In this light, another, darker possibility is that dormant ties represent not only social learning but also social confirmations that one's approach is normatively acceptable within an organizational system. In this view, it may be the case that, for example, a teacher's dormant ties conveyed how to use games to maintain classroom discipline or how to use technology to engage students in lessons. Because this knowledge was acquired from other educators within the same organizational system, a teacher can be more confident that other educators are using a similar approach with success and acceptance. However, this latent assurance from intra-organizational dormant ties may also make people less receptive to new knowledge, a topic which future researchers may wish to explore more fully.

Like all research, this study has certain limitations. For example, the direction of causality is a concern for some of my models, particularly models predicting teacher

performance: Teachers may have larger networks because they are stronger teachers, which draws people to them. However, the data for social capital were collected (in May) before the performance data were released (in August), which, as noted by Leana and Pil's (2006) study of elementary schools, lends some support for causality. Moreover, in robustness checks I tried to account not only for prior year student performance but also prior year teacher performance. A second limitation in this study pertains to the (admittedly subjective) threshold used to operationalize dormant ties: two years since the time the two parties last communicated. I feel that this threshold is justifiable given that these ties would be excluded from the vast majority of social network studies. Moreover, as noted, the threshold was informed by teacher interviews. It seems likely, however, that the effects of relationship dormancy operate along a continuum—that relationships become more dormant as time passes without interaction and that this could have affected the results. I did not ask participants to indicate how much time had passed since they last communicated with each and every dormant contact in their social network, in large part because the survey instrument was already long and cognitively taxing. However, the significant correlation between tenure and dormant-tie centrality suggests that my instrument captured a broad array of dormant ties, ranging from more recent to very distant. Moreover, I note that Levin et al. (2011) did not detect a difference in the value of reconnected ties that had been dormant for more vs. fewer years. I encourage future researchers to unpack these relationships in greater depth, including how the extent of dormancy may or may not influence perceptual and behavioral outcomes.

Third, the potentially idiosyncratic nature of the research setting presents another limitation. My study sought to understand the implications of dormant ties

within organizations. A school district provides a particularly suitable setting for this research in part because employment stability in public education is fairly high among teachers, at least among teachers who make it past the initial few years (Mark & Anderson, 1985). Moreover, while teachers often transition between schools within larger districts (e.g., Feng, 2009), localized tenure, benefits, and district-specific knowledge provide strong incentives to stay within a district. Thus, it is possible that intra-organizational dormant ties will be more abundant in larger school districts than other occupational settings. This may serve as a positive inasmuch as a relative abundance of dormant relationships allowed us to better assess their effects. A more serious limitation may pertain to the generalizability of my observed effects. Education scholars have noted, for example, that knowledge stability has traditionally been high for teachers—that is, the things that teachers need to know to be effective are similar today to what they were 10 or 20 years ago (Neuman & Weiss, 1995). This stability has changed in recent years, however, as policy initiatives (including No Child Left Behind, Race to the Top, and Common Core Standards) have radically overhauled how and what teachers are required to teach (Ainsworth & Anderson, 2013). This suggests that this setting may not be so different after all, in terms of knowledge stability, to other fast-paced or knowledge-intensive industries. Future researchers should examine the attitudinal and behavioral implications of dormant ties across a broader range of organizations and settings.

In terms of future research, it is also important to understand how individuals and organizations can strategically leverage dormant ties. Employees are reluctant to utilize dormant ties, even though reactivation can be beneficial (Levin et al., 2011). Organizations that foster re-connection norms may ameliorate problems associated with

network overload. A large dormant network may also allow individuals to be more selective in their network decisions, targeting people who are best suited to address their problem as opposed to those who are proximate and convenient. This can have important implications for individual and organizational outcomes. Social scientists have shown that online technologies, including Facebook, contribute to a kind of “maintained social capital” (Ellison, Steinfield, & Lampe, 2007; Wohn, Lampe, Wash, Ellison, & Vitak, 2011), which may prolong familiarity and potentially make reconnection easier. These technologies may present opportunities for organizations to preserve network linkages.

CONCLUSION

It has long been seen as axiomatic that only ties that are active (or reactivated) can affect organizational attitudes and behaviors. I present evidence that challenges the standard assumption in the social capital literature that dormant ties can be safely ignored. I find that dormant ties have implications for organizational attitudes and performance-affecting organizational behaviors, particularly in their interaction with active ties and when they are high in trust. I also find evidence that the prospective value that people assign to dormant ties depends on there being mutual active ties in common. As a result, I believe that both practitioners and scholars would benefit from examining the role of dormant networks, and not just current, active networks, when trying to understand how people will feel, think, and perform in the future.

Figure 1: Predicting Organizational Commitment

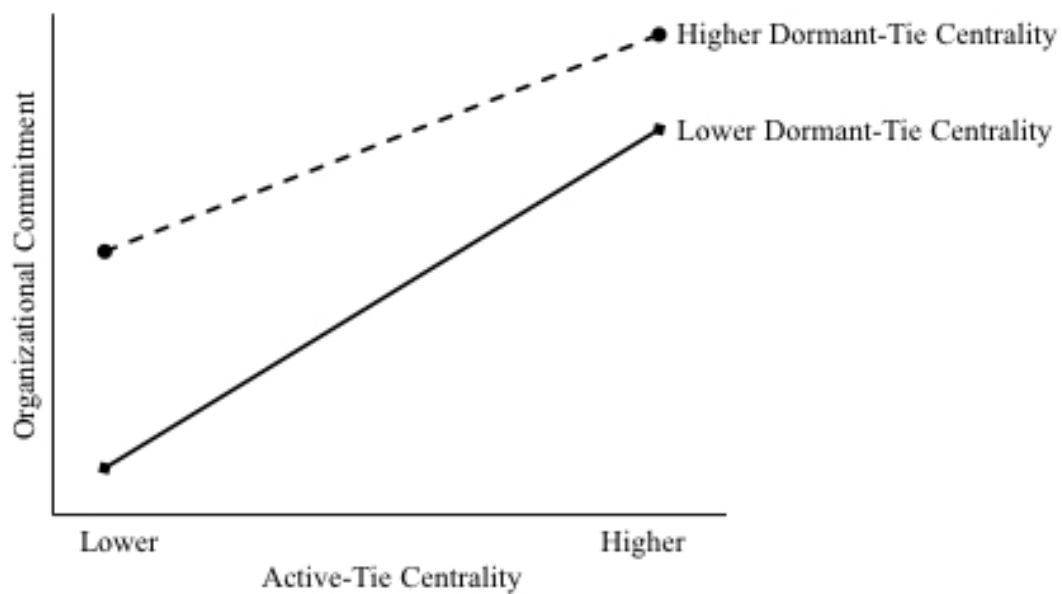
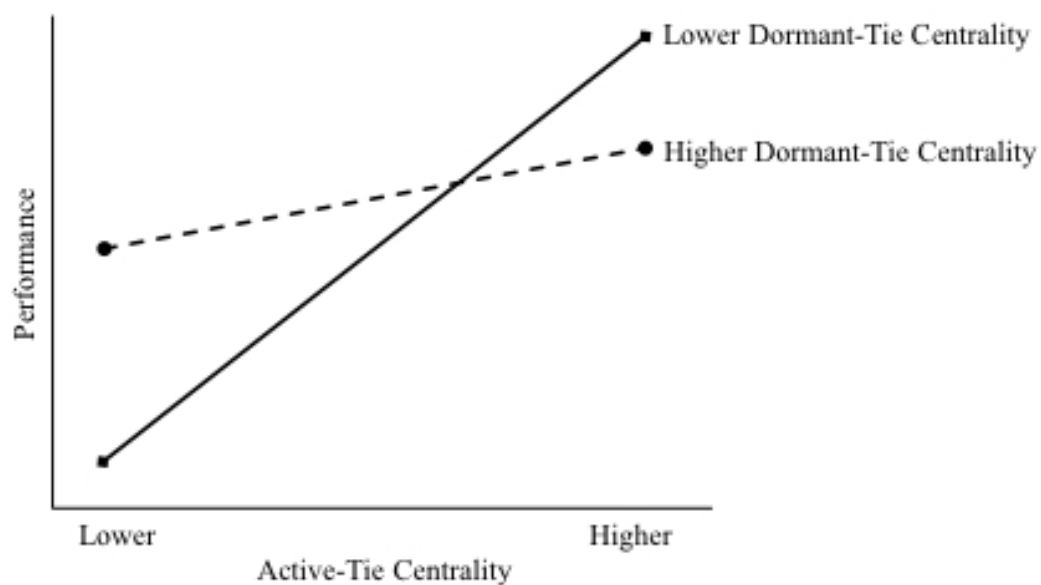


Figure 2: Predicting Performance



Note: Based on Table 3's Model 3 (for Fig. 1) and Table 5's Model 7 (for Fig. 2). Slopes calculated for lower dormant-tie centrality at the minimum value (i.e., zero dormant ties); for higher dormant-tie centrality, at one standard deviation above the mean.

Table 1: Descriptive Statistics and Correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Organizational commitment	5.06	1.80									
2. Elementary school	0.56	0.50	.02								
3. Middle school	0.20	0.40	.05	-.57*							
4. School poverty	63.73	11.26	.07	.43*	-.08						
5. Years in district	13.28	7.96	.12*	-.06	.02	-.08*					
6. Education	1.47	0.52	.07	-.02	.00	.07	.23*				
7. Teacher job title	0.87	0.34	-.21*	-.05	-.02	-.01	-.03	-.04			
8. Active-tie centrality	37.42	24.05	.36*	-.03	.02	-.06	.10*	.05	-.36*		
9. Dormant-tie centrality	8.40	13.46	.24*	.00	.00	-.07	.15*	.02	-.01	.32*	
10. Percentage of dormant ties with mutual active ties	0.83	0.26	.18*	-.01	.05	.03	.05	.03	-.11	.30*	-.02

Note: Two-tailed test. $N = 565$ for variables 1-9; $N = 362$ for variable 10.

* $p < .05$. |

Table 2: Predictors of Organizational Commitment

	Model 1	Model 2	Model 3	Model 4
<i>Level 2 (Location Level)</i>				
Elementary school	0.105 (0.249)	0.079 (0.245)	0.049 (0.249)	-0.274 (0.195)
Middle school	0.288 (0.206)	0.279 (0.198)	0.262 (0.192)	-0.254 (0.284)
School poverty	0.013 (0.010)	0.014 (0.010)	0.015 (0.009)	0.025*** (0.009)
<i>Level 1 (Individual Level)</i>				
Years in district	0.020*** (0.008)	0.016** (0.008)	0.015* (0.008)	0.0004 (0.0098)
Education	0.080 (0.160)	0.089 (0.164)	0.091 (0.164)	0.225 (0.162)
Teacher job title	-0.501**** (0.129)	-0.594**** (0.121)	-0.569**** (0.125)	-0.584**** (0.178)
Active-tie centrality	0.024**** (0.003)	0.020**** (0.004)	0.022**** (0.003)	0.015** (0.007)
Dormant-tie centrality		0.020**** (0.004)	0.025**** (0.004)	0.030**** (0.005)
Dormant-tie centrality * active-tie centrality			-0.0004**** (0.0001)	-0.0003** (0.0001)
Percentage of dormant ties with mutual active ties				0.809** (0.364)
Constant	5.064**** (0.056)	5.064**** (0.055)	5.107**** (0.063)	5.089**** (0.072)
Pseudo-R ²	.13	.15	.18	.24
Observations	565	565	565	362
Number of locations	19	19	19	18

Note: Unstandardized HLM coefficients shown with robust standard errors in parentheses. Predictor variables grand-mean centered for the full data sample.

**** $p < .001$; *** $p < .01$; ** $p < .05$; * $p < .10$

Table 3: Predictors of Performance

	Model 5	Model 6	Model 7
<i>Level 2 (Location Level)</i>			
Elementary school	22.436**** (5.412)	22.577**** (5.439)	24.964**** (5.411)
Middle school	21.056**** (3.893)	21.072**** (3.989)	22.287**** (3.519)
School poverty	-0.795**** (0.225)	-0.807**** (0.225)	-0.825**** (0.207)
<i>Level 1 (Individual Level)</i>			
Prior-year performance	0.601**** (0.093)	0.599**** (0.094)	0.593**** (0.090)
Years in district	-0.759* (0.394)	-0.670* (0.383)	-0.779** (0.373)
Education	9.263* (4.838)	8.863* (4.887)	9.006* (4.675)
Active-tie centrality	0.402*** (0.150)	0.437** (0.177)	0.456*** (0.170)
Dormant-tie centrality		-0.149 (0.145)	0.108 (0.103)
Dormant-tie centrality * active-tie centrality			-0.020** (0.008)
Constant	53.010**** (1.867)	53.010**** (1.835)	54.667**** (2.168)
Pseudo-R ²	.52	.53	.56
Observations	97	97	97
Number of locations	18	18	18

Note: Unstandardized HLM coefficients shown with robust standard errors in parentheses. Predictor variables grand-mean centered for the data used in these models.

**** $p < .001$; *** $p < .01$; ** $p < .05$; * $p < .10$

CHAPTER VII: GENERAL DISCUSSION

The concept of social capital evokes the relational complexity of social and economic life – the reality that resources, attitudes, behaviors, opportunities, etc, are deeply engrafted in communities and social relations and that the nature of ties affects access and opportunities. Communities and their constituents are impermanent, migratory. People move in and out of social environments throughout their lives – from birth, through early and later schooling, across various jobs and employers, and into retirement and old age. Relationships have implications at every point in time. Foundational network theory asserts that their influence will hinge on structural characteristics of ties (e.g., closure, brokerage), relational characteristics between actors (e.g. trust, shared goals), as well as characteristics of individuals (e.g., ability, motivation) that predispose the pursuit or receipt of assistance. Naturally, these properties should morph with time and social migration. However, the vast majority of research has examined social cross-sections. Popular theory has been skeptical about the influence of the social past.

A critical theoretical challenge, however, is to understand how networks in the aggregate interact and bear influence. An empirical challenge is to simplify, so as to measure, while accounting for theoretically meaningful complexities. The argument guiding this dissertation is that prevailing focus on contemporaneous ties has constrained social network research because it has ignored potentially dynamic interactions between the distant past, the recent past and present, and the potential future. As cited, recent research hints at the benefits of a historical perspective of social capital but evidence and

theory are in short supply. This dissertation was an effort to understand the temporal nature of social capital in a fuller, more theoretically informed way by examining the social past alongside the social present.

Toward this end, the first part of this dissertation sketched a theoretical framework for why relationship maintenance might preserve social capital. My motivation here was to elaborate possible mechanisms by which acts of relationship maintenance bear influence – indeed, most scholarship has taken these assumptions as a given, offering little in the way of rationale. I argued that relationship dormancy could potentially adversely affect network benefits in three distinct ways.

1. **Assistance motivations:** People might become less motivated to invest time and energy to help others with whom they've lost touch, which could adversely affect ego's capacity to draw benefits from his or her social network.
2. **Recognition and pursuit:** People might be less inclined to view other people as viable and potentially valuable social resources after they've lost touch, possibly affecting their willingness to reach out and seek assistance in the first place.
3. **Resource and information decay:** Relationships' benefits are time sensitive. It is possible that socially acquired information or resources lose value or influence over time.

The first two points refer to the future potential of ties – the fact that the potential embedded in ties may atrophy as time passes without investment. The third refers to the durability of influential social interactions that have already occurred. I used this framework to suggest that a historical perspective of social capital might be warranted to

the extent that a preceding condition was not true, or was true with theoretically meaningful qualifications. First, for example, assistance motivations might preserve through relationship dormancy, such that people are motivated and willing to invest time and energy to help people with whom they've lost touch. Second, people may continue to view their dormant ties as viable and potentially valuable support or opportunity channels and may willing to reach out, if they feel it warranted. Third, information, resources, or opportunities acquired at earlier points in time retain value or influence for protracted periods of time, even if communication no longer persists. The two studies above addressed these three possibilities. Taken together, the results indeed support a historical perspective of social capital – one in which the social past preserves, subjectively and actually, for extended periods of time. Some results indicate interesting interactions – in particular, that the social past affects the potential and influence of the social present.

In broad outline, the results suggest that assistance and assistance motivations do indeed endure through relationship dormancy, though possibly in a weakened form. Although people reported that they were less motivated to assist their dormant, even after controlling for trust, there were no significant differences in the likelihood of actually receiving assistance. Moreover, dormant ties tended to respond much more quickly than active ties, possibly because of the novelty of the request, presumed importance, or curiosity. More research is needed to examine whether temporal disparities are observed in settings where timeliness directly benefits the solicitor – e.g., getting feedback or assistance for a work project.

The results also suggest that people continue to value their former relationships – viewing them as information and resource channels that help to anchor them to their

organization. The effect of dormant ties is particularly strong when active networks are sparse and thus possibly insufficient for information and resource needs. Likewise, the effect of active ties on organizational commitment is stronger when dormant ties are in short supply. Interestingly, I found some evidence that people attribute more value to dormant ties when there are mutual active ties in common. This may be because people view dormant ties are more accessible, or salient, when they share mutual active connections. Perhaps people simply feel a stronger sense of community when their ties (past and present) overlap, which in turn has implications for organizational commitment. Future research should seek both to replicate these findings and unpack mediating mechanisms.

To take a broader theoretical perspective, it is commonly assumed that increasing network linkages results in diminished returns because every tie gained (despite its potential benefits) has accompanying obligations, which are time consuming and potentially threaten the efficacy of existing ties (e.g., diminished in-group loyalty). By the standard view, ties are social capital if and only if people invest in them, not only initially but continually. Therefore, expanding social capital results in ever increasing set of obligations, which can be counter-productive, or worse. It is hard to reconcile these assumptions with the reality of an increasingly complex, fragmented and transient communities (Heckscher, 2015). This dissertation offers evidence that the assumed necessity of maintenance and relationship stability is overstated. The research presented in this dissertation suggests that relationships accrue enduring value through moments of relational stability and that their implications may endure long after communication comes to an end.

Performance implications were also in evidence, though, here, the implications of dormant ties are not clearly positive. Indeed, although dormant ties did not predict performance on their own, the negative interaction between active and dormant ties may suggest a potential dark side to intra-organizational dormant ties. Research has shown that prior experiences can act as a cognitive anchor (Dokko et al, 2009). In this light, it seems plausible that past relationships may contribute to misoneism – a reluctance to change. As speculated, this may be because dormant ties provide social confirmation that one's approach is acceptable and effective. If I know colleagues from elsewhere in my organization do something a certain way, I may be more resistant to suggestions by others to do something in a different way. By contrast, people with weaker distant social network from elsewhere in the organization may not have these cognitive anchors and so may be more receptive to prevailing social or behavioral norms. This suggests that embeddedness across multiple social contexts may not only occur as individuals actively span spatial or institutional boundaries (as is commonly studied) but as individuals progress in their careers, leaving other ties behind.

Related, a major contribution made by this research concerns the interactivities between active and dormant ties – findings that two types of networks interact, such that one type alters or undermines the effect of another. This suggests not only that dormant ties matter but also that cross-sectional studies examining contemporaneous relationships may misstate the size and significance of their effects. This is not to imply that active relationships do not yield advantages over dormant ties. As discussed, there may be significant barriers to reactivation, including inconvenience and anxiety; trust and assistance motivations may indeed be stronger, on average, for active ties; coordinating

real time information also requires that communication is active and ongoing. Nevertheless, there may be areas in which dormant ties substitute for the benefits of active ties. Similarly, people tend to assign less value to the dormant ties when active ties are in greater supply. This suggests that people interpret their social milieus in the aggregate and that behaviors are also affected by the accumulative nature of ties.

Finally, these results have extended implications for the literature on careers and job mobility. Most research here has focused on how career choices play out (Batt, 1996; Higgins and Kram 2001) and how people make career-related decisions (Miles and Snow, 1996). Less research has addressed how resource accessibility and performance are affected by career mobility. Along with Dokko et al.'s (2009) recent study, this research underscores why it is important to account for a fuller employment history. Many of the dormant ties reported by workers in the second study were located other schools in the district, most likely representing former co-workers who once worked side by side. Despite no longer working together, these ties appear to have still been seen as viable information and resource conduits with ongoing potential. It is unclear whether this would have been true if they were outside of the organization system (i.e., school district) entirely and future research should examine the implications of dormant ties across wider organizational, functional and industrial boundaries. Nevertheless, this research suggests that social resources and experience may be partly portable as people progress in their careers.

Practical and Managerial Implications

Several practical implications extend from this research. Most pointedly, managers should care about dormant ties because employees do, because they have the potential to

affect the movement of organizational resources and knowledge, and because they affect organizational behaviors. The findings show that dormant ties are valued by workers and have direct implications for important organizational attitudes, including organizational commitment. Organizations often struggle to build productive collaborative relationships across functional and hierarchical boundaries. These findings suggest that organizations may benefit from institutions, such as job rotation plans and cross-functional teams, that allow stable relationships to emerge between groups for short periods of time before disbanding. These semi-stable institutions may allow familiarity and trust to develop, which, as suggested by these findings, may carry positive implications for organizational attitudes long after a group disbands and moves on to new projects. In short, organizations may create lasting linkages even if the mediating institutions are short lived.

The results also suggest that the value and accessibility people attribute to past relationships is justified: People are willing to help their former contacts, at least insofar as assistance is requested. This finding likely reflects that relationships fall dormant for many reasons, including inconvenience or (in organizations particularly) a lack of functional interdependence. Extending this, it may be the case that temporary co-affiliations in workgroup groups lessens maintenance obligations after people move on to new projects because physical and affiliational distance provide a suitable, inoffensive justification for not staying in touch. People are less likely to be offended by a lack of maintenance effort if it is steered by legitimate institutional forces beyond their control. This might preserve access perceptions and feelings of good will. Analogously, it probably less offensive to lose touch with a friend from your neighborhood or school

after you've moved or graduated for the simple reason that maintenance becomes more difficult and a failure to maintain a relationship isn't necessarily a personal affront. These latent connections may nevertheless retain a strong sense of trust and positive affect.

Finally, although the results do not suggest that past relationships are bad and that firms should avoid workers who have worked on more collaborative projects or have a broader range of social experiences, they do lend tentative support to the idea that social experiences, as with experience generally (Dokko et al, 2009), may increase knowledge resistance at later points in time. More research is needed to confirm understand this effect. However, these results coincide with other research that links external experiences to knowledge resistance later on (Dokko et al., 2009). A key organizational challenge is to encourage sharing and collective reflection, which includes considering ideas imported from other organizations and social systems. Future research should understand the contemporaneous social systems that best overcome knowledge resistance, including that arising from actors' social embeddedness at earlier points in time. In turn, researchers should unpack the workplace institutions that can best optimize on external, historically situated social networks.

Future Research

As suggested above, this dissertation suggests several important avenues for future research. First, it is important to recognize that relationship dormancy operates along a continuum, rather than by the subjective cutoff points used throughout this dissertation. A tie that is two years dormant is likely far different than one that has been inactive for a decade, or more. Similarly, dormant ties are likely to vary in the amount of time the tie

was active, the intensity of information exchange, etc. These factors are likely to affect the value that people assign to ties, the benefits they can obtain after reactivation, as well as cognitive and behavioral residues. As a first cut, these distinctions were ignored. The goal in this research project was to tackle the overarching question about relationships that are sufficiently inactive to have been ignored or systematically excluded by earlier network researchers. Moving forward, however, it is vital to understand

As indicated, it is important to understand how organizations can proactively facilitate dormant ties that are seen as accessible by workers and for which trust and assistance motivations remain intact. This, in some ways, extends the problem of building trust and shared goals between different diverse workgroups because it requires these to persist beyond immediate interdependencies. Organizations might benefit by promoting cultures in which distant help seeking, including reactivation, is normative and viewed favorably.

It is also important to understand what happens in the days, weeks and months after reactivation, including whether parties feel a desire or implicit pressure to maintain the relationship or seek or reciprocate favors. A potential drawback of reactivating dormant ties may be heightened expectations to reciprocate or to reestablish regular communication, despite distance or inconvenience. It might be seen as rude to reach out to a dormant tie, only to lose contact immediately thereafter. This may be especially true if the purpose of reconnection was advice or favor seeking.

FIGURES AND TABLES FOR MAIN TEXT

Figure 1: Early August 2012 Facebook Posting



Figure 2: Early August 2012 Email Solicitation

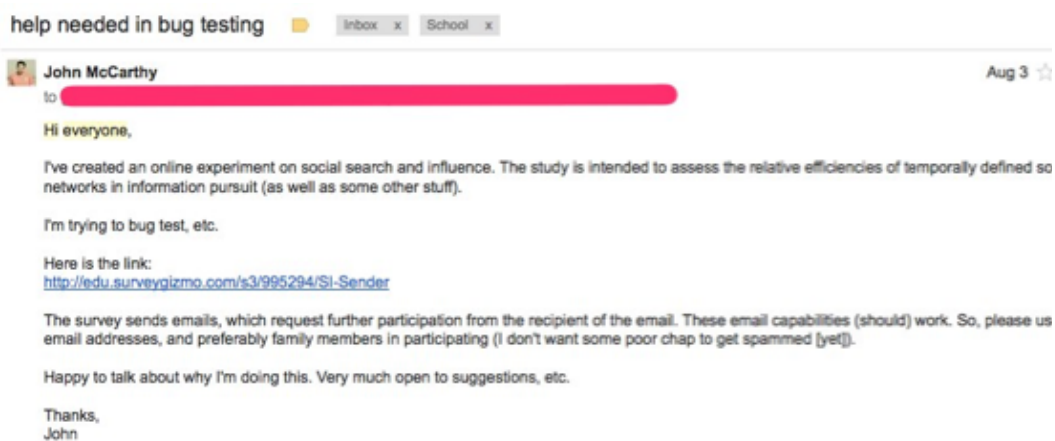


Figure 3: Second Facebook Solicitation

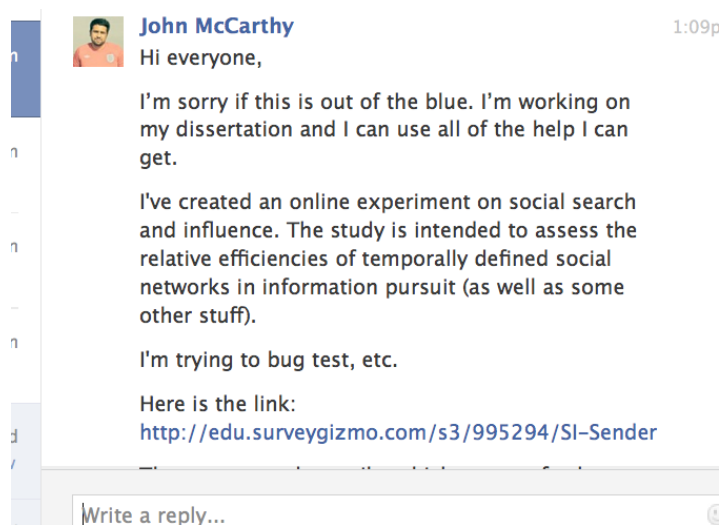


Figure 4: Theoretical arguments for the necessity of relationship maintenance

Article	Excerpt	Google Scholar Citation Count
Coleman (1990)	“Relationships die out if not maintained; expectations and obligations wither over time” (321)	22,161
Burt (1992)	Absent investment “the connection, with whatever social capital it contained, dissolves” (58)	12,198
Nahapiet and Ghoshal (1998)	“Relationships [...] die out if not maintained” (258)	9,939
Adler and Kwon (2002)	• “[...] social capital needs maintenance. Social bonds have to be periodically renewed and reconfirmed or else they lose efficacy.” (22)	5,290
Dolfsma et al. (2009)	“Repeated social interactions – only possible if the cycle is not obviously broken – make it possible for trust to develop” (325)	25

Figure 5: Research on the Temporal Nature of Social Capital

Article	Research Question	Sample	Summary Contribution
Soda et al. (2004)		Archival data; firms in Italian television production industry	Past closure rather than current closer helped performance; current brokerage but not past brokerage helped performance
McEvily et al (2012)		Archival data; law firms	Bridging ties have enduring effects through redeployment of knowledge; initial (founding) ties have strongest effects.
Levin et al. (2011)	What are the benefits of reconnecting with dormant ties?	Executive MBA students	Reconnecting with ties that were previously strong led to efficiency, novelty benefits, trust and shared perspective.
Walter et al. (working)	Reconnection	Executive MBA students	The prospect of reconnection can produce considerable anxiety. To compensate, people often have strong preferences for familiarity over novelty. These preferences can result in non-optimal networking decisions.
Mariotti and Delbridge (2012)	What drives decisions to build new ties versus utilized established, “latent” ties.	Qualitative longitudinal analyses of companies operating in European motorsport industry.	In addition to (traditionally studied) strong and weak ties, companies leverage potential and latent ties. The utilization of over latent ties over potential ties is often rapid and straightforward since partners have a history of productive exchange

Figure 6: Framework for understanding the importance of relationship maintenance.

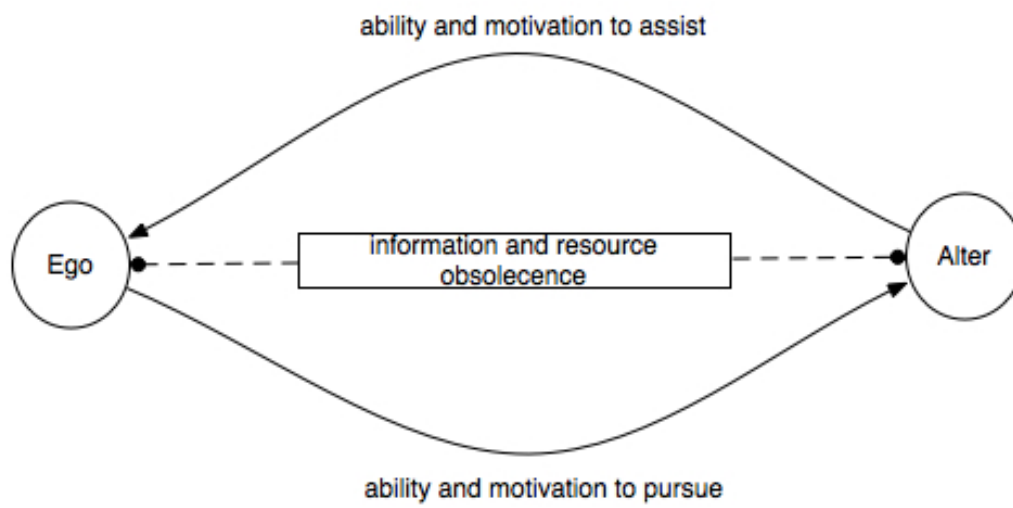
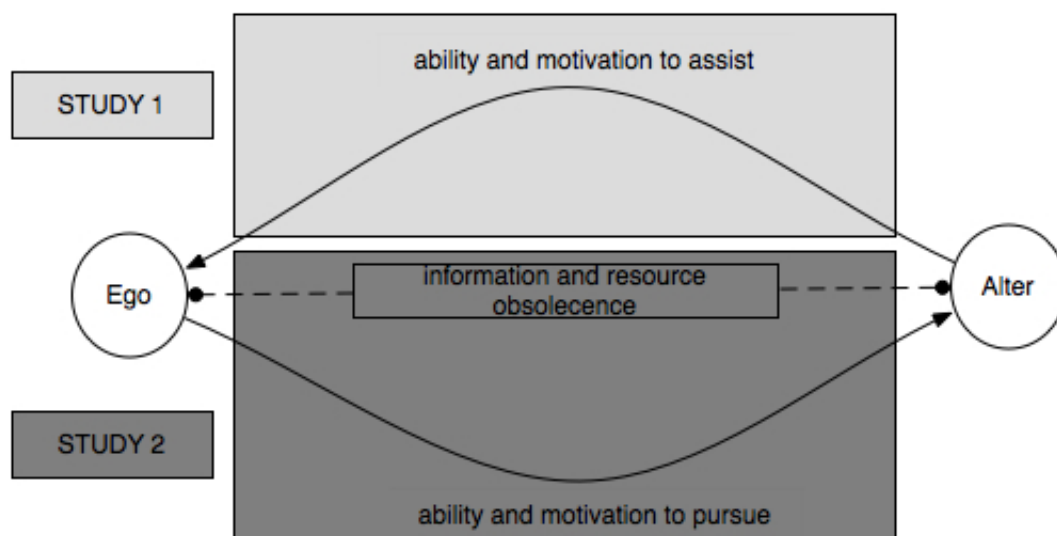


Figure 7: An Overview of two studies



APPENDIX

Study 1 Survey Materials

Overview (please read carefully):

This study asks for your participation in a social network experiment in which you will contact two people from your social network to participate in a short online activity on your behalf.

The first person that you will be asked to contact will be someone from your active social network -- that is, someone that you communicate yearly or more frequently.

The second person that you will be asked to contact will be someone that you used to communicate with but with whom you have not communicated, in any way, for two or more years. This might be someone you knew from high school, camp, an old teacher, and so on.

You will receive class extra credit and a single lottery ticket for your participation. You will receive an additional lottery ticket for each person that participates in the online activity on your behalf.

The winner of the lottery will receive \$200. Your chances of winning depend on how many students participate in this experiment.

The online activity for which you will seek participation consists of a series of attention-to-detail questions, such as simple arithmetic and pattern matching questions.

This is very important:

Successfully participating in this experiment requires that you contact two people from your social network and ask them to help you. One of these people must be someone that, until this message, you have not communicated with for two or more years.

You may be uncomfortable with this requirement. If you are, an alternative assignment of the same length will be made available to you by your professor. The assignment will provide the same level of extra credit but it will not place you in the running to win \$200.

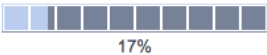
If you participate dishonestly, such as by listing a false name or address, you will be withdrawn from the study and will not receive extra credit or a lottery ticket.

Therefore, if you are uncomfortable contacting people in the manner required you are strongly encouraged to decline participation and pursue the alternate activity.

1. Do you consent to participate in this study? *

☐ Yes

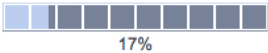
☐ No

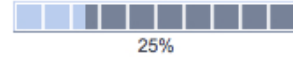


2. Thank you for participating. To get started, we need your email address so that we can direct emails from your address to the people you specify on a later page. We will also use this email address to contact you if you win the lottery, after your successful participation. Please enter your email address below: *

3. We also need your first and last name to append to the end of the email. Please enter your name below (e.g., Michael Smith; Mary Hamilton): *

Back Next





As we mentioned, you are required to contact someone from your **active** communication network. **This will be someone you communicate with yearly or more frequently.**

Although only one of your active ties will be contacted in this experiment, we ask that you list the names and emails for **three different people**. The survey application will randomly select one of these three people.

These people should not be family members.

You will see, and be asked to approve, the email message before it goes out. You will be notified as to which of the three people was randomly selected.

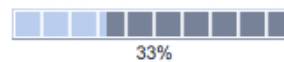
Please take some time to think of the three people with whom you are regularly in touch. Because one of these people will be randomly chosen and contacted, you should choose three people who you feel are most likely to participate on your behalf.

Please note that you can browse through your Facebook friends to identify possible targets. Their email address will usually be listed on their profile page.

4. Please type of the name of the first person with whom you are regularly in touch: *

5. Please type the name of the second person with whom you are regularly in touch:

6. Please type the name of the third person with whom you are regularly in touch:



Below, we ask you for the email addresses of each person you listed on the earlier page. The survey application will randomly select one of these people to contact on your behalf. *Please note that if you do not know a person's email address, you can usually find it on their Facebook profile.*

7. Please input name 1's email below. It is important that the email is correct, so please take the time to look it up if you are not absolutely positive. *

8. To confirm, please re-enter name 1's email below. *

9. Please input name 2's email below. It is important that the email is correct, so please take the time to look it up if you are not absolutely positive. *

10. To confirm, please re-enter name 2's email below. *

11. Please input name 3's email below. It is important that the email is correct, so please take the time to look it up if you are not absolutely positive. *

12. To confirm, please re-enter name 3's email below. *

Please proceed to the next page. One of these three contacts will be randomly selected and emailed. You will be shown the content of the email, and asked for permission, before it is sent. You will not be informed of which contact has been emailed until after the email has been sent.

Below is a template of the email we will send on your behalf. This will be sent to one of the people you listed on the earlier page, selected at random. We will let you know who has been contacted after the email has been sent.

Please scroll to the bottom, and indicate your consent, to continue your participation in this study.

Dear [First Name of Randomly Selected Person],

I am participating in a study being conducted by researchers at Rutgers University and as a part of my successful participation I am asking for your assistance filling out a (very) short survey on my behalf.

If you participate in the study on my behalf, I will receive a lottery ticket that will increase my chances of winning a \$200 lottery.

I will be automatically notified via email after you participate on my behalf.

I did not write this email. It is a standard email that I am required to use to participate in this study. However, I have personally selected you to assist me. Your participation should take less than one minute.

You will have to reference me on the survey. Please copy and paste my email address to the box when it asks for it:

johnmccarthyjr@gmail.com

The link to the survey is here (if you have any concern about the safety of the link, please feel free to contact the lead researcher of this study: johnmcc@eden.rutgers.edu):

[A survey link will be displayed here]

Findings for this study will be made available to you if you request it on the survey page.

Thank you,

John M

13. This email will be sent on your behalf. Are you OK with sending this email?

☐ Yes

☐ No

As we mentioned, you are required to contact someone from your **former** communication network. **This will be someone you used to communicate with, but with whom you have not communicated, in any way, for two or more years.**

Although only one of your active ties will be contacted in this experiment, we ask that you list the names and emails for **three different people**. The survey application will randomly select one of these three people.

These people should not be family members.

You will see, and be asked to approve, the email message before it goes out. You will be notified as to which of the three people was randomly selected.

Please take some time to think of the three people with whom you are regularly in touch. Because one of these people will be randomly chosen and contacted, you should choose three people who you feel are most likely to participate on your behalf.

Please note that you can browse through your Facebook friends to identify possible targets. Their email address will usually be listed on their profile page.

14. Please type of the name of the first friend with whom you are no longer in touch: *

15. Please type of the name of the second friend with whom you are no longer in touch: *

16. Please type of the name of the third friend with whom you are no longer in touch: *

Below is a template of the email we will send on your behalf. This will be sent to one of the people you listed on the earlier page, selected at random. We will let you know who has been contacted after the email has been sent.

Please scroll to the bottom, and indicate your consent, to continue your participation in this study.

Dear [First Name of Randomly Selected Person],

I am participating in a study being conducted by researchers at Rutgers University and as a part of my successful participation I am asking for your assistance filling out a (very) short survey on my behalf.

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[A survey link will be displayed here]

Findings for this study will be made available to you if you request it on the survey page.

Thank you,

John M

23. This email will be sent from your address. Are you OK with sending this email?

☒ Yes

☐ No

The following questions were asked twice, once for active contacts and once for dormant contacts:

Please answer the following questions about name 1 and your relationship with him/her.

24. What is your relation to name 1?
25. Do you currently live, or have you ever lived, with name 1?
26. Assuming they receive your message, how confident are you that name 1 will help on your behalf?
27. How long have you known name 1?
28. Prior to sending your email to them, when was the last time you communicated with name 1?
29. Approximately how many close friends do you and name 1 have in common?
30. Of those close you and name 1 have in common, with how many are you in regular communication?
31. To the best of your knowledge, how old is name 1?
32. Is name 1 a male or female?

Thank you for your participation in this survey. You will be paid for your work thus far.

As a last step, we would like to ask you to assess the extent to which you followed the guidelines of this study **exactly as you were directed**. This step is to ensure the quality of the data, not to evaluate or penalize you individually.

Accordingly, your responses on this page will not affect whether or not you receive payment for your participation. For example, you will be paid even if you indicate that you entered a false email address.

Please answer the following questions as honestly as possible:

44. Please answer the following questions honestly. Again, you will not be penalized for your responses, financially or otherwise.

	Yes	No
To the best of your knowledge, did you send the message to a real email address?	<input type="radio"/>	<input type="radio"/>
Do you actually know (or have you even known) the person you contacted?	<input type="radio"/>	<input type="radio"/>
To the best of your memory, did the person you contacted meet the requirements presented to you?	<input type="radio"/>	<input type="radio"/>
With the requirements of the experiment, do you feel that the person you contacted was truly the best suited to help you?	<input type="radio"/>	<input type="radio"/>
To the best of your knowledge, did you answer questions about yourself accurately?	<input type="radio"/>	<input type="radio"/>
To the best of your knowledge, did you answer questions about your contact accurately?	<input type="radio"/>	<input type="radio"/>
Did you contact this person in any other way regarding the survey or their participation?	<input type="radio"/>	<input type="radio"/>

45. Do you want to know the results of this study after the data have been analyzed? If yes, you will be contacted by email several months from now.

- ☐ Yes
- ☐ No

Study 2 Survey Materials

Charlotte Communication Survey

Declaration of Consent

You are invited to participate in a communication survey being conducted by Saul Rubinstein, a professor at Rutgers University's School of Management and Labor Relations, and John McCarthy, his PhD student. This survey is intended to measure regular communication that you engage in with people in the school district.

The results from this research are confidential. Confidential means that while the research records will include some information about you, such as your name and place of employment, that information will be seen only by researchers at Rutgers University. The results of this research will be identifiable and reported only at the school or district level. No individual results or responses will be available to, or reported to, anyone at the Charlotte School District or anywhere else.

Participation in this study is voluntary. You may choose not to participate, and you may withdraw at any time during the survey. In addition, you may choose not to answer any questions with which you are not comfortable.

Approximately 1200 educators will participate in the study, and each individual's participation will last approximately 20 minutes. If you have any questions about the study or study procedures, you may contact John McCarthy at 609-937-4807, or johnmcc@eden.rutgers.edu. Our office mailing address is 50 Labor Center Way, New Brunswick, NJ 08901.

If you have any other questions you may contact the IRB Administrator at Rutgers University at: Rutgers University, the State University of New Jersey, Institutional Review Board for the Protection of Human Subjects, Office of Research and Sponsored Programs, 3 Rutgers Plaza, New Brunswick, NJ 08901-8559. Tel: 732-932-0150 ext. 2104, Email: humansubjects@orsp.rutgers.edu.

Please indicate below whether you agree to participate.

- ☐ I agree
- ☐ I do not wish to participate

[illegible][illegible]

In this study, we are interested in learning about communication patterns within the Charlotte School District. This includes people with whom you:

- are currently in regular contact (that is, people with whom you communicate on a yearly basis, or more frequently).
- used to be in regular contact, but, for whatever reason, have not communicated in two years or more.

Please place a check mark next to every site where you currently and/or used to regularly communicate with at least one person that currently works there.

For example, if you used to work at another location in the district and you also used to work on a committee with people at two other locations, then you would put a check next to all four locations: your own, the one where you used to work, and the two where your former committee members now work. Please identify all such locations where you either currently or ever used to communicate regularly with people. If you have any questions or concerns, please contact [John McCarthy](#).

Locations have been color coded: **Pre-K/Elementary Schools; Middle Schools; High Schools; Union/District Office**

- | | | |
|---|---|---|
| <input type="checkbox"/> Baker Center Pre-K Center | <input type="checkbox"/> Peace River Elementary School | <input type="checkbox"/> Charlotte High School |
| <input type="checkbox"/> Deep Creek Elementary School | <input type="checkbox"/> Sallie Jones Elementary School | <input type="checkbox"/> Lemon Bay High School |
| <input type="checkbox"/> East Elementary School | <input type="checkbox"/> Vineland Elementary School | <input type="checkbox"/> Port Charlotte High School |
| <input type="checkbox"/> Kingsway Elementary School | <input type="checkbox"/> L A Ainger Middle School | <input type="checkbox"/> Charlotte Tech Center |
| <input type="checkbox"/> Liberty Elementary School | <input type="checkbox"/> Murdock Middle School | <input type="checkbox"/> Charlotte Harbor Center |
| <input type="checkbox"/> Meadow Park Elementary School | <input type="checkbox"/> Port Charlotte Middle School | <input type="checkbox"/> Murdock Center Office |
| <input type="checkbox"/> Myakka River Elementary School | <input type="checkbox"/> Punta Gorda Middle School | <input type="checkbox"/> Union Office |
| <input type="checkbox"/> Neil Armstrong Elementary School | | |

Baker Pre-K Center



As mentioned on the earlier page, we are interested in learning about communication patterns in this school. This includes people with whom you are:

- currently in regular contact (that is, people with whom you communicate on a yearly basis, or more frequently); or
- used to be in regular contact, but, for whatever reason, have not communicated in roughly two or more years.

Below, please place a check mark in the appropriate box. Otherwise, leave names blank. If you communicate with someone at least yearly, then put a check only in the left box. The right box is only for people with whom you are no longer in touch.

Please indicate whether this person is, or every was, a part of your communication network.

I currently communicate with this person on a regular basis (that is, yearly or more frequently) I used to communicate with this person on a regular basis, but have not for two or more years.

	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
I currently communicate with this person on a regular basis (that is, yearly or more frequently) I used to communicate with this person on a regular basis, but have not for two or more years.		
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

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