

Social Capital, Social Network and Identity Bonds: A Reconceptualization

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ABSTRACT

We argue that along with social network analysis researchers can also benefit from looking at the identity bonding perspective. In this paper, by synthetic and critical reviewing literature on related work from sociology and information science, we provide a new theoretical lens that calls attention to the role played by shared identity in creating social capital.

Categories and Subject Descriptors

J.4 [social and behavioral sciences]: Sociology

General Terms

Design, Human Factors, Theory.

Keywords

Identity bonds, Social capital, Social identity, Social tie

1. INTRODUCTION

The concept of social capital [18, 19] recently has been given an increasing attention in information research. Intensive use of advanced information technologies in people's professional and personal life remarkably drives this trend. In work, we use them to manage information, communicate with colleagues and find knowledge on demand; in personal life, we share our life stories with family and friends by online chatting, sharing photos, etc. These technologies pervasively and fundamentally change everyday activities and even create new forms of social life, so called virtual communities or organizations [34, 50, 56]. In academia, Grudin [33] described the widened scope of information research, such as in human-computer interaction (HCI) and computer-supported collaborative work (CSCW). That is, researchers in these fields have taken not only the individual, cognitive, psychological aspects as focal concerns, but also included group, organizational and even social issues as key subject matters and taken various theoretical lenses to explore them. Thus, it is not surprising to see information scientists take sociological concepts such as social capital to explain the phenomena they are interested in or even take them as core subject. For example, in knowledge management domain, social capital is used to account knowledge sharing behaviors; and many researchers studied if information technology, particularly the Internet, increase social capital or not.

In domains such as management and organizational study, social network analysis (SNA) [62] has been used to study social capital; even some recent conceptualizations are directly built on

the ideas of social ties and network structure. For example, the conceptualization of weak and strong ties gives rise to the classification of bridging and bonding social capital [1, 20, 26]. Focusing on social ties or network structure gives us computational power and superior visualization to understand complex connections among social actors. With the aid of computers, many large scale SNA applications have been introduced [4, 23].

Powerful as it is, problems exist in SNA and social tie classification and its hypothetical consequential outcomes of types of social capital. For example, in Leonard and Oynx's [43] empirical study, they showed that external/internal ties do not always correspond to the bridging/bonding social capital. Ties or connections among people usually are defined relatively vaguely and the measure of strength of ties is approximate at best. Also, SNA and its applications largely take egocentric lens. Although with SNA, researchers can describe and visualize topology of a given community or social network, most social capital related studies focused on individual gains (job opportunities, year-end bonus, etc) thought his/her connections, or on the roles played by particular individual nodes. Alder and Kwon [1] pointed out that social network analysis dominates social capital research with its egocentric lens.

From the history of its theoretical development, we can see two lines of reasoning on social capital. One evolves from SNA, which takes the connections among individuals (persons or groups) as its basic analytical units; another line of thinking also comes from sociology, but focuses more on social systems and processes that lead to a series of social phenomena (e.g., observance of norms, trusting behaviors, social support) from which the term social capital has been conceptualized. These two lines share some common vision, but still they differed in many aspects. This makes one of goals of this paper, to highlight differences between these approaches. If ignored, these differences may be potentially harmful to research.

In this paper, we will take a close look at these lines of reasoning and some issues that are brought up by combining them hastily. We will then provide an identity-bonding perspective of social capital, which is a complementary other than a competitive viewpoint to enrich our understanding of social capital. This perspective considers both tie- and non-tie social interaction sources of social capital, which widens the scope of SNA in explaining social capital; furthermore, as we will present, the identity-bonding relation not only account for origins of social capital to a large degree, it may also in many situations foster tie generation on the one hand; on the other hand, since identity bonds and ties have different focuses (e.g., shared identity at collective level vs. personal ties at individual level), the capital they bring about may develop at the expense of each other. For

example, by definition, ties and networks constrain resource flow by keeping it within ties and networks, which means that people who are not well connected will enjoy less resource. This is manifested in the case of job market which has been studied by many researchers for a very long time.

This perspective actually proposes an integrated view on three sociological concepts: social capital, social ties (networks) and social identity. It suggests hypothetical relations among these three concepts and possible mediating effects. The paper will be organized as following. In next two sections, we will discuss two lines of thinking on social capital and studies in information science. In section 4, we will reconceptualize social capital and its relation with social network and shared identity. We will discuss some possible new directions of research in section 5.

2. SOCIAL CAPITAL AND SNA

2.1 Two Approaches

Social capital, as Fischer [29] and Portes [49] pointed out, has been used not only in academia, but also widely appears in everyday language. This reflects the increasing attention given to this concept as well as the seriousness of related problems that we are likely to face. Putnam [51, 53] warned us the constantly declining social capital in society, such as less participation in communities, less family/friends gathering. Coleman [18, 19] suggested in cities where norms and sanctioning system less internalized people's misbehavior tend to be higher than places where norms held tightly [19]. Since the term social capital covers a great range of phenomena and is used in different context, it also anticipates a various usage and ambiguity of this term [24, 29].

Formal conceptualization of social capital appeared in 1980s, when Bourdier [5] and Coleman [18] explicitly defined this term and used it to explain social phenomena. However, as many researchers [29, 49] pointed out, similar emphases on group or community life can be dated back to Durkheim and to "Marx's distinction between an atomized class-in-itself and a mobilized and effective class-for-itself" (p.2). We will call this line of thinking *social-system approach*. While social effect brought about by social embeddedness and social relation [31, 32] has been discussed in SNA even before the conceptualization of social capital, which also sees the benefit generated by being in a social group, but the emphasis is on the connections among social actors, not so much on the processes and mechanisms on which social systems run. We will call it *social-network approach*. The rough theoretical development timeline is as following. Social tie research brought the effect of social ties into academic discussion and theorized it back to 1930s [62]; Between late 1970s and 1990s, a number of theorists [45, 5, 18, 19] focusing on social behaviors, such as collective actions and social systems, realized the importance of non-economic resources and abilities of social systems that facilitate social actions, which otherwise are not possible, and they formally conceptualized and popularized the term social capital; recently in SNA, the term social capital appears in research and has been developed from social tie perspective [12, 13, 14].

It is understandable to see these two lines of research align, since 1) they both see social capital is socially constructed and built upon social exchange [27] and only exists in social relations; 2) social network is actually part of social system or a special aspect

of social system; 3) to a degree, conclusions from one line of thought resonates something implied in the other. For example, in the discussion about closure of network in increasing social capital in parental guardian situations, Coleman [19] suggested that closed network can ease the authority and sanctioning systems; while internal ties, i.e., family, leading to bonding social capital, for example, implies that homogeneous networks or groups will provide more emotional support and be high on trust among members.

However, it is a jump here to equate one to the other, since social system in similar characteristics can be polymorphic in network structure; and theoretically social network structure or the way people connected and processes or mechanisms (norms, trust, exchange, etc) of social systems are different concepts, and they may not closely correspond to each other. In the social-system approach, key authors [5, 18, 19] stress, in one way or another, two aspects of social capital that are originally defined by Coleman [18, 19]: the structural property that some social systems and/or processes have, and their role in facilitating actions of social actors. For example, Bourdier [5] defined social capital as the aggregate of actual or potential resources, which are generated and protected by durable social structures or mutual acquaintance and recognition in a group. Portes [49] defined social capital as "the ability of actors to secure benefits by virtue of membership in social networks or other social structures" (p. 6). Fukuyama [30] defined it as informal norms that promote cooperative behaviors among social actors.

In this line, social ties or networks may enter into discussion from time to time, but the major focus is about how social systems (e.g., authority systems, trust system, norms and social sanctioning) take shape, why and how they take effect on social interactions. For example, Coleman [19] explained norms and sanctioning systems, in which individuals who have interests in a given norm should share the cost of sanctioning, so for each individual the benefit of sanctioning will surpass its cost so that the sanctioning action will be taken. This is the condition for a given norm to be effective. Otherwise, sanctioning action is hard to put into practice, since the cost of sanctioning may be too high for individual actors if the size of sanctioning group shrinks. If one person withdraws from sanctioning group, other members' cost for sanctioning will increase but the benefit will be the same for each member. To be effective, sanctioning, although materialized as an individual decision making process (should I join sanctioning or just free ride it?), in effect require collective action. More important, this mechanism is within the social system, not controlled by any individual of that social system. This example of norms and sanctioning reveals the difference between the social-system approach and the social-network approach, in terms of what they are focusing on.

SNA has been developed as a powerful approach to study social phenomena. The major contribution of SNA is that it recognizes the importance of social tie, conceptualizes it, and uses it to explain various social phenomena [62]. With the overwhelming computational ability of computers, data mining and visualization technologies and enormous data sources such as hypertext documents available through the Internet, computational social network analysis is emerging recently and has been applied to research domains such as information science, organizational and management studies [4, 23].

Noticeably, social tie and network research become so influential in social capital research [1]. Bridging-bonding classification of social capital is derived from social tie research. The early idea of strong and weak ties implies recent conceptualization of internal and external ties, as Granovetter [31, 32] argued that “emphasis on weak ties lends itself to discussion of relations *between* groups and to analysis of segments of social structure not easily defined in terms of primary groups” (p.1). Researchers consider that weak ties usually bring bridging social capital and strong ties lead to bonding social capital. However, some recent empirical studies, such as Leonard and Oynx [43], provided some counterarguments that external/internal (weak/strong) ties do not always correspond to bridging and bonding social capital, respectively.

Besides social ties, network configuration also important to social capital research. Two important concepts are closure [18, 19] and structure hole [12, 13, 14] of networks. Coleman’s argument about network closure stressed the aspect of social norms and sanctioning mechanisms, which are easy to achieve in closed network and therefore increase social capital. For example, he discussed the close network of Jewish diamond traders in New York City reduced malfeasance in their business. For Coleman [19], the power or the ability of social system, in this case the norms and low cost of sanctioning, leads to high social capital. Structure hole [13, 14] talks about the nodes linking different networks, which otherwise are not connected. It is a social network analysis approach and has strong influence in current social capital studies. It suggests that those nodes at the positions of structure hole will have significant advantages over other nodes that are in inner networks. With regard to social capital, we want to highlight three aspects of the difference between these two trains of thoughts, among others.

The social-system approach and the social-network approach have different starting points and focuses. The conceptualization in the social-system approach looks at functions of certain social systems or processes that enable or ease transactions in society, which otherwise would be very costly or even practically impossible. Network or connections among people may enter discussion (e.g., network closure), but they are not primary concerns in this approach. Instead, the structural properties of social systems and their origins as well as their consequential social behaviors are the major targets of investigation. For example, researchers in this line of reasoning are interested in norms, trust, reciprocity, authority, and community engagements. These properties of systems account for social capital relevant behavior, such as helping others, observance of laws and conventions in a community. The social-network approach starts with the connections among people, through which people can claim resources from others. In this case, the focus becomes the configuration of a given social network, its centrality, density, etc, as well as the potential volume of resources individual nodes and/or ties can potentially possess. The SNA has less to say about the underlying mechanisms that really help materialize social exchange and it very much takes social ties and networks for granted. Even in early the work of theorizing social ties, the origins or the formations of social ties were not fully explored. In a sense, ties are conduits of resources. SNA and social system approach both value the reciprocity of social exchange, but connections among people do not account for reciprocity. Social system approach does.

These two approaches also differ in the end points where they conceptualize what subject matters are considered as social capital. The social-system approach, on the one hand, regards social systems and their social behavioral consequences as social capital to a great extent, although in many various forms. Theorists in this line appreciate, for example, the helping behavior in neighborhood, the participation in formal or informal organizations, observance of norms and volunteering behaviors. Since the effect of social systems is the focal concern of the social-system approach, it cares more about the *ability* of these systems to mobilize resources instead of the volume of actual resources or benefits one can gain from being in the social systems. On the other hand, the social-network approach tends to see the end products of social networking as varied forms of social capital. For example, studies on structure hole have stressed the benefits or advantages (e.g., job opportunities, economic return, promotions) gained by the individual members who are at certain position in a given network configuration. Social ties are considered to bring different types of social capital corresponding to the locus of nodes in a network. However, these different types of social capital eventually represent different content of actual resources, i.e. informational, economic, intellectual or emotional.

As a consequence of previous differences, we can also see the different emphasis on the ownership of social capital. The difference is about if social capital is collective in nature or it is something individually possessed. Theorists in the social-system approach advocate the collective or public-goods nature of social capital. Social capital is seen as similar to other forms of public-goods under the threat of *the tragedy of the commons*. It is also said that social capital is mainly by-products of social interactions [18]. That is to say social capital is not investible directly and it is easily destroyed. Moving away from the neighborhood is largely driven by self-interest (e.g., better job in another city) of a community member, and when they make decisions whether they should move, the consideration on the public goods that they may impact is easily overridden by their self-interests. Different from the social system-approach, the social-network approach stresses the individualistic view on it. It usually look at the amount resources an individual can potentially have from others to whom one has connections, and since social ties are its focal concern, SNA tends to see they are investible for individual purposes.

2.2 Recent theoretical development

Recent conceptualization on social capital burgeons in politics [6, 7, 17, 22, 38], economics [40, 47, 48, 73], public health [44], organizational studies and management [1, 28, 46, 69]. Portes [49] offers a framework of social capital in terms of its source and consequences. He claims that bounded solidarity, value introjections, reciprocal exchange, and enforceable trust are the sources of social capital, while norm observance, family support, network mediated benefits are positive consequences of social capital, and restricted access to opportunities, restrictions on individual freedom, excessive claims on group members and downward leveling norms are negative consequences of social capital. Alder and Kwon [1] summarized that the source of social capital lies in the structure and content of actor’s social relations. Its effects flow from the information, influences, and solidarity it makes available to the actor (p. 23)”. They further postulated a model in which three dimensions – opportunity, motivation and ability – comprise social capital.

Nahapiet and Ghoshal [46] proposed that social capital has structural, relational and shared cognitive dimensions. The structural property of social capital echoes the formalist view, which suggests the network configuration lead to origins of social capital. Relational property reflects the contents of ties, such as super-ordinate-subordinate relationship, friendship, etc. This is inline with the assumption that different content of connections will lead to different values for people who are connected. Cognitive aspect is shared representations, interpretations and systems of meanings among parties [46]. Huysman and Wulf [36] combined Adler and Kwon's and Nahapiet and Ghoshal's models and suggested a structural opportunity, a cognitive ability and a relational motivation dimension of social capital. Sandefur and Laumann [61] offered another group of dimensions that focuses on the effect (benefits) of social capital: information, influence and control, and social solidarity. The contribution of Sandefur and Laumann [61] is that they call attention to the effect of social structure properties (e.g., members' mobility, size of network and sub-network, interaction patterns such as presence of outside intervention) over social capital.

These recent theoretical developments more or less touched upon some aspects derived either from SNA or from the social-system perspectives of social capital. In the following, we will review studies in information research related to social capital, which to an extent demonstrate the confusions and controversies led by arbitrarily combing the two lines of reasoning we mentioned before, if not all.

2.3 Working Definition

Defining social capital is not our focus in this paper. We will follow the definition in the social-system approach in general, and give our working definition of social capital here. We would see social capital as *the non-contractual ability of a community to increase the externality of its resources or of the actions taken by its members*. This definition is inline with those given previously in section 2. It emphasizes the core function of social capital, the ability to magnify externality of actions of social actors or resources, which distinguishes it from other types of capital characteristically; we also explicitly bring the idea of communities into the definition. More or less in both the social-system and social-networking understanding of social capital, community has been a very important assumption. For example, in social-system approach, norms and authority systems are seen essentially bounded within groups of people who have interests in those norms or of people who give up their right of control their actions to fulfill their interdependent interests. In social-network approach, SNA has been used to detect communities of interest, and in regarding to social capital, it has realized impacts of boundaries of communities or different (sub) networks.

3. STUDIES IN INFORMATION RESEARCH

Research in information science has long interests in social life of people, which covers from computer mediated communication to maintaining interpersonal relationship, to workplace relationship, and to influence of the Internet on psychological well-being [3, 15, 21, 35, 41, 42, 54, 59, 63, 64, 66, 69, 70, 72]. Both positive and negative impacts of information technology, especially the Internet, on people's everyday life are found. Wellman et al [72] summarized the debates on the effect of the Internet over social capital. Two major trends represent the debating. One suggests

the use of the Internet decrease social capital by competing for time with other activities, and depressing and alienating people from social interaction. Another line suggests the opposite that the Internet does not decrease social capital but provides other forms or channels of social capital. For example, the Internet can help overcome time and space limits of communication and help people maintain or even create new social ties.

However, studies that take social capital into serious consideration are sparse [36, 37]. Among existing studies, knowledge management System (KMS) [36, 37, 71, 74] research is a pioneer field that endows efforts in employing social capital perspective to investigate information systems supporting KM practices. It is not surprising that KMS domain is relatively advanced in this direction, because it has a closer connection with organizational study and management science [e.g., 1, 46], which adopted and adapted this concept early from sociology and politic science when they saw the power of social capital, such as reducing management cost, transaction cost, and even helping organizational actors achieve desired ends that can not be done with only economic resources.

Huysman and Wulf [37] pointed out three traps of current understanding and practices of KMS: IT trap, management trap and individual learning trap. These traps overemphasize, respectively, the role played by information technology, the managerial and formal work and information flows with organizations, and individual learning activities and goals; and at the meantime, they neglect 1) the historical and cultural context of knowledge sharing activities, 2) the informal, nevertheless pervasive and important, knowledge sharing practice, and 3) collective or joint nature of community of practice. We think these problems identified by them [37] are also haunting in other domains of information technology research and practice.

Huysman and Wulf's [37] approach to tackle these issues of KMS is a social capital approach. As mentioned above, they mingled the model proposed by Nahapiet and Ghoshal [46] and the one by Adler and Kwon [1], and suggested three dimensions of social capital: the structural opportunity, the cognitive ability and the relational motivation dimension. They suggested that designing KMS, including also other types of systems that support (online) communities, should take these three dimensions of social capital as design requirements.

The point worth noting is that structural and relational aspects or dimensions are already stressed in earlier conceptualization. However, the cognitive and ability dimension is problematic. Originally, social capital is defined to distinguish with human capital, which is about human abilities (motor and intellectual skills). During their discussion, they do not give any differentiation between human capital and the cognitive and ability or, cognitive ability. When Huysman and Wulf [37] talk about cognitive ability, what they have in mind is more like common ground Clark and Brennan [16] defined. They claimed in the conclusion that human capital refers to individual ability, but we cannot fully agree on this. We agree that individual ability is atomic source where other forms of ability and actions generate, but human capital also can include collective form of these ability and actions. In practical and theoretical analysis, we can not deprive the collective form of intelligence or behavior from individual ones. We tend to see human capital as the human

ability to take actual (individual or collective) actions (behavioral or cognitive).

Huysman and Wulf [36, 37] define it as “the ability of the human actors to cognitively connect with each other to understand what the other is referring to when communicating (p. 46).” Although they mentioned shared stories, languages and customs and traditions, these elements they were talking about still are directly task-related cognitive ability. And the systems that support cognitive ability should “provide a bandwidth to appropriately represent the communicative activities”, “human actors’ context of interaction”, “discussions on shared materials”, and “history of interaction”(p. 46), etc [37]. Supporting these common-ground like cognitive abilities, without doubts, is critical to system design, but theoretically if it can be conceptualized as a dimension of social capital is still debatable. The study by Wasko and Faraj [71] also shed some doubts on the validity of including cognitive ability as a key element of social capital. They conducted a survey study and get log data for four months on an online community. In their measurement, the intended cognitive construct actually has very low or even negative correlation with other two intended constructs (table 1 in [71], p 47) , and “self-rated expertise was not significant in the overall model (p, 50)”.

Two related pioneering studies about influence of technology over people’s social life conducted by Kraut and colleagues [41, 42]. The second one is a follow-up study with some new constructs and research design. In their studies, Kraut et al focused on two sets constructs: social involvement (e.g., family communication, size of local and distant friend circle, social support) and psychological well-being of the Internet users (e.g., level of depression, stress and loneliness). Combining the two studies, they [42] suggested that information technology will influence personal and social life by two phases. In the first phase when information technology (the Internet) was newly introduced into users’ daily life, in their studies it was about two years, the effects of the Internet is almost negative on all constructs they were interested. For example, the more hours users spent on the Internet, the less family communication was reported and the higher depression, stress and loneliness were experienced by users. In the second phase, the effects turn to positive, expect experienced stress. They accounted this observed turning for the users become mature in handling the Internet use. They also suggested that improvement of information applications may be a factor that leads to positive outcomes of the Internet. However, the positive outcomes largely associated with extrovert personality, so they called it “rich get richer” model in that, for example, extrovert users use the Internet to make more friends and maintain existing relationships, and introvert users become less social and experienced more depression.

These two studies are related to social capital. In the first study, the constructs measured included family communication, social support and friend circle; and in the second study, it included civic engagement (i.e., commitment to living in the local area). The last construct was reported negatively associated with use of the Internet. These two studies, although shed light on our understanding of information technology’s influence in social life, the more valuable merit of them is to invoke further endorsement in exploring the role played by information technology and better design activities and theories that make information technology better serve the individual and the society at large.

Kavanaugh and Patterson’s [39] studied the impact of computer networks on social capital and community involvement in local community of Blacksburg in Virginia. They hypothesized increasing Internet use indicating greater community involvement and attachment and greater use of computer network to build social capital. However, the data does not support either of their hypotheses. Instead, they found that the longer people have been using the Internet, the more likely they were to use the network for social-capital-building activities.

A similar study that tested the relation between the Internet use and social capital was conducted by Wellman et al [72]. They showed that the Internet use does not increase or decrease other forms of communication (e.g., face-to-face and telephone communication). Rather, they concluded that information technology supplements social capital by providing new means to maintain ties or what they called network capital. They also found negative association between Internet use and commitment to online communities.

Some recent empirical studies followed the typical classification of social ties and social capital [20, 26]. For example, Ellison, Steinfield and Lampe [26] studied a popular social network web application, Facebook, and found strong association between use of Facebook and bridging social capital. They also pointed out that use of Facebook provides greater benefits for users having low self-esteem and low life satisfaction.

The debate or the controversial findings (e.g., increasing and decreasing in social capital because of use the Internet) are due to, if not all, inordinate coalescence of the social-system and social-network views. As discussed previously, these two views look at something different in different ways; social ties/networks and social systems/processes can interact and produce effect on social capital jointly. It is clear that both social ties/networks and the social systems both have impacts on social capital. However, we do not know how exactly they interact and how information technology can mediate them.

4. RECONSIDERING SOCIAL CAPITAL

As we discussed, one of the sources that bring confusions is combining the social-system and social-network approach gruffly. In this section, we will re-think social capital and social network analysis, and try to leverage these two approaches. To achieve this goal, we will first call attention to a type of phenomenon, which consist of a large part of social capital. These phenomena are documented but not well conceptualized in the social-system approach, and have not been concerned in the social-network approach. Help seeking and giving behaviors can be observed among people who do not know each other. In social exchanges of this kind, before, during and/or even after transactions take place, parties involved may not know each other in person at all. Sometimes people can get to know one another after social exchange and keep in touch afterwards. But any of these cases reminds us social capital can be generated out of situations without social ties and networks.

People can post questions to an online forum and get responses from people they do not know; sometimes we place trust on other persons and other people trust us even when we do not know each other; we do not litter on the street even there is nobody around us. We can still cite a lot of other cases. However, one thing in common of all these examples is that we do things for other

people to whom we do not know, and therefore there are no ties among people prior to transactions happening. We consider all these are the examples of social capital; and many variants of these examples are documented by key authors of social capital [e.g., 18, 19, 51, 52, 53]. As it is no tie or network exists, SNA cannot explain this type of phenomenon well.

What makes these behaviors happen, along with other factors (e.g., individual psychology, or personal traits), is the identity bond, which means people can perceive and acknowledge things they have in common and they can identifying with others based on these commonality they share. It is not the bond between two people but something that consociates people together.

Many cases in which social actions taken place based on identity bonds have been documented in social capital literature. For example, Coleman [19] described the secrete “study circle” of South Korea students, in which students came from the same “hometown” get together and later on become involved in some political actions. Putnam [51, 52, 53] saw civic engagement and formal and informal membership such as church participation and labor union as very important cases of social capital. Shared identity or the commonality that perceived plays a key role in these situations to, for example, get people together and enable actions and achieve their collective goals, which otherwise can not be achieved. Portes [49] pointed out that common fate is one of the sources that bring about social capital. All these cases suggest the effect of identity bonds on social capital.

4.1 Identity Bond

Two types of social relation exist. One is the relations that have been the focuses of SNA, which is the interpersonal relationship. Interpersonal relationship is the relationship between two people. We have friends in our personal life, and we have colleagues in our professional life, etc. Interpersonal relationship is built on the mutual acquaintance and/or on various types of interdependency of two persons. We hang out with friends, like one another, and share our personal stories with them sometimes. In work, one usually needs to collaborate with other people, because of task dependency, etc. In these situations, we can see superior-subordinate relation in workplace, peers and partners, etc. These interpersonal relationships compose a very large amount of our everyday life. However, another type of social relation exists pervasively in human society and sometime is not consciously perceived, which we would like to call shared-identity bond or identity bond for short. This relation is not built upon interpersonal contact or mutual acquaintance among individual; but instead, it is based on one’s acknowledging the commonality one shares with others.

To this point, an established theory from social psychology, social identity theory (SIT) [2, 8, 9, 10, 11, 25, 65, 67], shed lights on our thought. SIT has interests in the phenomenon that individuals identify themselves with social groups, such as organizations, communities and informal groups. A social identity is an image of a group both objectively existing and subjectively perceived. A social identity is a symbolic representation of a group and it presents the second type of social relation we discussed above, the shared identity bonds [2]. Ashforth and Mael [2] pointed out that “identification with a collectivity can arise even in the absence of interpersonal cohesion, similarity, or interaction (p. 26).”

According to SIT, people develop categories about social groups, and classify other persons and themselves into different categories. A category is abstracted from characteristics of members of that category. Ashforth and Mael [2] suggested that social categories or identities are pervasive in society and contribute to the formation of *the self* for most individuals, along with the personal identities, and help interpret others’ behaviors. Several antecedents are considered to increase the tendency to identify with groups. These factors are, for example, distinctiveness of groups’ values and practices, prestige of groups, and salience of out-groups. The consequences of identifying with groups are summarized as congruency, internalization, reinforcement of antecedents of social identity. Brown [10] reviewed the theoretical development and empirical studies of SIT and point out that SIT has made contributions in explaining ingroup bias, understanding responses to status inequity, stereotyping and perceptions of group homogeneity and changing intergroup attitudes through contact.

A focus of SIT is the phenomenon of subgroups and in/out-group interactions. Distinction between holographic and ideographic organizations has been made and Ashforth and Mael [2] pointed out that the former case is very few in real-world practice. The existence of subgroups may help develop intergroup bias, which can influence social capital development and its distribution.

We will see *identity bond* in a slightly loose way. We emphasize that identity bond is something in common that has been perceived. This type of relation can have only two people involved, but they do necessarily know each other in person. The only condition for it to be identity bond is that the commonality is perceived. But it is worth noting that in many situations, identity bond or social identity is formed and perceived based on categorizations of groups.

Recently in information research, Ren, Kraut and Kiesler [55] also proposed guidelines of online community building, based on the theory of, they called, common identity and common bond. They [55] distinguished social identity and interpersonal attachment. As they summarized, identity based attachment is something that keeps a person in a group because the person likes the group as a whole; while bond based attachment is that a person who stays in a group because he or she likes the person in that group. This is something similar to our differentiation between identity bonding and interpersonal relationship.

4.2 Leveraging the Two Lines of Reasoning

The foundations of social identity theory and social capital are quite different. Social capital is originally a sociological concept, which is developed to account social and economic phenomena; while SIT is a family of theories that have strong cognitive and psychological concerns. It looks for cognitive and psychological explanations for individual and group behaviors. However, we see the possibility and the promising result to incorporating the idea of identity bond and SIT into the picture of social capital.

Coleman [19] in the first chapter of his masterpiece, *foundations of social theory*, described a metatheory for social sciences as three-stage approach: transitional stages of explaining social systems 1) from macro to micro level, 2) between micro-micro and 3) from micro to macro level. This three-stage approach help explain how individual behaviors of social actors comprise social systems, which otherwise is left unexplained. Social identity theory can shed light on explaining macro-micro and micro-macro

transition, since it is an established theory accounting for cognitive-behavioral interaction between individual and collectivities or symbolic representations of collectivities.

Social tie research and network analysis in social capital as well as theorizing bridging and bonding social capital all rely on the concept of ties that link people in a given social network. However, previously mentioned phenomenon stimulates our suspicion on some conclusions drawn from SNA, since the above discussion suggests social capital can origin from situations where no previous ties exist. It also suggests social ties are not the only social relation among people.

Taking ties and networks for granted can overshadow the underlying mechanisms that drive the formation of ties and networks, and those mechanisms at the same time may have influence on social capital. Ties and networks take shape from exchange with history, or in other words, they are consequences of serial of social interactions. In this sense, social ties and networks are not primary, and they and social capital can be concurrence of some other more primeval elements. Identity-bond, is more genetic and is one of the bases where ties generate. It is also one source that leads to social capital.

Identity bond gives us the opportunity to better understand and integrate the two lines of reasoning on social capital. SNA and social tie research, to some point, already touched upon the idea of social identity of groups, even in earlier conceptualization of (weak) social ties, as shown in Granovetter's [32] remark cited before. We also discussed that internal-external tie differentiation only makes sense when we consider the idiosyncratic nature of a given network and sub-networks.

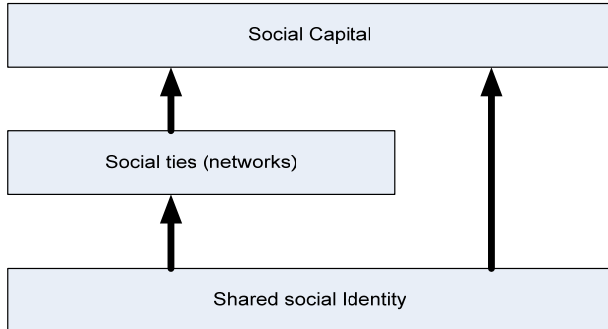


Figure 1. Social identity, social ties/networks and social capital

Figure 1 highlights our proposed framework that identifying with others based on certain commonality is prior to and condition for connections among people who share the commonality. In many situations, shared identities can be built on shared interests and exist for these interests, such as interests groups; in other cases, shared identities can be based on other criteria, such as kinship, shared religions or even common geographic locations, but these criteria should entail common or interdependent interests.

Shared or interdependent interests lead to exchanges among people who do not have resource/ability to fulfill those interests but have resource/ability that others may desire for [19]. The consequential social interactions serve as sources of generation of social ties and hence social networks. This is presented by the lower arrow on the left in figure 1. At the same time, people who acknowledge the commonality they share with others can generate social capital that fulfills individual or collective needs.

This is captured in figure 1 by the long arrow on the right. Upon their formations, social ties and networks can mediate social capital in terms of its generation and distribution. Upper arrow on the left in figure 1 represents this mediating effect.

In this simple conceptualization, social networks do not completely overlie identity bonds, because shared identity is a condition on which social capital generates, and only a part of social capital is mediated by social network. Taking the identity bonding relation into social capital studies also call the attention on the interaction between these types of social relation and their joint effect on social capital.

In this reconceptualization, we would rather not differentiate types of social ties and social capital. The reasons for this are 1) the differentiation between external ties and internal ties is only a matter of unit of analysis; 2) external ties and internal ties do not necessarily correspond to the bridging or bonding social capital; 3) if we consider social capital as the ability of a community to increase externality of resource or actions, the external-internal issue can be solved easily. In this sense, bridging social capital increases the externality of resource outside of target community and bonding social capital increases the externality of resource within a community; 4) external and internal ties only differ in the sense that they connected nodes in different positions in networks. When we change the frame of reference, internal ties can become external ties and vice versa. What make ties functionally different, in terms of types of social capital, are the idiosyncratic natures (resource, skills, ability, power, etc) of the groups ties connect.

We do not want to downplay the values of SNA, but we question the arguments that different types of ties lead to different types of social capital and how fundamental social network is to social capital. To us, social ties and networks are consequences of social interaction (e.g., social exchange), and even the consequence of social capital or its concomitances. Instead, the values of social ties (internal or external) lie in the effect of reducing the cost for looking for other channel for the same source. However, the negative effects of social ties and networks are also worth noting. For example, it can still be argued that external ties can keep the nodes connected from looking for and even finding other ties that may more economical. It also compete resource with larger community or group the ties belong.

5. DISCUSSION

5.1 Value of This Reconceptualization

The value of taking identity bonds into the picture of social capital studies is two-folded. First, it calls the attention to the phenomenon that social capital can be created from identity bonding relation other than interpersonal relation. Second, it also initiates some re-thinking about the relation among social capital, social networks and other forms social relation. Helping behavior has been studied in social psychology for quite a long time, but this line of research focuses on the individual psychological underpins that drive such behavior. However at the same time, such behaviors are also embedded in social context and more important they can influence the desired/undesired social ends. The questions are, for example, if helping behaviors of individuals can underpin social phenomena or be accounted for by social theories; if and how individual helping behavior can lead to

high social capital in larger unit of analysis, group level and community level. As we championed in previous sections, shared identity and social identity theories can help the transitional explanation between individual (micro) and social (macro) [19].

The debates and controversial findings suggested the underlying difference between the social-system approach and social-network approach of social capital. These two approaches have different theories to offer and account for different subject matters, which may be interrelated. By introducing identity bonds into the picture, it makes social capital research cover another important social relation, the relationship that bonds people by (perceived) commonality, along with the interpersonal relationship. In social-system approaches, as in our previous discussion, many cases already indicated identifying with others by something in common can lead to social capital. However, bringing identity bonds into consideration also gives us the opportunity to re-examine the role played by social ties in creating and influencing social capital. Identifying other people through shared commonality precedes tie formation, so it warns us that social ties and networks should not be taken for granted. This is especially important for information science and research, since, as we will touch upon later, advanced information technologies like the Internet may single out identity bonding and interpersonal relation from each other and may strengthen one but weaken another. Thus, this reconceptualization reminds us that social ties and networks are not naturally given and that we should not disregard the relations among social ties/networks, social identity and social capital.

5.2 New Areas Worth Exploring

Figure 1 presents a simple but powerful understanding of social capital, social networks and social identity bonds. Seriously considering identity bonds and taking it into social capital research can help us integrate the two approaches we mentioned.

For example, as summarized in section 3, there are some controversial findings from empirical studies with regards to information research. One of our suspicions is that in traditional research on social capital, when we look at the local communities or groups, social ties/networks and identity bonds are intertwined so smoothly and deeply, and are hard to be distinguished from each other; however, in information technology mediated communities or social interactions, they may be separated by information technology and magnified/constrained unequally. Especially in virtual communities, sometimes termed engineered communities, people can be hard wired to each other very easily, only based on some computerized criteria (e.g., buying the same book once, from friend's friend network, etc), which are not strong enough to promote shared identity or only can stimulate very weak commonality. It may lead to some cases we saw from empirical study that people grow large social network online, but still have low psychological well-being and cannot enjoy those potential resources fully.

Putting identity bonds and social capital research together opens many directions we can pursue in the future. Here we enumerate some possible promising areas. As the reconceptualization explicitly differentiates social ties/networks and identity bonds and postulates a sequential or even causal relation between identity bonds and social ties, it is important and valuable to dig into how ties and networks take shape out of shared identity, and

how information technology can contribute to this process. This is a task to explore what the "natural" way of growing social networks, instead of drawing arbitrary connections among people. Most important, as online life is unavoidably mediated by information technology, it is useful and desirable to have some strategies, technical or managerial, to compensate unevenly developed social network and shared identity, if any.

As communities vary in many dimensions, i.e., the ways they organize, the community structures, the tasks or interests they have, etc, we also inevitably face the situations where social capital is needed when no social ties preexist. Situations like those mentioned such as donations after natural disasters require collective actions from social actors who do not know each other. Online communities or large scale knowledge management or expert systems are facing challenges also. Considering the situations like posting questions to an online forum, in this case, we rely on other people we do not know. Sometime we get responses, but sometimes not. It may be because nobody knows the answer, but it may be possible that somebody knows the answer but one does not have the motivation to share it. Another conundrum is that if I know somebody who may possibly know the problem I am encountered with, I may just go with the social tie I have with that person through channels of other kinds, such as private email. In this case, the KMS or expert systems may not capture that piece of knowledge, and the value of that piece of knowledge still remains limited, because it cannot reach wider audiences. This is only an example, and many factors can impact the real situation. By this example we want to highlight the situations where social capital from sources other than social ties is needed. So we need to spend effort on exploring how identity bonds, in detail, generate social capital.

A related issue is about the impacts of social ties/networks over social capital. As our understanding suggests, social networks and social capital, if not all, are consequences of shared identity, it is worth exploring if social capital and social networks are concomitance or not, and if and how social networks mediate the relation between identity bonds and social capital. The conundrum mentioned in previous paragraph further illustrates the competitions between social networks and communities at large in terms of social capital. As it has been conceptualized that ties and networks help mobilize resource between people who are connected, it is can sometimes restrict resources within a community. People in the community but not well connected, such as newly joined members of a community, are hard to enjoy those resources. Also, the effect of social network can be seen two-folded. Social ties and networks provide immediate channels for exchange, but they can also block other possible, more efficient and economical channels and resources. In this line, we need to examine the mediating effect of social network on the creation and distribution of social capital.

Here is a final comment on social identity bond. There are many aspects of social identity can be studied and should take into account. For example, 1) social identity, as we discussed, is not always actively perceived; instead, social identities may be invoked in different situations, so social identities are contextual. The contingencies can be, for example, the relationship between task/activity at hand and the commonality shared; 2) two dimensions are highly relevant to social capital: the range of identity being shared, such as size of people who share an identity

and the degree of the share identity, which means how deeply the identity is internalized.

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