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The Analysis of Social Capital in Digital Environments: A Social Investment Approach

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Abstract and Keywords

This chapter introduces a social capitalization framework to promote an investment-oriented understanding of social capital in digital environments. While studies of Internet social capital have enriched the understanding of the outcomes of digital sociability, less discussion has been devoted to social networking as a social investment process underlying social capital production. The framework highlights the purposive nature of social networking and views Internet social capital as a product of the interplay among agency, social structure, and platform affordances. The chapter argues that online actors' social investment decisions are based on three dimensions of cost-benefit assessments: cost of uncertainty, cost of persistence, and cost of mutuality. Based on the three cost dimensions, a social investment taxonomy is presented in conjunction with a few networking principles widely learned from offline network literature. The empirical utility of the social capitalization framework and future research areas are then discussed.

Keywords: social capital, social capitalization, purposive action, homophily, prestige effect, social investment, online social networking, ISCS, Internet social capital scales

Motivated action guides interactions.

—Lin (2002, p. 54)

1. Introduction

Social capital is networked resources that are produced by the interplay between human agency and social structure (Lin, 2002). Social capital research has grown multifariously and diverged generally into two categories: outcome-oriented and investment-oriented.

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Offline social capital research has shown balance between these two. On the one hand, there is Putnam's (2000) bonding and bridging capital analysis, as well as a similar line of researchers who focus on positive functions of social connectivity. On the other hand, some social network researchers have developed various methods to delve into interpersonal investment patterns based on tie strength or social roles, such as "name generator/interpreter" techniques (e.g., Marin & Hampton, 2007; Marsden, 2003). In between are scholars who explore the relationship between social networking patterns and instrumental returns from the relationships (Burt, 2000; Lin, 2002).

In digital environments, however, social capital literature to date seems to have predominantly overemphasized social capital as outcome-oriented. On an individual level, studies have highlighted the benefits of online social networking for expanding job opportunities (Utz, 2015), mobilizing like-minded others (Papacharissi, 2009), finding health support (Chung, 2014), and meeting dating partners (Ellison, Heino, & Gibbs, 2006; Valkenburg & Peter, 2007). On a collective level, collective action mobilization (Castells, 2013) and civic and political participation (Gil de Zúñiga, Jung, & Valenzuela, 2012; Skoric, Ying, & Ng, 2009) have served as parameters for the evaluation of online social capital. The outcome-oriented studies insightfully reveal the empowering potential of the Internet in generating social support, life betterment, or community building. However, the development of measurements for the antecedents of these positive outcomes—that is, online social networking patterns—has unfortunately not been up to par.

This chapter proposes that scholars of Internet social capital should develop a framework that helps researchers delve into online networking activities. The framework should consider not only social relational characteristics but also digital platform affordances. This chapter suggests that such a framework emphasizes users' purposive decision-making about *with whom* to connect *via which platform*. The role of human agency has been tangentially alluded to in existing Internet social capital literature, yet has been somewhat lacking in explication. This chapter argues that social media users often purposively and strategically invest in online social connections with an anticipation of accumulating resources from the invested relationships. This claim is not idiosyncratic. Rather, it aligns with the premise of economic sociology that serves as a foundation for traditional social capital literature: that social capital is a form of capital operated and reproduced by rational individuals (Bourdieu, 1986/2011; Burt, 2000; Lin, 2002; Wellman & Wortley, 1990).

In this chapter I first briefly review the existing outcome-oriented social capital research conducted in digital environments and point out a missing piece from the current literature. Second, I introduce an economic sociological view of social capital, primarily by expanding on Lin's (2002) discussion of "social capitalization." Specifically, I argue that purposive action interplays with social structure and platform affordances in the process of digital social capital production. Third, I discuss three cost-associated dimensions underlying online social investment—cost of uncertainty, cost of persistence, and cost of mutuality—in conjunction with widely discussed networking principles, such

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as homophily versus heterophily, tie strength, and prestige effect. Fourth, I use an empirical example to demonstrate the ways in which the proposed framework may enrich the understanding of social investment patterns underlying digital social capital production. Finally, I conclude the chapter with a few suggestions regarding the ways in which future research may advance the social capitalization framework for its empirical utility.

2. Social Capital in the Internet: An Outcome-Oriented Approach

A majority of existing Internet social capital research defines social capital as *outcomes* from social interactions. An implicit consensus seems to exist: investigating social capital should highlight prosocial, positive, or beneficial functions of sociability. This perspective is consistent with Adler and Kwon's (2002) definition of social capital: "the *good will* [emphasis added] that is engendered by the fabric of social relations" (p. 17). Such communitarian optimism seems to be an underlying tone for the majority of current Internet social capital research.

In particular, Internet social capital research often adopts Putnam's (2000) notion of bonding capital and bridging capital to operationalize social capital as outcomes. Notably, Williams's (2006) Internet social capital scales (ISCS) is a widely cited survey instrument for measuring online social capital. Drawn from Putnam's bonding-bridging dichotomy, the ISCS evaluates online bonding capital by underscoring positive social outcomes, such as getting emotional support, accessing exclusive resources, and mobilizing solidarity. The ISCS's bridging capital reflects different types of outcomes, which while still prosocial, include outward curiosity, contact with a diverse group of people, perception of the self as a part of the extended world, and generalized norms of reciprocity. The items in the ISCS intend to elucidate the positive effects of online social activities rather than examining the networking patterns configured from these activities.

Studies using the ISCS have offered insights by attesting to the positive roles of online social networking in improving quality of life, especially in regard to bridging capital (e.g., Chang & Zhu, 2012; Ellison, Steinfield, & Lampe, 2007, 2011; Skoric et al., 2009). According to Williams (2007), "while the Internet appears to offer the boundary-crossing engagement that we might all hope for, it does not offer as much deep emotional or affective support like the offline world does" (p. 403). Although Williams's statement may be refutable with the rise of social software—the primary utility of which is the maintenance of strong ties—the core idea holds validity in that online platforms are particularly useful in uncovering, expanding, and maintaining relationships with broader scopes of social encounters.

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Nevertheless, equating prosocial outcomes to social capital comes at a price: The outcome-oriented approach offers little room to explore the multitude of networking activities that have emerged in various online platforms. Although much of Internet social capital research acknowledges that bonding capital is embedded in strong ties and bridging capital in weak ties (e.g., Adler & Kwon, 2002; Chang & Zhu, 2012; Ellison et al., 2007, 2011; Scholtz, Berardo, & Kile, 2007; Williams, 2006), a superficial review of tie strength does not contribute to the analysis of networking patterns. Instead, the lack of attention to networking activities may result in simplistic, and even faulty, assumptions that “strong ties” is just an interchangeable term for bonding capital (and weak ties for bridging capital), and that the offline version of relational typologies is applicable to digital sociability without modification.

If bonding and bridging capitals are the individual benefits, another line of research has focused on the collective outcomes—what Kadushin (2004) refers to as “collective social capital” (p. 85). This line of research tends to highlight communitarian values. Ever since Shah, Kwak, and Holbert (2001) investigated the relationship of Internet uses and collective social capital, such as civic engagement and trust building, collective social capital research has become committed to demonstrating the positive roles of Internet uses in facilitating democracy. Kobayashi, Ikeda, and Miyata (2006), for example, found that engagement in online communities not only contributes to generalized reciprocity in digital spaces but also has a spillover potential into offline civil participation. Mathwick, Wiertz, and Ruyter (2008) studied virtual peer-to-peer communities, concluding that collective social capital, such as generalized reciprocity, voluntarism, and social trust, are the assets characteristically found in well-designed virtual communities.

Collective social capital outcomes seem to have garnered even more attention with the rise of social media, as demonstrated by various literature (e.g., Gil de Zúñiga et al., 2012; Skoric et al., 2009; Valenzuela, Park, & Kee, 2009). These studies are interested in understanding the effect of social networking service uses on civil and political participation and sometimes linking interpersonal bonding and bridging capital to collective social capital (e.g., Skoric et al., 2009). The collective social capital research, however, often neglects the fact that social capital is the resources invested and embedded in *social relations* (Lin, 2002). The overemphasis on collective outcomes results in an unsophisticated examination of social relational dimensions. Moreover, these studies tend to treat the use of the Internet (or social networking services) as a proxy for the social investment put into online social relations. Unfortunately, equating Internet use to online networking activities dismisses the granularity of relational patterns configured in various digital contexts. Similar to the individual level studies, collective social capital literature seems to overlook networking patterns emergent in digital platforms as a part of social capital production.

In summary, the existing Internet research has emphasized the good will and beneficial consequences of social capital that accrue in digital social contexts. The premise of this line of research is that social capital should manifest itself in positive consequences, such as psychological well-being, life satisfaction, and broadened worldview on an individual

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level, or enhanced community and better democracy on a collective level. In other words, the empirical preference has been given to examining the positive effects of social capital. While insightful, the existing body of outcome-oriented research reveals a topical bias toward the effects of online networking rather than the networking itself. As a result, the dynamics of social relational patterns in various digital platforms seem to be underrepresented in the current literature.

3. A Missing Piece: Social Investment Patterns Online

Effect-oriented studies have been promoted partly in parallel with Internet researchers' reaction to once-widespread dystopian views on media technologies, including the Internet (e.g., Kraut et al., 1998; McPherson, Smith-Lovin, & Brashears, 2006; Nie & Erbring, 2002; Putnam, 2000; Turkle 2012). In response to early claims that the Internet induced social displacement and isolation, scholars have provided evidence to the contrary: that Internet use did not displace but instead supplemented the existing social support system (Ellison et al., 2007; Hampton & Wellman, 2003; Wang & Wellman, 2010; Wellman et al., 2003).

The outcome-oriented view of social capital, however, is just one side of the story. Equating social capital to positive effects possibly diminishes the need to understand another essential dimension—the complexities of social networking patterns—that may well deserve a critical assessment in the online social environment. Social networking is understood as a form of social investment because it is an act of expending one's time, effort, or attention for interpersonal or group-level social relationships. In this sense, "social networking" and "social investment" can be used interchangeably.

The majority of outcome-oriented literature has stated that bonding capital resides in strong ties and bridging capital in weak ties (Ellison et al., 2007; Valenzuela et al., 2009; Williams, 2006). The logic of tie strength has been customary in the discussion of online social capital; linking tie strength to the outcomes of social interactions is rooted in well-established offline social capital research tradition.

Nonetheless, as widely discussed in social network literature, the definition of tie strength is abstract and not always clear-cut. For example, Granovetter's (1973) seminal research defined weak ties as those who are nonfamily/relatives. Obviously, this early conceptualization of tie strength suggests a rather narrowly defined limit of strong ties. As Marsden and Campbell (1984) later point out, the role-centric categorization is a weak index of tie strength. The most reliable way of measuring tie strength has been to ask respondents to rate emotional closeness (Burke, Kraut & Marlow, 2011; Marsden & Campbell, 1984; Wellman & Wortley, 1990). However, various other indicators that are

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often used to operationalize tie strength, such as homophily, communication frequency, and relational duration, demonstrate that tie strength is indeed a multifaceted concept, different sub-elements of which may lead to a dissimilar understanding of social relations (Marin & Hampton, 2007).

The strong-weak ties dichotomy developed in an offline context is even more ambiguous when applied to the classification of social interactions manifest via digital channels. Mirroring the tie strength construct to digital social environments is a far more obscure task because of the sheer variations in relational forms, as well as levels of commitment—some of which are unique to online interactions thanks to platform characteristics. For example, should a researcher be comfortable defining an anonymous support group member with whom a focal actor shares a high level of self-disclosure and a feeling of closeness as a strong tie simply because the relationship invokes affective intensity? Although an anonymous yet highly self-disclosive online relationship may not necessarily be a conventional strong tie, this relationship may produce an asset of bonding capital. Put differently, the dichotomous assumption that the relational source of bonding capital should be the traditional idea of a strong tie, or conversely that a weak tie should be the source of bridging capital, is too simplistic and abstract to appreciate the complexity of online social networking patterns as antecedents of social capital. In this sense, a more refined taxonomy beyond the strong-weak ties dichotomy may contribute to a greater systematic understanding of online social networking or investment patterns.

4. Social Capitalization Framework

The lukewarm attention to social investment patterns by Internet scholars may partly result from the equivocal applicability of the offline tie-strength analogy to classify online social relational types (Ellison et al., 2011). Rather than adhering to the conventional assumption that tie strength is the baseline source of social capital, this chapter reconsiders the antecedents of social capital production by adopting the *purposive action* proposition inherent in the economic sociological views on social capital. Specifically, Bourdieu (1986/2011), Burt (2000), Coleman (1988), Portes (1998), and Lin (2002), the early founders of social capital theory, suggest that social capital is fungible with other forms of capital (e.g., economic, human, cultural), which necessitates some forms of “investment” (Bourdieu, 1986/2011).

Lin (2002) clarifies the role of social investment by explicitly defining social capital as “*investment in social relations* by individuals through which they gain access to embedded resources to enhance *expected returns* of instrumental or expressive actions” (p. 19; italics original). His definition illuminates two aspects of social capital: social investment and potential returns. First, he states that the production of social capital must accompany the process of investment in social relations. Second, he explains that social capital is manifest in *the anticipation* that networked resources should bring greater benefits than networking costs, as opposed to the actual outcome of benefits. The distinction between the latent ability of embedded social resources and the successful actualization of the resources is also explicitly addressed by Portes (1998): “It is important to distinguish the resources themselves from the *ability* [emphasis added] to obtain them by virtue of membership in different social structures.... Equating social capital with the resources acquired through it can easily lead to tautological statements” (p. 5).

In contrast to Lin (2002) and Portes’s (1998) attempt to distinguish social capital from the benefits of social capital, the majority of Internet research on social capital has adopted Putnam’s (2000) approach, which is predisposed to treat social capital as interchangeable with positive outcomes of sociability. Provided with the predominance of this trend, it may be reasonable to adopt a different terminology that highlights another dimension of social capital production—specifically, to borrow Lin’s (2002) concept of “social capitalization” (p. 52) to differentiate the investment-oriented view from the outcome-oriented view on social capital. Lin (2002) refers to the term “social capitalization” to address the entire process of social capital production by which a focal actor invests in social relations through a series of social interactions, accumulates social resources that can potentially be transformed into other forms of capital, and gets access to the returns from the accumulated resources.

Several aspects distinguish the social capitalization framework from the outcome-oriented framework:

(1) The social capitalization framework explicitly assumes that self-interest drives social interactions. Social capital “represents purposive actions on the part of actor” (Lin, 2002, p. 52). Social investment is decision-making by a rational individual who is aware of the cost as well as anticipated benefits. The most obvious imagery may be the gift economy, notably Guanxi culture in China (Chua & Wellman, 2016; Smart, 1993). However, the self-interest proposed here is not limited to economic behaviors. Instead, self-interest broadly refers to any goal-oriented motivations, desires, purposes, and intentions. The goal could be expressive, instrumental, centered to the self, or pertinent to the community to which the self belongs.

(2) Social capitalization is a circular process that involves purposeful decision-making by both the investor and the investee (Milardo, Helms, Widmer, & Marks, 2014). Suppose Ann is an investor who initiated a relationship with Bill. If Ann gains resources from Bill as a result of the effort Ann has put into maintaining the relationship with him, it is understood that the return is for Ann’s benefit. Simultaneously, however, Bill’s “gifting act” is another gesture of networking with Ann and is thus translated into a new cycle of social investment. This time, the direction is the opposite: Bill becomes the investor in the relationship with Ann by providing help, and Ann becomes the investee, who may or may not return the favor to Billy in the future. In other words, social investment and resource acquisition are not necessarily separate steps from each other but rather a confluence. The boundary between investment and return seems even less clear in a social media context. For example, is retweeting in Twitter resource acquisition or social investment? By retweeting, the individual acquires information as well as enhances his or her own visibility in the personal network. However, retweeting signals to the original poster his or her presence as an audience. Therefore, retweeting may also function as a form of social investment in the relationship with the original tweeter.

(3) The social capitalization framework highlights social capital as a product of the interplay between agency and social structure. An actor’s cost and benefit assessment is moderated by the social environment in which the actor is positioned. Social investment occurs neither randomly nor limitlessly. Rather, the investment process is constrained by the carrying capacity of the predefined social structure, which existing norms, hierarchy, and power relations govern (Lin, 2002). For example, actors with high financial capital may perceive the cost to attend a private networking event as low, whereas poorer actors might consider it a costly investment. In this sense, social capitalization is a process that is jointly influenced by structure and rational choice. Highlighting network structural dimension—either on a macrosocietal level or within an organizational boundary—is not new, as exemplified by the previous work of Borgatti, Jones, and Everett (1998), Burt (2000), Lin (2002), and more recently Fulk and Yuan (2013).

(4) What is new in digital social capitalization, however, is the role of platform affordances. Actors' cost-benefit assessment is influenced not only by the embedded social structure but also by online platforms' technological characteristics. In digital contexts, actors make a decision regarding not only with whom to invest but also through which platform the investment should be made. In other words, the decision for online social investment is the product of the interplay among agency, social structure, and platform affordances. In the digital sphere, the intensity and type of social investment varies greatly, ranging from seconds of "micro-donation" of time to an online community (Margetts, John, Hale, & Yasseri, 2016), to more committed long-term interactions via social networking services (Ellison et al., 2007). Such variability in the form and intensity of digitized social investment is linked to the technical advantages and constraints of different platforms and is often the source of difficulty in transplanting the offline tie-strength analogy into digital situations. Accordingly, when a researcher examines social investment dimensions in an online context, a multiplicity of platform choices is as important as human relational choices.

(5) The social capitalization framework does *not* always advocate positive or successful returns (Portes & Landolt, 2000). The framework does not underscore positive outcomes for individual or collective betterment, but rather focuses on the act of networking itself to accumulate potential resources. Sometimes the whole process of investment and accrual may result in unintended consequences due to underlying motivations (e.g., excessive resource preservation) or relational structural constraints (e.g., ascribed social status). Therefore, as Portes (1998) pointed out nearly two decades ago, it is possible that the process of social investment and actualizing resources could result in "not-so-desirable consequences of sociability" (p. 5).

In summary, to understand social investment patterns as an important dimension of social capital, social capital theory needs to be extended beyond the outcome-oriented perspective. The social capitalization proposed in this chapter may serve as a supplementary theoretical lens to the outcome-oriented framework. The social capitalization framework is centered on the purposive nature of social investment and its potential to accumulate resources for future returns. This investment-oriented perspective may serve as an alternative to the research trend that equates social capital with positive outcomes. A social capitalization framework may allow Internet researchers to explore online social networking as an interplay among agency, structure, and platform affordances. For example, what technological opportunities and constraints influence the patterns of social investment online? What goals and intentions account for an actor's selection of certain digital platforms and types of networking activities? What leads actors to make—or to refuse to make—their resources available to others networked online?

5. Taxonomy of Online Social Investment Patterns

As mentioned previously, conceptualizing social networking activities based on tie strength and associating tie strength with different outcomes of social capital—that is, bonding and bridging capital—is not always straightforward in capturing social dynamics in the digital realm. As an initial stage of social capitalization framework development, this chapter suggests three dimensions of cost-benefit assessment that may influence an actor's social investment: cost of uncertainty, cost of persistence, and cost of mutuality (reciprocity). While these dimensions resonate with some characteristics of strong versus weak ties, the proposed social investment taxonomy offers a more atomized understanding of the networking types and patterns in digital contexts.

5.1 Cost of Uncertainty

Lin (2002) argues that there are two types of goals that drive social capitalization: preserving existing resources and gaining additional resources. Resource preservation is achieved by expressive actions, such as others' endorsement for one's entitlement to a resource or confirming one's legitimacy by sharing sentiments with others (Lin, 2002). Additional resources are attained through instrumental efforts that encourage others to allocate a new portion of resources to the focal actor. According to Lin, resource preservation is more common and easier to achieve because actors maintain the status quo through recognition and affirmation by others who already share a similar identity or the same community membership—that is, homophily.

Homophily refers to the tendency of individuals to have more social interactions with those who share similar attributes or characteristics (McPherson, Smith-Lovin, & Cook, 2001). Homophilous social interactions occur with a relatively low level of uncertainty and thus demand low cognitive and affective costs. In contrast, adding new resources demands greater investment of effort, because new resources are gained from a connection with someone who possesses dissimilar assets—"resource heterogeneity" (Lin, 2002, p. 62). Heterogeneous resources are more likely to be attainable via interactions with those having different identities or backgrounds. The level of uncertainty in heterogeneous interactions is thus higher than in homophilous relations, requiring more effort to reduce the uncertainty. Therefore, the willingness to provide extra effort to reduce uncertainty is directly linked to the anticipated returns from either homophilous or heterophilous social interactions. Homophilous interaction is expected to incur lower uncertainty with the anticipation of resource preservation, while heterophilous interaction is expected to incur high uncertainty with the anticipation of adding new resources (Lin, 2002).

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Note that the uncertainty discussed in this capacity is limited to cross-sectional heterogeneity, as opposed to social burden caused by a hierarchical discrepancy, which can be considered as a separate dimension of cost, as detailed in section 5.3. Also, although the uncertainty dimension closely resonates with bonding and bridging capital, it does not necessarily correspond with the dichotomy of tie strength, especially in a digital social context. For example, a Facebook political partisan group is a gathering of like-minded individuals (low uncertainty), but their identity reinforcement (resource preservation; also bonding capital effect) relies on their low-density, dispersed networks (weak ties), through which the political ideology that they believe is reaffirmed and legitimized by networked crowds' endorsements.

5.2 Cost of Persistence

Relational persistence may be a sub-characteristic of tie strength. For example, Granovetter (1973) defines a strong tie concept as a "combination of *the amount of time* [emphasis added], the emotional intensity, the intimacy, and the reciprocal services" (p. 1361). Due to the relative ease of terminating relational activities in digital platforms, a maintained online relationship often explicitly signals that the user is willing or motivated to continue the relationship.

Conventionally, relational duration has been represented by asking about the longevity of the relationship, such as "how long have you known this person?" Instead of asking the length of acquainted time, the relational persistence dimension in this taxonomy intends to consider whether an actor anticipates the relationship made in a given digital platform to be continuous or to be transitory. For example, users might befriend their parents on Facebook under the expectation that a Facebook friendship with them should continue without limit. In contrast, if a user perceived the relationship with his or her parents on Facebook as compromising too much privacy (i.e., too costly), the user would not befriend them—or would terminate the friendship immediately—on Facebook. However, regardless of relational persistence on this particular platform (Facebook), the nature of the parent-child relationship should remain durable and strong. In this case, it is the platform characteristics, not the inherent relational quality, that largely influence a user's assessment of the cost of persistence.

As another example, participation in an online support group could be relatively transitory—that is, sustained until the actor overcomes the hardship. If an actor maintains social interactions with certain members of the support group even after the problem is solved, the level of relational persistence with these selected members must be distinctive from that with the rest of the group's members. Subsequently, social investment in selected members may accumulate a different quality of resources. In this case, even if an actor meets people in the same online platform, the willingness to expend effort for a persistent relationship is different depending on who the partner is. These two examples—Facebook and social support groups—suggest that the decision about the cost

of relational persistence is determined by the interplay among the nature of the relationship, the platform characteristics, and the actor's intention.

5.3 Cost of Mutuality (Reciprocity)

Mutuality, or reciprocity, may be understood as a sub-dimension of homophily as well as tie strength. However, in this chapter the notion of mutuality is treated distinctively from homophily or tie strength, particularly by highlighting that nonmutuality reflects social structural inequality (e.g., authority, popularity, power, and attractiveness). The nonmutual relationship may produce a prestige effect (Lin, 2002) or a “positional resource” effect (Wellman & Wortley, 1990, p. 560) by which individuals with a higher status have disproportional advantages in leveraging their social connections. If the aforementioned “cost of uncertainty” refers to cross-sectional differences, the “cost of mutuality” is caused by status inequality and thus reflects a vertical gap. Interacting with those of unequal status can sometimes incur an even greater social burden than interactions with cross-sectional differences. The low level of mutuality in social investment is expected from unequal power relations. Conversely, the more equal two actors' status is with each another, the greater the reciprocity that may be anticipated.

Therefore, whether or not an actor is willing to invest in a social relationship with unequal status reflects the level of anticipated mutuality from the interaction. Social investment may—or may not—be more likely to be initiated by someone who is lower in status. Digital platforms often facilitate unequal social networking with relatively less effort than in an offline context. For example, top scholars may be followed and retweeted by less influential junior scholars on Twitter, or fans are likely to leave comments on a celebrity's Instagram posts. These online social activities may be enacted without much expectation of mutuality. As Lin (2002) discusses, status inequality is one of the macrosocial structures that intervenes in the process of social capitalization. An actor with high authority may experience greater readiness to actualize resources than an actor with low authority. Also, despite the same amount of social investment, the sum of returns could be different due to status inequality.

6. Diversity of Social Investment Types: Online Networking Examples

The taxonomy of social investment patterns is based on the variations in three cost-driven motivations: cost of uncertainty, cost of persistence, and cost of mutuality. In combination, these motivations result in eight differentiable investment patterns. Half of the types (patterns 1 through 4) occur when actors either share a relatively equal status or have mutual consent to be treated as equal. The other half (patterns 5 through 8) characterizes social interactions among actors in unequal power relations. While some of

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the identified patterns are easily found in offline contexts as well, others are more common to and even unique to online sociability thanks to technological affordances. Table 1 summarizes the itemized social investment patterns.

Table 1 Social Investment Patterns: Three Cost-Benefit Assessment Dimensions

Social Investment Patterns	Description	Online Example
Low Uncertainty- Persistent- Mutuality	This networking type is the closest to the traditional notion of strong ties, characterized as homogeneous, mutual, and long-term.	Family friending on Facebook; multi-year collaboration among online gamers
Low Uncertainty- Persistent- Nonmutuality	This networking type is rooted in a long-term community of shared interests, but actors occupy different structural positions in the community.	Supervisor as a LinkedIn contact; church pastor
Low Uncertainty- Transitory- Mutuality	This networking type characterizes gathering /collaboration for the temporally shared goals.	Online support group; online protest network
Low Uncertainty- Transitory- Nonmutuality	This networking type temporarily connects to more prestigious actors in the community of shared interest.	Hyperlinking to power blogger's posts
High Uncertainty- Persistent- Mutuality	This networking type connects among actors with different resources, who anticipate mutual benefits from the connection.	Listserv among the Chamber of Commerce members
High Uncertainty- Persistent- Nonmutuality	This networking type represents a one-directional commitment to a dissimilar actor of unequal status.	Following influential actor in different careers in Twitter; committed fan following celebrity on Instagram

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High Uncertainty- Transitory- Mutuality	This networking type aims at instrumental interactions among heterogeneous actors to achieve short-term, mutual goals.	Guest-host interactions via online sharing services such as AirBnB
High Uncertainty- Transitory- Nonmutuality	This networking type produces the weakest kind of relationship: transitory interactions with dissimilar actors of unequal status.	Email greeting to influential actor in a different career; temporary fan following celebrity on Instagram

(1) The “Low Uncertainty-Persistent-Mutuality” investment pattern depicts most closely the traditional notion of strong ties. Interaction with close friends in online social networking platforms could be an example. While the most common activities that fall into this typology may be offline-to-online social interactions, online encounters can also reveal this pattern in the online gaming community, for example, where gamers team up together regularly over several years.

(2) The “Low Uncertainty-Transitory-Mutuality” investment pattern describes online social interactions that aim for temporary goals that are shared by the actors. Social support networks or online protest networks that emerge along with a specific agenda may be an example of this pattern. This type of investment is also found offline, such as in attending group meetings of patients.

(3) The “High Uncertainty-Persistent-Mutuality” pattern characterizes reciprocal social investment among those from different backgrounds, yet with similar social positions, who mutually understand that their long-term relationship may bring some benefit to one another in the future. For example, a manager of a local theater company and an editor of a local newspaper may be connected through LinkedIn. A Chamber of Commerce can be another example found offline; as long as members do not break the connection, they share the mutual expectation that knowing each other may possibly bring some returns in the future. Given that networking opportunities among dissimilar actors do not occur as frequently as among similar actors, this type of investment can particularly leverage online sociability.

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(4) The “**High Uncertainty-Transitory-Mutuality**” pattern often aims to seek an instrumental gain from other consenting individuals who possess different resources. The goals may be specific and achievable in a short period of time. An example could be the instrumental interaction between service providers and beneficiaries who meet through online apps, such as the host-guest relationship through Airbnb or Uber. This type of relational pattern is also observed in an offline context—for example, short friendships at a holiday resort. In some other cases, however, this investment type could be influenced by the motivation to preserve expressive assets, possibly resulting in defensive interactions with dissimilar individuals. For example, online commenting communities often display different opinions, and various perspectives are encountered and exchanged, such as on YouTube. Although heterogeneous discursive interactions could encourage the gaining of new knowledge (Kim, Hsu, & Gil de Zúñiga, 2013), it could also result in negative consequences (e.g., incivility, polarization) driven by an excessive desire to preserve existing resources (Coe, Kenski, & Rains, 2014).

(5) The “**Low Uncertainty-Persistent-Nonmutuality**” pattern characterizes an actor’s networking with someone in a higher position in the hierarchy within the same community, under an expectation that the relationship will be sustained over a long period of time. For example, friending a workplace supervisor or the pastor or elders in a church community on Facebook is expected to be a long-term connection with shared interests, yet with unequal status. A server-client relationship at a regularly visited restaurant may fall into the offline version of this category. This investment type is likely to be an offline-to-online spillover of the relationship.

(6) The “**Low Uncertainty-Transitory-Nonmutuality**” pattern seems to be a rather uncommon type of social investment offline. However, it is occasionally observed in an online context. For example, in the blogosphere a community is created among like-minded bloggers with a shared topical interest (e.g., law, technology), but each blogger’s individual status in the community of interest differs depending on the blog’s popularity. Hyperlinking among bloggers reveals a power-law tendency (Hindman, 2010), with the most popular posts getting disproportionately large numbers of inbound links compared to the marginal ones. While marginal bloggers may gain new knowledge from this type of nonmutual investment, the hyperlinked blogger also gains expressive returns by building up a reputation of credibility by virtue of knowledge provision. Hyperlinking a certain blog post is a transitory networking activity unless a blogger subscribes to another blogger over a long period of time.

(7) The “**High Uncertainty-Persistent-Nonmutuality**” pattern echoes pattern 5 (“Low Uncertainty-Persistent-Nonmutuality”), except that social networking in this category is the boundary-crossing type. For example, a junior social scientist might meet a highly influential physicist at an interdisciplinary conference and maintain the connection to the physicist via Twitter. A completely different scenario is also conceivable; for example, fans who sustain one-way interactions with a celebrity by following and commenting on the celebrity’s Twitter or Instagram posts. This fan-celebrity relationship could be persistent or transitory (the last pattern below), depending on the fan’s willingness to pay long-term attention to the celebrity. This interaction pattern occurs in a highly heterogeneous and unequal relational context, and thus it may be somewhat difficult to sustain offline. Accordingly, digital platforms are particularly useful for this type of social investment.

(8) The “**High Uncertainty-Transitory-Nonmutuality**” pattern refers to the investment put into the most dissimilar interaction activities. The examples described for pattern 7 could fall into this category if one decides to invest in the relationship only momentarily. For example, the exemplified junior social scientist could just send a one-time greeting email to the physicist. The one-way fan interaction with the celebrity may also fall into this category if the fandom is fleeting.

7. An Empirical Application: Social Investment in a Facebook Personal Network

So far this chapter has described the typologies of social investment patterns based on the cost-benefit assessment of digital sociability. The investment-oriented view and social capitalization framework may complement the outcome-oriented approach that prevails in Internet social capital research. The social capitalization framework may be particularly useful when a researcher is interested in delving into online networking patterns. The author’s study conducted with colleagues a few years ago (Stefanone, Kwon, & Lackaff, 2012) demonstrates possible directions for the empirical utilization of a social capitalization framework. The 2012 study is a rudimentary example, however, because it does not fully incorporate the taxonomy of social investment patterns in the analysis. The social capitalization framework presented in this chapter was refined after the 2012 study was published, largely based on the lessons learned from it.

Specifically, the 2012 study was based on a pseudo-experiment conducted on Facebook in 2010. In this study, social capital was explicitly defined as networked resources invested and gained through individuals’ purposive actions (Lin, 2002). The study examined what relational quality motivated individuals’ social investment online. During the experiment, fifty users (or requesters) sent out a message to twelve selected Facebook friends to request low-stakes help on an image-labeling task. Among the twelve contacted friends, six were chosen to be the emotionally closest ties (strong ties) and the other six the most

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emotionally detached ties (weak ties). The request message was uniform and read as follows: “Hey, [First Name]—I need your help with a class project I’m working on. I need people to provide labels for a series of online images. I’d really appreciate your help! Please go to [study URL] and take the quick survey and label as many images as you can. Your participation will be a huge help. Thanks!” (Stefanone et al., 2012, p. 456).

For the image-labeling task, the research team developed a website that presented Google images one at a time with an open text bar in which participants could write any words associated with the image. The image-labeling system did not specify when to stop the task. Also, any word could be added to the system, and thus no expertise was needed. Technically, anyone could continue to label an infinite number of images. In other words, it is the contacted friend’s decision when to stop the task or how many images to label. The total number of images labeled by each friend would indicate the amount of tangible returns the requester mobilized. Simultaneously, however, spending time for this task was also understood as an act of social investment that the contacted friend placed with the requester. Provided with this circular notion, the intensity of a social investment by a contacted friend was operationalized as the number of images he or she labeled.

The study also tested the effect of tie strength on the amount of image labeling. The results revealed that, while tie strength contributed to a friend’s decision to initiate the task, the effect of tie strength dropped once Facebook contact frequency was controlled. Moreover, the tangible act of helping was associated with neither the ISCS-based bonding nor bridging capital (Williams, 2006). Considering that the ISCS has been a widely used instrument for outcome-based Internet social capital, this result suggested that the outcome-based framework might not be the most suitable to explain the social investment dynamics underlying this experiment.

Instead, specific networking characteristics would explain the result better. One of the findings showed that the nonmutual contacts were willing to spend more effort in image labeling. Nonmutuality (which was originally termed “social prestige”) was measured within the recruiter-friend dyad and operationalized as the discrepancy between the perceived attractiveness of each other. The more socially prestigious (more attractive) the requester was, the more returns he or she could gain. Conversely, the friend with low social prestige in the dyad spent a longer time to perform the image-labeling task for the sake of the requester.

Provided that requesters and contacted friends were from the same university, they were assumed to come from relatively similar backgrounds with a low level of uncertainty. Also, considering that defriending was a relatively uncommon practice on Facebook at the time the experiment was conducted, Facebook friendship was by default considered to be a relationship with some expectation of persistence. Therefore, this study was pertinent to discuss the dimension of mutuality among the three cost dimensions. From the requesters’ points of view, their prestigious positions were advantageous in mobilizing friends’ time and effort resources. While requesters gained returns by virtue of their friends’ help, from the friends’ perspective, the act of helping was translated into a form

of social investment in the relationship with the requester. The contacted friends were willing to spend their time to solidify relationships with a more socially attractive individual; they were willing to pay the cost of mutuality.

8. Discussion and Future Research

This chapter introduced an investment-oriented understanding of social capital. Social capital theory has served as an insightful theoretical backbone for Internet research that explores the functions of digital sociability. A majority of Internet social capital studies have highlighted the ways in which social media uses can result in positive outcomes for individual well-being and societal betterment. This outcome-oriented approach has been successful in confirming the community-enhancing roles of digital connectivity. However, overemphasizing positive outcomes of social capital may possibly neglect scholarly interests in the antecedents of social capital effects, specifically the mechanisms of social investment.

This chapter aimed to complement the existing outcome-oriented framework by delving into a variety of social investment patterns curated in a digital environment. The discussion was centered on Lin's (2002) notion of social capitalization. Although Lin's original text mentioned the terminology "social capitalization" only a few times, the concept was nevertheless adopted as primary vocabulary in this chapter in an attempt to differentiate the understanding of social capital as a social investment from the understanding of social capital as a positive outcome. At the bottom of the social capitalization framework lies the premise that, like investment in other forms of capital, social investment is driven by purposive actions.

The chapter highlighted three dimensions of cost-benefit assessment that could influence social investment decisions: cost of uncertainty, cost of persistence, and cost of mutuality. The willingness to accept the cost of uncertainty is closely linked to cross-sectional similarities or differences. The decision to accept the cost of persistence underscores the actors' willingness to keep the relationship persistent or transitory. Cost of mutuality is rooted in status inequality or hierarchical differences. Whether or not an actor endures the cost of uncertainty, persistence, or mutuality incurred from a given networking practice is determined by the interplay among the actor's intention, social structure, and platform affordances.

It is important to note that the social capitalization framework is based on a parsimonious assumption about online users—that they have purposive minds when they engage in social networking activities. Accordingly, it cannot explain a situation in which purposeless behaviors result in serendipity. Although the social capitalization framework may not be representative of all possible online networking situations and serendipity, it nonetheless contributes to the development of a social investment taxonomy configured

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in the digital sphere, where some social activities are uniquely distinctive from those offline.

This chapter is a preliminary introduction to the social investment framework, which needs further tuning for empirical reification. Also, the chapter does not address the ways in which social investment patterns could be represented by network structural analysis. While a structural analytic approach to Internet social capital is beyond the scope of this chapter, it is an important research agenda that calls for future scholarly attention. Future research is needed in the following three areas to improve the empirical utility of the investment-oriented framework:

(1) The first area of research needs to validate whether the three cost dimensions can uniquely distinguish various online networking activities from the traditional understanding of tie strength. The validation requires a survey of a wide range of networking activities occurring on different online platforms. The investment-oriented framework is centered on a networker's motivation. Therefore, a survey should ask about the actors' intentions underlying each particular networking event. Online networking activities could be sampled by modifying name generator and interpreter techniques. The name generator/interpreter method is one of the most popular in social network studies (Marin, 2004). Conventionally, the generator questions are designed to collect a set of social contacts predisposed to certain relational attributes. In order to validate the cost dimensions as the parameters for digital relational typologies, however, the sampling of networking activities must be as random as possible and cover as many varieties of platforms and networking episodes as possible.

Specifically, a researcher may be able to collect networking incidents by using the platform generator (e.g., having respondents come up with a set of online platforms frequently used) and random name generator questions (e.g., having respondents list a set of social contacts within each platform in a random way). If a computational tool is available, an automated name generation process might improve the random sampling process. Once social contacts are identified, the follow-up survey would ask the "interpreter" questions that address the nature of each networking episode based on cost dimension-related questions (e.g., to what extent the interaction with X in Y platform was based on shared interest/expectation of a long-term continuation/expectation of reciprocal interaction). For validation purposes, the researcher may additionally ask traditional tie strength-related questions, such as affective closeness and communication frequency. Multidimensional scaling or factor analysis can then be used to examine whether these three costs are indeed unique from one another and from traditional tie dimensions.

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(2) The second—probably highly ambitious—area of research will be to ponder the implementation of machine-learning techniques for the large-scale classification of investment patterns. The platform/name generator and interpreter methods help collect limited data because they require the interpretation of every identified activity based on the multiple interpreter questions. While computational classification could be helpful to apply the investment framework to a large-scale project, it can unfortunately be very challenging for some platforms. For example, the data-driven operationalization of social investment patterns is relatively straightforward in Twitter. The relationship between two users would incur a low uncertainty if the profile descriptions reveal similar backgrounds between the two; their networking could show persistence if the actors' following or interaction history has been long-lasting; and the relationship is based on mutuality if their interactions (e.g., retweeting, favoriting, and mentioning) show bidirectionality. Conversely, platforms such as Instagram and Facebook prohibit the use of application programming interfaces (APIs) for personal data collection; thus, employing such relational rules for computational assistance is nearly impossible. Although the computational approach will rely on technical availability, this area of research is worth exploration if one considers scaling up the observation of digital data.

(3) The third area of research will be to bridge the investment framework and the outcome framework. The successful validation of cost-based taxonomy, proposed as the first area for future research, is a prerequisite to pursue the integration of networking patterns and social capital outcomes into a single model. Supposing that the cost-based taxonomy should effectively characterize different patterns of digital networking activities, there are two ways to bridge the investment and outcome aspects of social capital. The first is to examine the association between investment motivations and outcomes on a networking activity level. Researchers may sample networking activities via the name generator and interpreter techniques with additional interpreter questions that allow for the measurement of the bonding, bridging, and collective social capital embedded in each networking activity. The second is to examine the relationship between investment patterns and outcomes on an actor level. An actor-level analysis requires researchers to develop an instrument that surveys individuals' predispositions to social investment patterns in online platforms. The investment predispositions are then associated with the existing social capital outcome parameters (e.g., ISCS, collective social capital). An actor-level analysis may compromise the detailed understanding of networking activities, but it nonetheless should be contributory because it will allow researchers to analyze social investments as antecedents for positive outcomes.

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