

# Exploring the relationship between perceptions of social capital and enacted support online

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*Online social networking sites enable users to connect with large, heterogeneous groups of people. While extant research suggests individuals benefit psychologically from the perception that they are well connected, little is known about the nature of tangible resources embedded in these online networks. In this study 49 participants sent 588 requests for instrumental help to their Facebook friends to determine the accessibility of networked resources and online social capital. Almost 80% of these modest requests went unanswered, and perceived bridging and bonding capital did not explain enacted support. However, people who occupied socially prestigious positions were the most likely to benefit from their friend's help. These results suggest that expansive mediated networks may yield limited instrumental benefits.*

**Key words:** online social capital, social networks, enacted support, perceptions, behavior

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Humans always find themselves involved in social groups. Today, these groups are routinely mediated by communication technology. Web 2.0 – the social web—is characterized best as the set of tools that facilitate production and distribution of content produced by everyday people. In particular, there is currently pervasive interest in the relationship between this content, (online) social networks, the nature of people's relationships mediated by websites like Facebook.com, and the changing role people now play in the production and consumption of mass-mediated messages. Considering that sites like Facebook.com facilitate the accumulation of expansive networks of acquaintances, there are pressing questions about the relationship between the characteristics of online networks, access to social capital, and outcomes like psychological wellbeing and access to resources embedded in these networks.

Social networks are the conduit for the entirety of human social behavior and are comprised by a range of relationships with varying qualities. Granovetter (1973, 1982) was the first to formalize the nature of relationship strength in social networks by arguing that social networks consist of relationships ranging from very weak in strength to very strong. Weak and strong tie relationships afford access to

different kinds of resources (Lin, 2001). For example, the strength of weak ties lies in their capacity to connect people to novel information and resources that reside in and propagate across networks (Hansen, 1999).

Considering how connected people have become online and the evidence suggesting that users are consequently better off (Ellison, Steinfeld, & Lampe, 2007), we propose to explore the nature of the relationships that comprise these networks and whether tangible, instrumental resources accrue to users. The current research reports on a quasi-experimental study designed to test the relationship between requests for instrumental help via Facebook, the relationship characteristics between request senders and receivers, and actual, enacted support. Grounded in the theory of instrumental action (Lin, 1982) and limited to instrumental support, our goal is to establish a baseline for networked resources by exploring the accessibility of social capital embedded in online networks.

## Theories of Self-Interest

Social scientists interested in self-interest as a motivation for social action (Coleman, 1986) suggest people make what they believe to be rational choices while pursuing objectives (Monge & Contractor, 2003). People are not always objective, systematic beings (see for example, Frijda, 1986). However, rational choice theorists (e.g., Homans, 1950) outline a process in which people weigh outcomes based on alternative actions and act based on the optimal solution to cost – benefit analyses. This approach suggests that people actively monitor and process environmental stimuli with the purpose of maximizing their individual outcomes.

Much of the literature on self-interest guided behavior grew out of research on status attainment (e.g., Blau & Duncan, 1967). The theory of instrumental action offers an alternative perspective by explicating the nature of relationships and embedded resources. While status attainment was operationalized as a function of “given” social network properties, status attainment can also be viewed as a product of strategic relationship choices.

## Instrumental Action

Lin’s (1982) theory of instrumental action suggests that people actively pursue opportunities and resources for their personal benefit. People have an intrinsic tendency to negotiate their social environments in ways that maximize chances for personal gain. First, status in groups matters when it comes to access to social resources. Consider the process of searching for employment opportunities. The social resources proposition of the theory of instrumental action states that if someone uses a contact higher in status than themselves to explore potential employment opportunities, they are likely to find a better job than someone who uses a contact of lesser status (Lin, 1999). Status in networks can be inferred from formal hierarchies like organizational charts. However, social hierarchies also exist outside the boundaries of organizations. For example, some people have “magnetic personalities” that make them the center of attention, and physically attractive people are frequently the objects of others’ affection. Not surprisingly, it can be advantageous to be in positions like these.

Lin and Dumin (1986) focused explicitly on factors affecting *access* to social resources, conceptualized as the way a person’s network may connect them with a variety of different positions. They operationalized strength of ties based on the nature of the relationship; relatives were coded as strong ties, friends as moderate strength ties, and acquaintances as weak ties. As expected, social contacts with high positions in networks and weaker tie affiliation (both friends and acquaintances) provided better access to prestigious job opportunities, support for both the strength of positions and strength of ties

propositions reviewed above. Further, weak ties were more instrumental for people whose original positions in the network were relatively low. It is unclear, however, whether or not weak ties mediated by networking sites can be activated for instrumental gain.

Taken together, the evidence summarized above suggests that structural characteristics of ego networks and positions in social hierarchies influence access to and use of resources embedded in social networks, or networked resources (Wellman & Frank, 2001). Overall, weak ties have greater instrumental functionality than strong ties, regardless of the structural location of those weak ties. When using people for instrumental goals, the literature suggests that the likelihood of others enacting support increases with social prestige, or *status*.

### **Social Status**

Many definitions of social status have been proposed. For example, Moreno (1934) quantified concepts of sociometric stars and isolates, where people situated in the center of star-shaped communication networks benefit from higher levels of status, while isolates in networks exhibit lower levels. Lin, Vaughn, and Ensel's (1981) model incorporated the socioeconomic status of personal contacts used to find employment. This early iteration of the theory of instrumental action suggested that access to and use of social resources play an important part in successful instrumental action. Essentially, the authors argue that "if social ties have different instrumental consequences, then the status of the contact should be a good indicator of the structural advantage of the tie" (p. 1166). We suggest that one form of status – *popularity* – manifests itself via unreciprocated relationships. Celebrities are a good example of popular people as they are the object of attention and affection from mass audiences. Similarly, some Facebook users may benefit from having higher social status than others, and this characteristic of their social position may affect access to resources embedded in social networks.

In summary, Lin's (1982) theory of instrumental action describes goal directed behavior which benefits the person taking action. Such behavior is defined as instrumental in nature and is restricted to actions that involve other people. Social resources are embedded in social networks (Lin et al., 1981; Lin, 2001), commonly known as social capital (Coleman, 1988) and these resources are used to maintain or promote an individual's welfare. Thus, the theory focuses on instrumental action initiated for the purpose of gaining valued resources that reside in social systems.

### **Social Capital**

According to Adler and Kwon (2002), social capital is roughly understood as "the good will that is engendered by the fabric of social relations . . . mobilized to facilitate action" (p.17). Other scholars including Coleman (1988) and Kadushin (2004) emphasize that social capital is embedded in social relations that develop during the pursuit of instrumental goals. In sum, social capital can be defined as networked resources that are created, maintained, and realized by social relations occurring via mediated communication (Wellman & Frank, 2001). Lin (1999) proposes a clearly operationalizable definition of 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. 39). Lin's definition is particularly useful because it elucidates the social nature of capital.

Social support is one type of resource that is accessed through social networks, and refers to availability of emotional and material support from others. Barrera (1986) suggests that social support research should clearly differentiate among three major concepts: social embeddedness, perceived social support, and enacted support. Social embeddedness refers to the structures of relationships connecting people. This is typically measured with social network analytic techniques which facilitate

the quantification of structural properties of communication networks (Walker, Wasserman, & Wellman, 1994; Wellman, Carrington, & Hall, 1988; Wellman & Gulia, 1999; Wellman & Wortley, 1990).

Perceived social support is one of the broadest and most prevalent operationalizations in the social support literature (Barrera, 1986) and reflects idiosyncratic perceptions of support, rather than social structure. Perceived social support has been found to correlate with a range of psychosocial and physiological responses and behaviors including coping (Tao et al., 2000), academic achievement (Eggens, van der Werf, & Bosker, 2008), and even blood pressure (O'Donovan & Hughes, 2007). More recently, research on social network sites has adopted measures differentiating between bridging and bonding support (Williams, 2006).

Finally, enacted support refers to the actual provision or reception of support. Barerra (1986) notes that enacted support is often measured using self-report data. As such, much extant research has actually measured perceived-received support. Valid measures of enacted support should therefore utilize behavioral observation or dyadic analysis. Thus, behavioral measures of enacted support are used in the current study.

As mentioned above, different perspectives on the nature of social relationships and resources have lead to the identification and operationalization of two related forms of social capital: bonding and bridging. Bonding capital is understood as embedded in internal, or closely connected social ties (Adler & Kwon, 2002) and research shows that perceptions of bonding capital increases credibility assessments, garners consensus from others, and enhances emotional support (Williams, 2006). Bonding capital can be particularly advantageous for collective endeavors (Klandermans, 1984; McAdam & Paulsen, 1993; Opp & Gern, 1989). For example, Coleman (1988) focused on a student revolution in Korea to discuss the collective returns of bonding social capital within small clandestine groups. Gould (1991) also illustrated the importance of neighborhood relations in exerting contagious motivation toward protest participation. Thus, bonding capital is related to group solidarity, which in turn should be related to enacted, mutual social support.

Bridging capital is associated with diverse social ties (Adler & Kwon, 2003) and is understood as linkage capital because it facilitates connections to otherwise disparate social groups. The advantage of bridging capital lies in its ability to connect people to novel, nonredundant social resources. For example, information flow between groups providing instrumental resources may be limited in homogeneous networks exhibiting insulating properties opposed to heterogeneous networks where subgroups are connected by liaisons (Granovetter, 1974). Accordingly, bridging social capital is understood as benefits stemming from network diversity.

Recently, Hampton, Lee, and Her (in press) explored the relationship between off- and online behavior and network diversity, and framed their investigation in the context of advantages associated broadly with "accessible social capital" (p. 14). They found that internet use, and in particular the use of SNS, had positive relationships with network diversity (or, bridging capital). Their results also suggest a negative relationship between SNS use and the number of offline neighborhood ties people maintained, which suggests a *replacement* process whereby resources obtained by local, offline relationships are now accessible by mediated interpersonal relationships. Their results are consistent with Wellman's (2001) argument that in a networked society, physical proximity is becoming less important in terms of access to social capital. However, questions persist regarding the extent to which actual, enacted support resources accrue to users today.

Bonding and bridging social capital develop through regular activity that (in)directly facilitates interaction with other people and the social nature of contemporary Internet use lends itself to the accumulation of bonding and bridging capital (Wellman et al., 2001). The widespread use of social media increases perceived social capital (Ellison et al., 2007) which can create opportunities to expand

the size of recruitment pools for instrumental action. The level of interpersonal and collective capital built online may contribute to instrumental action on- and offline. Our goal is to explore the nature of networked resources embedded within mediated social networks and to explore the relationship between perceptions of online bonding and bridging capital and actual, enacted support. The specific hypotheses are presented next.

## Hypotheses

The current study is composed of two sets of hypotheses. The first explores the provision of instrumental support via relationships mediated by SNSs. Research suggests that perceptions regarding online social capital are positively associated with an individual's psychological well-being. However, we are not aware of any studies that examine the relationship between perceived social capital and the actual capacity of generating enacted support.

Considering the positive relationship between perceptions and psychological well-being, it is likely that people who are happier actually do have heightened access to resources. Thus, we hypothesize that an individual's perceived bonding social capital should have a positive relationship with the likelihood of procuring instrumental benefits from online networks. It is unlikely that bridging capital has a relationship with enacted support. Thus,

H1: Higher levels of perceived bonding capital have a positive relationship with the provision of enacted support.

Another set of hypotheses are posited by considering specific relationship characteristics between SNS friends *independent of* perceptions of bonding social capital online. Many network scholars have discussed the multidimensionality of relationship characteristics including Campbell and Marsden (1984) who found that tie strength—operationalized as emotional closeness and communication frequency—are distinct constructs. Wellman and Wortley (1990) also treated tie strength and contact frequency as distinct variables and they propose a range of explanations for interpersonal, enacted support. Of particular interest to the current study is the distinction between relational explanations which include “the *strength* of the relationship or . . . *access* that two persons have to each other” (p. 560). Here, strength is characterized by voluntary, intimate relationships. On the other hand, access is related directly to communication frequency and interaction (Galaskiewicz, 1985).

In light of this evidence, it is likely that tie strength and contact frequency operate as two separate variables that explain the provision of support. Thus,

H2: Tie strength has a positive relationship with the provision of enacted support.

H3: Communication frequency has a positive relationship with the provision of enacted support.

While the hypotheses above consider whether Facebook friends provide instrumental resources or not, they do not address the *quality* of resources provided. We propose that the caliber of enacted support is a function of how much time and effort is invested in fulfilling requests for help. Accordingly, because people are more heavily invested in their strong tie networks, they should provide higher quality support than weak ties. Thus,

H4: Tie strength has a positive relationship with the quality of enacted support.

Finally, relationships are often unbalanced in terms of liking and affection. Just because Frank perceives a very close relationship with Judy, for example, Judy may not perceive a reciprocal level of intimacy with Frank. In this elementary example, Judy benefits from heightened social status and holds an advantageous social position. We operationalize this perceptual gap as a form of social status. People who occupy favorable positions in social hierarchies should be afforded enhanced access to resources embedded in their social networks. This is analogous to the strength of positions proposition outlined in the theory of instrumental action. Thus,

H5: Social status has a positive relationship with the quality of enacted support.

This study affords us the opportunity to start validating existing research designed to assess different elements of social capital based on self-report data. Essentially all extant work on the relationship between online social networks and social capital rely on people's perceptions of access to these resources (e.g., Williams, 2006). However, we are not aware of research that uses actual behavior as a measure of the availability of and access to networked resources, and the quality of that support. Thus, this study also proposes the following research question:

RQ1. What is the relationship between perceptions of online social capital and the quality of enacted support on SNS?

## Method

During Spring 2010, participants were drawn in two steps and consist of primary and secondary participants, hereto referred to as 'ego' and 'alters,' respectively. First, ego's ( $N = 50$ ) were recruited from communication classes at a large northeastern university and instructed not to discuss this study with anyone else until completion of the study (a two week period). Participation was voluntary and this project had the approval of the institutional review board for human subjects.

Each ego was instructed to examine their entire Facebook friend network and to think about their six strongest and six weakest relationships on this site. The strong tie sample size was chosen based on extant research suggesting that people generally have about six very close people in their lives (Bernard et al., 1990), and the weak tie sample size was chosen to balance the design. Then they were required to record the identities and contact information for each of these 12 online friends (alters). One ego did not follow the procedure and was eliminated from the study. As a result, 49 egos sent a total of 588 requests to alters. One alter was chosen twice and was subsequently eliminated from the analysis leaving 586 unique alters.

Next, egos completed a brief survey measuring demographic information and their perceptions about a series of relationship characteristics for each of the 12 alters they identified. The specific measures are described in the *measures* section, below. Finally, they were instructed to send a request message to each alter. The standard request message explained that the sender needed help with a class-related project, which read as follows:

Hey, [Alter's 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!



**Figure 1** Screen shot of image-labeling task interface.

Each alter received only one request and all communication transpired via the Facebook message tool which is analogous to e-mail.

### Task

We limited the request to a low urgency, low stages task in an effort to establish a baseline response to modest requests on Facebook. This conservative approach was chosen because of the dearth of research in this area using actual behavior metrics. The request prompted alters to access a webpage and complete a brief survey followed by an image-labeling task (see Figure 1, below). Each survey URL was uniquely associated with each request, and the survey measured demographic variables and included the same series of relationship-specific variables about the ego who sent the request for help (described below). The image labeling task randomly generated a series of generic images and allowed visitors to enter a text label for each image. The quality of enacted support was operationalized as the number of images labeled, and the website recorded the number of images alters labeled. All egos were advised that if their friends contacted them about the message, they were to maintain the ruse until the researchers could debrief all alters after a 2-week period.

### Measures

Data collection proceeded in two stages. First, when egos arrived at the lab to participate in the study, an initial survey was administered. Stage 2 occurred when alters responded to requests for help. Each is discussed next.

#### *Stage 1.*

The survey for egos included three Likert-type items used to measure tie strength for each of the 12 online friends they selected (Marsden & Campbell, 1984; Wellman & Wortley, 1990). Items included “This person is a . . .” (1 = casual acquaintance, 7 = very good friend), “How close are you with this person?” (very distant, very close), and “Do you interact with this person voluntarily rather than because you are both members of the same social institutions?” (not voluntary, completely voluntary). The interitem reliability was very high, Cronbach’s  $\alpha$  for egos was .98 ( $M = 5.17$ ,  $SD = 2.17$ ).

**Perceived Social Capital.** We adopted Williams’ (2006) Internet Social Capital Scale (ISCS) to measure ego’s perceptions of online bonding and bridging capital on Facebook (10 and 9 items, respectively). An example of bonding capital items included “there is someone on Facebook I can turn to for advice about making very important decisions” (Cronbach’s  $\alpha$  for all responses = .88;  $M = 4.70$ ,

SD = 1.31). An example of bridging capital items included “interacting with people on Facebook makes me interested in things that happen outside of my town” (Cronbach’s  $\alpha = .85$ ;  $M = 4.42$ ,  $SD = .10$ ). A confirmatory factor analysis using varimax rotation yielded a two factor solution explaining about 57% of the total variance, and all items were retained (see appendix A for descriptive statistics and factor loadings for the ISCS scale).

**Tie Strength.** College students’ average Facebook social network size is greater than 250 people (Stefanone, Lackaff & Rosen, 2010). Given that human cognitive capacity allows for the effective management of only a limited number of strong ties (Hill & Dunbar, 2003; Roberts, Dunbar, Pollet, & Kuppens, 2009), it is probable that the majority of Facebook friends are weak ties. Thus, if random selection were utilized the sample of alters would have overrepresented weak ties. This would make between-group comparisons difficult. Accordingly, ego-reported tie strength was dummy coded as either strong (= 1) or weak (= 0) based on median split.

**Social Status.** Status was operationalized as the discrepancy between the three items used to measure ego and alters’ perceptions of relationship strength. Social status was calculated by subtracting ego responses from alter responses for each item and averaging them (Cronbach’s  $\alpha = .88$ ). Higher scores correspond to higher status positions in the interpersonal relationships. When egos reported liking alters more, they suffered from low status. In these cases, the values were negative. Overall these scores ranged from  $-7$  (lowest possible status) to  $7$  (maximum). The mean status score for egos was  $.24$  ( $SD = 1.37$ ) suggesting these relationships were fairly balanced overall.

We also included an item measuring the frequency of communication via Facebook. While Facebook communication represents one aspect of relationship strength, it also reflects use of CMC to maintain relationships. In this sense, Facebook contact frequency is understood as a Facebook-specific characteristic of relationship strength. Facebook contact frequency was measured with a 7-point scale (1 = has been more than a year since the last contact, 2 = only a few times a year, 3 = 1 or 2 times a month, 4 = 3–4 times a month, 5 = 1–2 times a week, 6 = more than 2 times a week, 7 = almost daily). The average contact frequency was  $2.55$  ( $SD = 1.65$ ).

## Stage 2

When alters responded to requests, they were first required to complete a brief survey. This survey was similar to the survey egos completed and included the same demographic and relationship-related questions. However, these items were framed such that alters evaluated the nature of their relationship with the ego who made the request for help. All of these alters completed the survey (Cronbach’s  $\alpha$  for tie strength =  $.86$ ) and then were automatically directed to a website for the image labeling task.

**Outcomes.** Two dependent variables were used to test the hypotheses and the research question proposed above. In the first analysis, the binary outcome of whether or not alters responded to requests for help was used. Recall that 96 people responded to help requests by visiting the image-labeling website. The dependent variable in the second analysis was measured as the quality of help provided. This was measured as the number of images labeled by alters.

## Results<sup>1</sup>

26 of the 49 egos were male, and the mean age of participants was 20.8 years ( $SD = 1.7$ ). Participants had on average 426.9 Facebook friends ( $SD = 148.20$ ), and spent about 35 minutes logged in per session ( $SD = 19.5$ ). The strong tie group of alters had an average relationship duration of 8.9 ( $SD = 6.0$ ) years and reported a contact frequency of 4.1 ( $SD = 1.7$ ) times per week. The weak tie group reported an average history of 5.8 ( $SD = 6.3$ ) years and communicated 2.8 ( $SD = 1.8$ ) times weekly. T-tests confirmed that

**Table 1** Correlations and descriptive statistics for secondary participant variables.

	M (SD)	Model with Binary DV (N = 586)			Model with Count DV (N = 96)				
		1	2	3	4	5	6	7	8
1 Tie strength	.50 (.5)	—	0.68***	-.21***					
2 Comm Freq.	2.55 (1.65)		—	.26***					
3 DV1	.16 (.37)			—					
4 Sex (1 = female)	.67 (.48)				—	-0.11	-0.06	-0.16	0.19
5 Age	20.66 (6.32)					—	0.03	0.01	0.02
6 Tie strength	.74 (.46)						—	.42***	-0.01
7 Social Status	.21 (1.57)							—	.24**
8 DV2	25.01 (42.09)								—

Note: \*\*  $p < .01$ , \*\*\*  $< .001$ ; DV 1 = completed survey (Y, N); DV 2 = number of images labeled by alters.

the strong tie sample of secondary participants ( $N = 294$ ) was characterized by significantly higher communication frequency ( $p < .01$ ) and greater emotional closeness ( $p < .001$ ) opposed to the weak tie sample. It is notable, however, that the weak tie sample was not as weak as anticipated; egos reported communicating with these ties about three times per week. Table 1 below summarizes the relationship between variables used in this study. As expected, reported tie strength had a positive relationship with contact frequency and relationship duration.

Overall, 98 of the 588 requests for help were answered secondary participants. Interestingly, 10 participants did not receive any responses to their requests for help. Nine participants had only one friend respond. The majority—16 participants—had 2 responses from their friends. Although two participants received responses from six of their friends, none of the primary participants received more than six responses to their requests for help.

Multilevel Logistic Analysis. Hypotheses H1 through H3 were tested with the entire pool of 588 secondary participants from stage 2 of data collection as units of analysis. Because these data were nested, we conducted multilevel logistic analysis using the Bernoulli distribution and Penalized Quasi-Likelihood estimation (PQL). To increase the robustness of the models, robust standard error was used. Multilevel models have two levels of variables. In our analysis, tie strength and Facebook contact frequency were used as level-1 variables similar to regular logistic regression models. In addition, we considered the random component in the intercept and primary participants' perceptions of online bonding and bridging capital as level-2 factors. All independent variables were grand-mean centered.

Because tie strength and contact frequency were highly correlated ( $r = .682$ ,  $p < .001$ ), we present three separate models. Tie strength and contact frequency were included separately in the first two models. The third model included a combined measure of tie strength and contact frequency as a single independent variable. Table 2 below summarizes the results from these three models.

First, the results show that the random component of the intercept was significant in all three models, indicating that enacted support differed depending on which primary participant made the request (Model 1,  $\chi^2(46) = 70.54$ ,  $p < 0.05$ ; Model 2,  $\chi^2(46) = 69.11$ ,  $p < 0.05$ ; Model 3,  $\chi^2(46) = 69.93$ ,  $p < 0.05$ ). However, hypotheses 1 was not supported. Primary participants' perceived level of bonding capital did not explain enacted support.

When tie strength was included in the model alone, the model was significant (Model 1,  $b = 1.23$ ,  $p < 0.001$ ); strong ties were 3.42 times more likely to enact support than weak ties. This is support for

**Table 2** Multilevel model for secondary participant resource provision (Binary outcome, N = 586).

		b	SE	t	Odds Ratio	C.I.
<u>Model 1</u>	<u>Level 2</u>					
	Bridging	-0.19	0.17	-1.11	0.83	(0.59,1.17)
	Bonding	0.16	0.14	1.14	1.17	(0.89,1.54)
	<u>Level 1</u>					
	Tie strength	** 1.23	0.26	4.75	3.42	(2.06,5.68)
<u>Model 2</u>	<u>Level 2</u>					
	Bridging	-0.14	0.18	-0.81	0.87	(0.61,1.24)
	Bonding	0.15	0.12	1.21	1.16	(0.91,1.48)
	<u>Level 1</u>					
	FB Contact Freq	** 0.39	0.06	6.92	1.48	(1.33,1.66)
<u>Model 3</u>	<u>Level 2</u>					
	Bridging	-0.16	0.18	-0.89	0.86	(0.60,1.22)
	Bonding	0.15	0.13	1.18	1.16	(0.90,1.49)
	<u>Level 1</u>					
	Tie strength	0.53	0.36	1.50	1.71	(0.85,3.43)
	FB Contact Freq	* 0.29	0.09	3.31	1.34	(1.13,1.60)

Note: \*  $p < .05$ , \*\*  $p < .001$ .

hypothesis 2. However, the effect of tie strength was mitigated when Facebook contact frequency was considered (Model 3),  $b = .53$ ,  $p = .116$ . When entered separately (Model 2) and when considered together with tie strength (Model 3), Facebook contact frequency was the most significant predictor of resource provision, supporting hypothesis 3 ( $b = .39$ ,  $p < 0.001$  in Model 2;  $b = .29$ ,  $p < .01$  in Model 3). Contact frequency and tie strength together increased the odds of resource provision 1.34 times. Using contact frequency alone in the model increased the odds of resource provision 1.48 times.

Negative Binomial Regression Analysis. Hypotheses 4 and 5 were tested using a negative binomial regression. When the dependent variable is a count variable, like the data collected for the current study, poisson regression is a common analytic approach. However, poisson regression models require strict adherence to the assumption of dispersion by which the expected mean value should be approximately equal to the observed variance. When quantifying the equality of variance to the expected mean, it should be approximately equal to 1 when the residual deviance is divided by the degrees of freedom. If the result is greater than 1, the data fails to fit the poisson distribution assumption due to the excess variation. When excess variation is produced from stochastic components, or random errors, the excess variation is understood as overdispersion. In cases of overdispersion, negative-binomial regression analysis produces more robust results compared to poisson regression (for a discussion of issues related to overdispersion, see Berk & MacDonald, 2008).

Our data demonstrated excess variation. The ratio of residual deviance (347.46) to degrees of freedom (84) was 4.136, obviously higher than 1. This excess variation occurs from random errors that are inherent in our experimental design: The 84 cases are part of a multilevel dataset in which secondary participants are nested in the primary participant's personal networks. Accordingly, the excess variation in our data is understood as overdispersion. Thus, a negative binomial regression analysis was performed. Secondary participants' sex and age variables ( $M = 20.66$ ,  $SD = 6.32$ ) were entered as controls and tie strength and social status were entered as predictors. The continuous

**Table 3** Negative binomial regression model (N = 96).

	b	SE	Wald	Wald C.I.
Age	-0.01	0.02	0.39	(-.06, .03)
Sex *	0.64	0.23	7.18	(.17, 1.10)
Tie Strength	0.43	0.27	2.47	(-.11, .97)
Social Status**	0.45	0.10	20.64	(.26, .65)

Note: Maximum Likelihood Ratio  $\chi^2(4) = 13.22, p = .01, *p < 0.01; **p < .001$ .

variables age and social status were grand-mean centered. The results indicate that sex (female) had a positive relationship with the intensity of support given ( $b = 0.64, p < .01$ ). In other words, female friends were more supportive in providing their time and effort than male friends. Social status was also a significant determinant of the quality of received support indicating that for a one unit change in status, the difference in the logs of expected counts of labeled images changed by .45 while holding the other independent variables constant ( $p < .001$ ). Thus, only H5 was supported (Table 3).

## Discussion

Computer-mediated interaction and online networking sites have enhanced the ability to maintain a broader spectrum of relationships ranging from the most intimate to extremely superficial. This exploratory study focused on social capital operationalized as enacted online support and begins to explore the utility of vast networks articulated via SNSs like Facebook. We investigated perceptions of online social capital and a series of relationship characteristics to begin explaining the likelihood of enacted instrumental support by Facebook friends. To our knowledge this is the first research to explore the instrumental utility of online networks using behavior metrics as dependent variables.

We began by exploring the relationship between perceptions of bonding social capital and enacted support. While extant research suggests that people who believe they have more social capital online benefit psychologically, the results of the current study suggest that limited instrumental resources may accrue to such people. While this study limited requests for enacted support to the provision of a service, the results indicate that relatively few people respond to such low-stakes requests for help. Further, we failed to show any significant relationship between perceived social capital and enacted support. In this study, the intuition “I have many good friends from whom I can get help” did not explain the ability to mobilize resources when actually needed. It seems that perceptions about the quality of relationships may be too general to be linked to actual resource acquisition. Another possible explanation is that bonding capital and embedded resources may be independent constructs that engage different aspects of one’s social life, even if they currently share the term “social capital” within the literature. In a sense, this failure to associate perceived social capital and enacted support mirrors the cleavage within the existing social capital literature.

As Granovetter (1973) suggests, strong ties are limited in their ability to provide novel resources because they are likely to be interconnected among themselves, for example family members, thus circulate redundant information. However, they also represent relationships with greater levels of investment. In the current study, the request was for a service, not information. As such, it was likely that strong ties would be more likely to respond to requests for help. It is important to note here that the weak ties solicited in this study were not as superficial as expected. Participants were given instructions to think about their six weakest ties, and told that these ties may be with people that they have not

even met to encourage them to think about very weak ties. However, primary participants reported communicating with their weak ties about three times a week. Regardless, these ties were still far less likely to provide support when asked.

One interesting finding is that the amount of interaction that occurs via Facebook explained enacted support. Facebook contact frequency accounted for the most variance in enacted support, even more so than emotional closeness. This Facebook-specific context of social exchange influenced the likelihood of receiving enacted support. This finding is particularly relevant considering the recent work by Hampton et al. (in press) which suggests that benefits accrue to SNS users even though these people report having relationships with fewer of their local neighborhood members. The development of mediated networks characterized by frequent online communication may be replacing people's traditionally local social support networks, consistent with Wellman's (2001) notion of networked individualism.

Although online social spaces are governed by traditional interpersonal communication norms, technological factors may uniquely affect the dynamics of social exchange and action. Facebook provides multiple channels for interpersonal and group communication, for example. The outcome of requests might have been different if the request was solicited through an alternate Facebook communication channel such as a public wall post or a group message. These channel differences resonate with earlier theories about social presence in mediated communication, and future research would benefit by revisiting these technology-oriented theories and examine how technology factors interact with relationship characteristics.

Finally, we identified a social status effect on the quality of enacted support. Although tie strength explained support, the quality of the enacted resources was explained largely by the level of social status maintained by those requesting help. This can be understood as a kind of interpersonal or social power within informal groups. In student friendship networks where status (socioeconomic and otherwise) is rather homogeneous across members, power is determined by a person's popularity or attractiveness, among other attributes. Our results suggest those who acquire higher social status are likely to have greater access to social capital, analogous to other social contexts where authority or high levels of prestige are associated with enhanced access to resources (Lin, 2001).

Instrumental action is commonly observed online. People routinely receive recommendations, suggestions, and requests from their friends, community organizers, the commercial sector, and a range of other third parties. Along with social media practices with which sharing, authoring, and recommending are major activities, the regime of instrumental action is increasingly expanded online. Our study explored how specific relationship characteristics explain such behavior. Because our study was based on a simple manipulation of the strongest and weakest ties, the investigation could not capture the influence of multifarious relational characteristics. Likewise, the measure of social status was restricted to the relationship between pairs of participants. Status can also be conceptualized more broadly by measuring a person's standing at the whole network level.

Further, sending personal requests via e-mail or Facebook messages may not be the most valid or effective way to determine the accessibility of social capital. For example, response rates would probably increase if requests for help were made face-to-face, in real time or if the communication was characterized by more than a single attempt to request help. Although we were not able to measure whether secondary participants actually received the request for help, the weak ties used in this study reported communicating with primary participants about three times per week so it is likely they that did actually receive requests. In addition, although statistical tests confirmed that the strong tie sample of secondary participants differed from the weak tie group, primary participants were instructed to think about their six strongest and weakest ties. As noted in the results section, primary participants indicated that they frequently communicated with their weak ties. Thus, these relationships did not

represent the extremes in terms of relationship strength. Still, the difference between these groups was statistically meaningful, and strong ties were significantly more likely to enact support.

Finally, it is possible that the decision to have primary participants deceive their friends was problematic. It is possible that these individuals did not maintain the deception for the duration of the study. However, there were no systematic biases in the distributions of responses received for primary participants. That is, the response rates were normally distributed, although skewed toward lower response rates.

Future research would benefit from employing a more systematic sampling approach and test other relationship criteria. This study was also limited in terms of the support requested. This study mandated that participants ask their friends to provide a service which required a modest time commitment. There are differences, however, in the kinds of resources embedded in strong and weak tie networks. Recall that this study was designed to provide baseline data on the likelihood of resource mobilization because of the dearth of extant literature on this topic. As such, we used a conservative approach to operationalizing enacted support and used a low-stakes, low-urgency request.

Future research should explore the differential returns as a function of the *type* of support requested. Clearly the results in the current study are limited in that they address provision of support for one specific kind of request. Developing continuous dependent variables would also add strength to these results. To better understand the dynamics of instrumental support and mobilization, continuous dependent variables like time spent helping might be more useful.

Although some of the measurements used herein could benefit from refinement and the small sample size for the multilevel analysis is a limitation, this study make a novel contribution to our understanding of online social networks and provides a foundation for future research in this area. Our operationalization of instrumental action as a specific, quantifiable social behavior is novel within the social capital research space, but has parallels with social research in other disciplines such as behavioral economics. Behavioral research approaches are uniquely suited to the study of social capital, as online communication forums are generally amenable to experimental investigation. The forms and practices of social goal seeking and reciprocation in these spaces like making recommendations, sharing links, and sending e-mails can be examined and manipulated in a manner that is both controlled and naturalistic.

## Note

- 1 Analyses for multilevel models were performed using the software HLM. SPSS was used for the negative binomial model.

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## Appendix

**Table A** Descriptive statics and factor loadings for ISCS.

	M	SD	Factor 1	Factor 2
<u>Bridging</u>				
Interacting with people on Facebook makes me interested in things that happen outside of my town.	4.39	1.47	0.728	
Interacting with people on Facebook makes me interested in what people unlike me are thinking.	4.27	1.44	0.696	
Interacting with people on Facebook makes me want to try new things.	3.97	1.45	0.801	
Talking with people on Facebook makes me curious about other places in the world.	4.71	1.61	0.872	
Interacting with people on Facebook makes me feel connected to the bigger picture.	4.5	1.49	0.826	
Interacting with people on Facebook reminds me that everyone in the world is connected.	4.99	1.56	0.725	
I am willing to spend time to support community activities occurring on Facebook.	3.89	1.41	0.691	
Interacting with people on Facebook gives me new people to talk to.	3.87	1.71	0.68	
On Facebook, I come in contact with new people all the time.	3.53	1.69	0.764	
<u>Bonding</u>				
There are several people on Facebook I trust to help solve my problems.	4.62	1.97		0.629
There is someone on Facebook I can turn to for advice about making very important decisions.	5.14	1.91		0.413
There is no one on Facebook that I feel comfortable talking to about intimate personal problems.	2.41	1.84		0.609
When I feel lonely, there are several people on Facebook I can talk to.	4.31	1.69		0.341
If I needed an emergency loan of \$500, I know someone on Facebook I can turn to.	3.62	2.23		0.579
The people I interact with on Facebook would put their reputation on the line for me.	4.57	1.68		0.502
The people I interact with on Facebook would be good job references for me.	4.09	1.7		0.583
The people I interact with on Facebook would share their last dollar with me.	4.4	1.87		0.365
I do not know people on Facebook well enough to get them to do anything important.	2.78	1.73		0.44
The people I interact with on Facebook would help me fight an injustice.	4.9	1.67		0.323

Note: Confirmatory factor analysis with varimax rotation yielded 2 factor solution explaining about 57% of the variance.