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A Meta-Analysis of Social Networking Online and Social Capital

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Social networking sites offer new avenues for interpersonal communication that may enable people to build social capital. The meta-analyses reported in this paper evaluated the relationship between social network site (SNS) use and 2 types of social capital: bridging social capital and bonding social capital. The meta-analyses included data from 58 articles gathered through scholarly databases and a hand search of the early publications of relevant journals. Using a random effects model, the overall effect size of the relationship between SNS use and bridging social capital based on $k = 50$ studies and $N = 22{,}290$ participants was $r = .32$ (95% CI [.27, .37]), and the overall effect size between SNS use and bonding social capital based on $k = 43$ studies and $N = 19{,}439$ participants was $r = .26$ (95% CI [.22, .31]). The relationships between SNS use and both types of social capital were stronger in men than in women, and the relationship between SNS use and bridging capital was stronger in Western, individualistic countries than Eastern, collectivistic countries. Additional analyses of specific SNS activities indicated that SNS use promotes social capital by facilitating contact and interaction among people who already know each other offline rather than contact with people who were met online. The implication is that SNSs offer a platform to strengthen existing relationships.

Keywords: social networking sites, social media, bridging social capital, bonding social capital

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Social network site (SNS) use has grown tremendously over the last decade with the increasing popularity of Facebook, Twitter, and LinkedIn. Over 95% of U.S. adolescents have access to the Internet, and more than 75% of them have Facebook accounts (Lenhart, Smith, Anderson, Duggan, & Perrin, 2015). SNS use is not limited to teenagers. By June 2015, 72% of U.S. adults with Internet access used Facebook, and more than 50% of 9- to 12-year-old children had a Facebook page despite the age restriction (Duggan, 2015). The practice of checking profiles and posting updates on one or more SNSs has become part of everyday life for many Americans. SNSs allow people to share large amounts of personal information via text, images, links, or video to broad audiences. SNS users can comment directly on friends' SNS posts or reply through offline channels (e.g., phone calls, text messages or face-to-face). SNSs are well-suited to facilitate interpersonal exchanges that serve to maintain and strengthen social bonds because they offer a public platform in which people have shared friends and can comment on media streams (Ellison & Vitak, 2015). The present meta-analyses reviewed studies that have examined SNS use as a way of building social capital, that is, of creating, strengthening, and sustaining social networks.

Although an extensive literature has emerged on the relationship between SNS use and social capital, few have attempted to answer a number of important questions that could inform future research in this area. The current research is centered on the following questions: Does SNS use contribute to bonding social capital, to bridging social capital, or equally to both types of social capital? Which SNS activities are more closely associated with different types of social capital? Are there any cultural or gender differences in the relationship of SNS use and either type of social capital? We sought to integrate findings about how SNS usage (both total, general usage and specific activities) contributes to helping people feel that they are connected with supportive friends and people who may be useful in other ways.

Theoretical Background

Social Media and Social Capital

The exponential rise in SNS usage over the past 15 years is startling. Obviously, SNS technology had no precedent in human evolutionary history, unless one regards language itself as a predecessor. It is implausible to posit an SNS instinct. Instead, presumably SNSs offer a modern, technological solution to some other deeply rooted human tendency. A leading candidate is the human need to belong, which has long been recognized as a powerful and basic drive (Baumeister & Leary, 1995). From an

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evolutionary perspective, to be sure, belongingness is not an end in itself but rather a means to facilitate survival and reproduction. In particular, humans have solved the problems of survival and reproduction by forming cooperative partnerships that share resources and work cooperatively toward jointly beneficial outcomes (e.g., Suddendorf, 2013; Tomasello, 2014; also Baumeister, 2005). Many human traits thus facilitate communication, trust, mutual understanding, and cooperation. Crucially, in a species that depends on cooperation for survival, it is necessary for individuals to cultivate a reputation for fairness, reciprocity, and trustworthiness, and so humans are much more concerned about their reputations than other primates (e.g., Engelmann, Herrmann, & Tomasello, 2012). Part of the appeal of the modern SNSs may be as a tool for reputation maintenance: SNSs offer individuals a new way to fashion and maintain an image of themselves exactly as they wish to be regarded by others, and to communicate it easily and uniformly to a wide variety of others. Similar logic applies to organizations (Kietzmann et al., 2011), who also need good reputations and can shape them with social media.

We suggested that language itself may be considered an evolutionary predecessor of SNS usage. Dunbar (1993, 1996) noted that primates maintain relationships (in our terms, build social capital) by grooming each other, which is a time-consuming exercise and is limited to one-to-one interactions. (Grooming is the polite term for the practice of running one's fingers over another's body so as to find and pick off the bugs that infest it.) Language, he suggested, offered substantial improvements as a method for forming social connections, because it can communicate to multiple individuals at once, as well as convey information and sentiment much more rapidly, as compared with grooming. It is not entirely fanciful to propose that SNS use presents a similar increment in efficiency, comparable to the shift from grooming to language.

Displaying information about oneself could be dismissed as an idle, self-indulgent exercise in narcissistic display, and the significant positive correlation between narcissism and SNS use (Liu & Baumeister, 2016) would be compatible with that view. However, there is reason to think more important things are at stake. The present analysis of SNS use extends beyond self-display to the idea of building social capital. The term *social capital* treats interpersonal connection as a resource, particularly insofar as it can become a source for other resources such as emotional support, information, and even money. Lin (2001) defined social capital as "investment in social relations with expected returns in the marketplace," which he illustrated with reciprocity expectations: One does favors for others in one's network and on that basis can anticipate receiving benefits from them in the indeterminate future (p. 19). Bourdieu (1985) defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (p. 51).

Thus, social capital goes beyond simply knowing other people or having friends: It consists of having relationships with people whom one can count on to provide benefits in the future. For example, a man has more social capital to the extent that people owe him favors. People are therefore motivated to form, strengthen, and maintain connections with other people who can provide emotional support, information, and material help, and perhaps other benefits —and also motivated to sustain the other people's willingness to provide those benefits. Having many people to whom one can turn when in need or from whom one can receive help and benefits is somewhat like having money saved in the bank that can be used when necessary (hence the "capital" metaphor in the term). Building a social network of friends is akin to storing resources that can be helpful in some way in the future.

Indeed, the social capital facilitated by SNSs can translate into the more conventional sort of capital (i.e., money). Kietzmann, Hermkens, McCarthy, and Silvestre (2011) have explained how many businesses have been slow to recognize the reputational power of the Internet. They cited examples in which a single viral video rapidly tarnished a firm's brand and dented its profits, and they exhorted managers and executives to take a proactive stance before their own firm became vulnerable to a similar fate.

A potential objection is that close, intimate relationships are hard to develop online. Indeed, people may have hundreds or even thousands of so-called "friends" on Facebook without having met them in person, and these seem unlikely to be of much help in a crisis. There are two responses to this. One is that online SNS interactions can help bring distant relationships closer. Hence online interactions might help transform a slight acquaintanceship into a stronger bond that could prove useful. Prior to electronic communication, it was generally necessary to have many in-person meetings before a casual acquaintance could become a friend, but electronic communication can arguably speed that progress up considerably.

The other response is that closeness and intimacy are not essential to social capital. A classic paper by Granovetter (1973) asserted that weak social ties can be of considerable use and value (e.g., for finding employment). Large networks of shallow relationships have proven useful for many things, and they do not require the individuals to love each other or care deeply. As an extreme example, the extraordinary march of progress of science has come via a large network of dispersed groups and individuals sharing information and methods. Anecdotal evidence indicates that scientists do not all love each other, but the loose information-sharing network allows their work to benefit from what others accomplish.

Building on Granovetter's (1973) elucidation of the strength of weak ties, Putnam (2000) distinguished two forms of social capital, which he termed *bridging* and *bonding*. These reflect different types of relationships. Bridging refers to the creation and maintenance of weak ties, possibly in large networks. These people may not have any deep emotional attachment to each other, but they know each other and may have sufficient trust so as to be willing to work together, share information, or be useful to each other in other ways. Bonding, in contrast, refers to close, intimate social relationships. These are almost of necessity limited to a small social circle. Humans benefit from both types of relationships. Intimate bonds provide intense emotional satisfactions such as love and affection, are probably essential for optimal reproduction and raising children in families, and can offer crucial benefits without necessarily expecting reciprocation. Weak ties connect people to large networks, which can provide informational and economic benefits.

A first and simple hypothesis was that SNS participation would be useful for building both kinds of social capital. After all, SNSs facilitate interpersonal communication, which is the basis for both kinds of relationships. A second hypothesis, however, was that

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SNS usage would be more effective and powerful for bridging than for bonding.

> *Hypothesis 1:* SNS use is positively associated with both bridging capital and bonding capital.

> *Hypothesis 2:* SNS use is more strongly associated with bridging than bonding capital.

The benefits for bridging seem clear and straightforward. SNSs enable people to communicate with relatively large numbers of others, including many whom one has not met in person or has met only briefly. A large amount of research has focused on the extent to which SNSs are used to support the creation, accrual, and conversion of social capital. This research has emphasized the benefits of SNSs for the formation of weak ties, which serve as the foundation of bridging social capital. Indeed, SNS affordances such as distribution lists, photo directories, and search capabilities (Kietzmann et al., 2011; Resnick, 2002) may make it easy to reach out to strangers or distant acquaintances who may happen to be interested in some particular matter. SNSs also may facilitate the accrual of bridging social capital because they allow users to create and maintain large, diffuse networks of relationships from which they can potentially draw resources (Donath & Boyd, 2004; Resnick, 2002; Wellman, 2001). Ellison et al. (2007) found that SNSs may allow people to form and maintain weak ties cheaply and easily.

With regard to bonding, one could argue both ways. On the positive side, SNS activity can strengthen relationships to make them closer. Research has documented how SNSs such as Facebook are used to support offline close relationships, which are important bases for bonding social capital (Ellison, Steinfield, & Lampe, 2011; Reich, Subrahmanyam, & Espinoza, 2012). SNS activities such as self-disclosure facilitate close relationships (Liu & Brown, 2014; Utz, 2015) and may result in an increase in bonding social capital. A recent Pew Research Center Survey (Lenhart et al., 2015) reported that social media like SNSs are the third most common places teens interact with close friends. The large amount of immediate information available on SNSs, such as snapshots of life and emotional status updates, makes it easy to learn about others, disclose to others, and support each other. Close friends who connect through Facebook are likely to find it an efficient and easy way to keep in touch. On the negative side, there are clearly limits to what can be accomplished on SNSs in terms of intimacy, and many would be skeptical that online interaction alone can establish true intimacy, in contrast to forming weak ties. Intimacy may require personal, face-to-face interaction, and moreover intimate interactions (at least of some kinds) may be out of place in a relatively public setting such as an SNS. SNS communication may strike many as an inappropriate vehicle for communicating a marriage proposal, for example.

Processes

We were able to test hypotheses about the process(es) by which SNS participation could contribute to building social capital. Data are available on several types of online activity, which are useful to distinguish. We grouped them by psychological activity for the purposes of establishing what might cause or mediate effects on social capital.

First, *self-disclosure* involves revealing information about oneself to others. The most common methods are called "status updates," in which a person posts new information about him or herself on a personal web site, for others to see. This behavior is related to the self-presentational component of SNS use. By disclosing relevant facts (or carefully selected, stylized, even exaggerated claims) about themselves, SNS users can make themselves attractive to others. This could help motivate others to form and maintain ties with the SNS user. Posting photographs is another online action that constitutes self-disclosure, similar to status updates but using visual rather than verbal means. Sharing information also counted as self-disclosure.

Second, *information seeking* consisted of learning about other people, including those met offline or online. It could involve direct questions or following "news feeds" such as status updates by other people. Gaining information about others helps build a relationship and therefore could increase social capital.

Third, *replying and maintaining* involves communicating with others in response to their requests for information, such as answering questions or commenting on their posts. Often these messages provide social, informational, or emotional support.

Fourth, *gaming and entertainment* involved playing various games with online friends. Unlike many online games, social network gaming requires the people to have prior connection (i.e., already be listed online as each other's friends) to play games together. Playing games can of course bring mutual pleasure and thereby enhance social bonds. Some games offer cooperative options (e.g., fertilizing the crops of another player, thereby helping him or her), which seem particularly well suited to strengthening friendships. Still, playing games together seems more suited to forming rather shallow relationships, thus to bridging rather than bonding.

Last, *initiating online friendships* involved using SNSs to meet and make new friends. Establishing initial contact is obviously a first step toward creating a relationship. This would seemingly be the easiest and most direct basis by which SNS use would build social capital. We counted only contacts with people with whom one was not previously acquainted (online or offline).

All five of these activity types have apparent potential for creating, strengthening, and maintaining relationships via SNSs. Hence we hypothesized that all of them would contribute to increasing social capital.

> *Hypothesis 3:* SNS activities are positively associated with both bridging capital and bonding capital.

One additional question was whether certain SNS activities are associated with social capital more strongly than others. The SNS activities we investigated can be heuristically divided into two groups. Some SNS activities, such as online friendship initiation, are used primarily for acquiring new, online friends who are not from one's offline social group. Other SNS activities, such as self-disclosure, information seeking, and replying and maintaining, are used primarily for strengthening ties with people whom one has met in person. Because of the difficulty of developing close, intimate bonds with people met online, we predicted that activities that allow for interactions with offline contacts may enhance bonding social capital to a greater extent than activities that center primarily on interactions with people who were met online. Bridg-

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ing social capital could be served both by interacting with people with an offline connection or with new online contacts.

> *Hypothesis 4:* SNS activities that allow for interactions with offline contacts may enhance bonding social capital more than activities that center primarily on interactions with people who were met online.

We also predicted that SNS activities that involve interacting with friends and acquaintances from offline (i.e., self-disclosure, information seeking, and replying and maintaining) would be associated with both types of social capital because these activities allow people to strengthen connections with weak ties. Unfortunately, we were not able to directly assess whether people developed stronger connections from weak ties due to online interactions with offline friends. As a rough proxy, we measured the proportion of online friends who are considered friends offline. The judgment of whether a SNS friend is a real friend offline is highly subjective. SNS activities like self-disclosure, information seeking, and replying and maintaining may increase interactions with weak ties from a person's offline social network. This increased interaction may in turn increase feelings of closeness and therefore increase the perception that the weak tie is a true friend offline. Thus, we predicted that SNS activities that allow for interaction with offline friends and weak ties may contribute to social capital by making people perceive that more of their online friends are indeed friends in real life. This suggests that SNS activities that involve interactions with offline acquaintances may connect people who know each other distantly offline and help them build their relationships into closer ones, which could improve both bridging and bonding capital. This possibility was assessed with path analyses.

> *Hypothesis 5:* The proportion of online friends who are considered friends offline will mediate the relationship between SNS use and both kinds of social capital.

Moderators and Limits

Although our hypotheses could be true in general, they may apply more strongly in some cases than others. We included several potential moderators in the analyses.

A variety of work has suggested that genders differ in their orientation toward bridging and bonding. Baumeister and Sommer (1997) reviewed ample evidence that men are more oriented toward large social groups, whereas women emphasize and specialize in close, one-to-one interactions. Subsequent direct tests have confirmed that tendency (e.g., Benenson, Apostoleris, & Parnass, 1997; Gabriel & Gardner, 1999; see also Benenson, 2014). Studies of communication have also indicated that male communication tends to center on instrumental purposes, consistent with large-group bridging functions, whereas female communication is more expressive, which is ideal for bonding (see Boneva et al., 2001). On that basis, one could predict that men would use social media for bridging purposes more than women, whereas women would focus on bonding more than men.

Studies of SNS use have suggested some other gender differences. Men tend to use SNSs to start new relationships, whereas women tend to use them to maintain current networks (Muscanell & Guadagno, 2012). Women also spend more time on SNSs (Muise, Christofides, & Desmarais, 2009), self-disclose more (Liu & Brown, 2014), and support each other on SNSs more than men (Donath, 2007; Ellison & Vitak, 2015; Tufekci, 2008). These findings suggest that the association between SNS use and social capital may be stronger in women than in men.

> *Hypothesis 6:* The association between SNS use and social capital may be stronger in women than in men.

Culture was a second possible moderator. Whereas Western-based SNS culture is more individualistic, Asian-based SNS culture is more collectivistic (Morling & Lamoreaux, 2008). People in individualistic cultures are more skilled at forming new relationships and meeting outgroup members, presumably because relationships are less stable and so one has to be prepared to find new friends, including new contacts outside one's own family and immediate social group. Some evidence suggests that Western-based SNS networks primarily consist of outgroup members, and Eastern-based SNS networks primarily consist of ingroup members (Choi, Kim, Sung, & Sohn, 2011). The association between SNS use and bridging capital may be stronger in Western individualistic cultures than in Eastern collectivistic cultures. We were able to test this hypothesis by comparing Eastern and Western countries.

Communication in collectivistic cultures tends to be implicit, indirect, and abstract. Because most of the information is already either in the physical context or internalized in the person, very little information is in the coded, explicit, transmitted part of the message (Hall, 1976). In contrast, communication in individualistic cultures depends primarily on the information being expressed in an explicit and direct way (Hall, 1976; Gudykunst, Matsumoto, Ting-Toomey, Nishida, Kim, & Heyman, 1996; Kim, Pan, & Park, 1998). Kim, Sohn, and Choi (2011) found that the online social networks of American students were on average almost five times larger than the networks of Korean students. Americans tended to use SNSs for finding new friends with similar interests, while Koreans tended to use SNSs for obtaining social support from close social relationships (e.g., families and close friends) that require deeper commitment.

Individuals in different cultural contexts may use SNSs for different purposes that reflect prevalent cultural values. A study of Internet users in the United States and Hong Kong reported that respondents from Hong Kong, a collectivistic culture, tended to view the Internet as a means of social interaction, whereas Americans were more likely to use the Internet as a device for seeking and gaining information (Chau, Cole, Massey, Montoya-Weiss, & O'Keefe, 2002). Moreover, in collectivistic culture, people tend to build lifetime relationships (de Mooij, 1998; Parks & Floyd, 1996). Individualistic cultures promote independence, resulting in fragmented and short-term relationships with each other (Hall, 1976). This cultural difference in building and managing social relationships may also influence how people use SNSs to obtain social capital.

> *Hypothesis 7:* The association between SNS use and bridging capital may be stronger in Western, individualistic cultures than in Eastern, collectivistic cultures.

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Method

Overview of Analytic Strategy

Three sets of meta-analyses were conducted. The first set of analyses included two separate meta-analyses on global SNS use and the two types of social capital. Moderators such as gender and culture were explored. In the second set of analyses, meta-analyses of specific SNS activities and bridging and bonding social capital were conducted. The effect sizes of the association between SNS activities and bridging or bonding capital were compared. Path analyses were conducted to confirm the mediational model suggesting that SNS activities that call for interactions with offline friends (self-disclosure, information seeking, and replying and maintaining) may increase social capital because they strengthen relationships with weak ties.

Literature Search

Four methods were used to search for relevant studies. First, we retrieved articles through PsycINFO, PsycArticles, EBSCO—ERIC, Medline, Communication and Mass Media Complete (CMMC), Google Scholar, and ProQuest Dissertations & Theses. The following keywords were used: *social capital, bonding social capital, bridging social capital, Facebook, Myspace, Social Network Sites, social media, self-disclosure, information searching,* and *SNS strategies*. Second, we conducted searches using Chinese, Japanese, and French translations of the keywords in Google Scholar, CNKI, and CiNii. Third, we searched in-press and online-first articles. Finally, we searched the following conference databases: International Communication Association Conference (ACM), International Conference on Web and Social Media (ICWSM), Annual SIGCHI Conference, and ACM digital library. We contacted authors of relevant posters or presentations to ask for information about their research. We did not place any limitations on participant age, study geography, SNS type, or other sample characteristics. The literature search included articles published up to August 10, 2015.

Inclusion and Exclusion Criteria

The literature search identified 12,798 records for screening to identify eligible studies. After examining the titles and abstracts of all the references and discarding obviously irrelevant ones, 140 articles were identified as highly relevant. For these potentially usable articles, inclusion and exclusion decisions were made by examining the article in detail. To be included in the analyses, the study must have (a) been empirical (i.e., review, theoretical, and qualitative studies were excluded); (b) measured global SNS use, or at least one specific SNS activity; (c) measured either bridging social capital or bonding social capital; (d) contained a Pearson correlation (r) or sufficient information from which an effect size for the association between SNS use and social capital could be derived; (e) used Williams (2006); Ellison et al. (2007) or a similar self-developed Social Capital Scale; (f) used intensity, duration time, or visiting frequency as a measure of global SNS use. The study must also not have violated the assumption of independent samples, which occurs if a study used the same data as any previously coded study. When the results of a specific dataset were reused or otherwise duplicated in more than one publication, we chose the publication that contained the most information or had the highest peer-review journal status. Of the more than 140 potentially relevant studies, a total of 58 studies met the criteria for inclusion in the meta-analyses. This yielded a sample of 50 (N = 22,290) independent effect sizes for the association between global SNS use and bridging social capital (see Appendix A for a list of studies included), and a sample of 43 (N = 19,439) independent effect sizes for the association between global SNS use and bonding social capital (see Appendix B for a list of studies included). We also obtained 45 effect sizes for the association between specific SNS activities and bridging social capital (see Appendix C for a list of studies included), and 36 effect sizes for the association between specific SNS activities and bonding social capital (see Appendix D for a list of studies included). See Figure 1 for a flowchart of the screening process.

Computation of Effect Sizes for Meta-Analyses

For each meta-analysis, correlation coefficients (r) for the relationship between global SNS usage or a specific SNS activity and bridging or bonding social capital were recorded. The meta-analytic procedures of Hunter and Schmidt (2004) were used to correct observed correlations for measurement error in both the predictor and the criterion score. Correlations were corrected individually with internal reliability. The large majority of studies reported the reliabilities needed for the correction. We used the average value across other studies to complete the correction for the few studies that did not provide reliability information. The correction was completed with the MAc package from R (Del Re & Hoyt, 2010). Finally, the meta-analyses were conducted using effect sizes that were transformed with Fisher's Z, and using study weights with ω = n-3 (Lipsey & Wilson, 2001). Effect sizes were then transformed into correlations when reporting the results of the analyses for ease of interpretation.

The homogeneity of the effect size was assessed using a Q statistic (Borenstein, Hedges, Higgins, & Rothstein, 2009). A significant Q provides evidence that true effects vary across studies and warrant a random model. When the Q statistic is significant, we used the more commonly employed random-effects model, which allows for the results to be generalized beyond the particular studies used in the meta-analysis to the entire population of studies represented. A significant Q statistic also warrants further moderation analysis. When the Q test is nonsignificant, a fixed-effects model was used, which assumes that variation in observed effect sizes is solely due to sampling error.

All analyses were completed in Comprehensive Meta-Analysis version 3 (Borenstein, Hedges, Higgins, & Rothstein, 2014), R version 3.2.1 (R Core Team, 2015) and Mplus 7.

Multiple Dependent Results From Single Study

Each effect size was coded separately for studies that included multiple independent effect sizes (e.g., separate independent samples, such as undergraduate and middle-age samples within the same study). It is problematic to include studies that report multiple dependent effect sizes (e.g., a study that reports multiple results for a single outcome) in a single meta-analysis because this can pose calculation problems of lower error variance estimate and

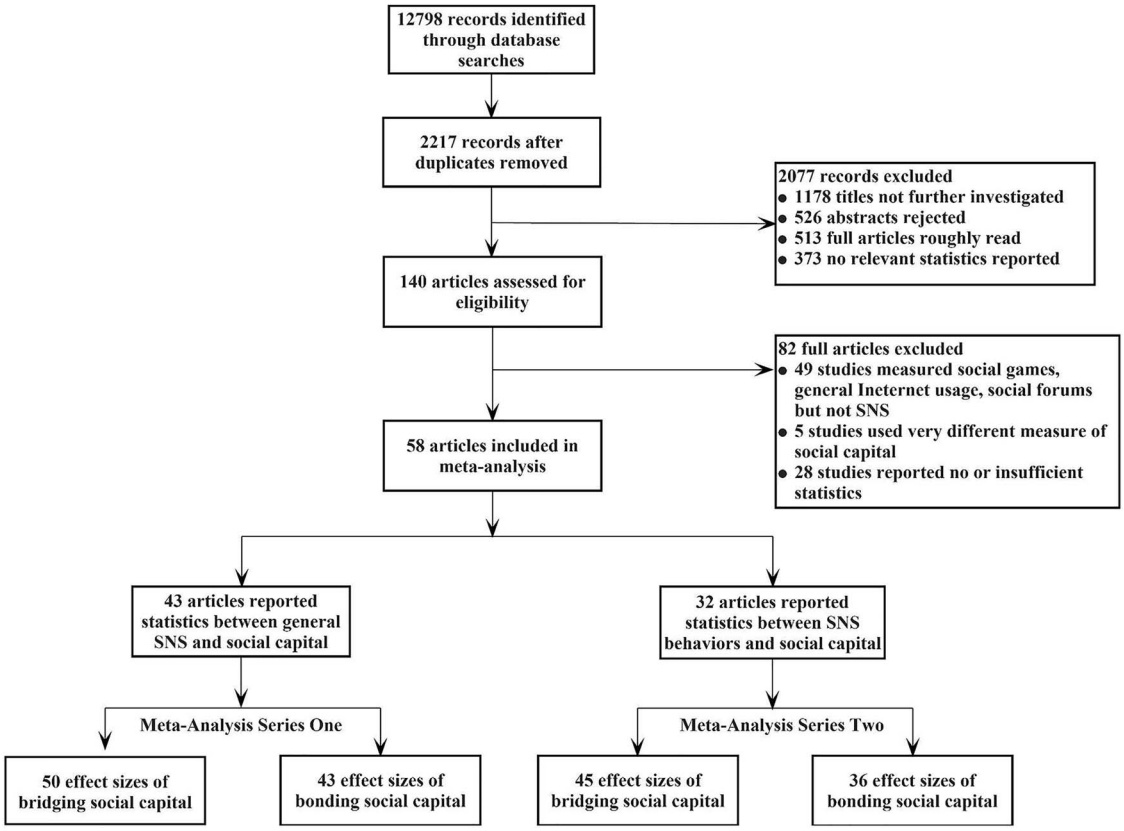

Figure 1. Flowchart describing identification and screening of studies.

inflation of significance tests (Cooper, Hedges, & Valentine, 2009). To isolate independent findings for use in each meta-analysis, the following procedures were conducted: (a) two separate meta-analyses were conducted to assess the associations between global SNS use and bridging social capital or bonding social capital; (b) 12 separate meta-analyses were conducted to assess the associations between specific SNS behaviors (e.g., self-disclosure, information seeking) and bridging social capital or bonding social capital; (c) effects from studies that reported multiple similar or repeated dependent effect sizes were aggregated into a single effect size (e.g., Lee et al., 2014; simultaneously reported correlations between bridging social capital and Facebook wall posting, photo sharing, and status updates). Because these correlations were similar, we aggregated them into a single effect size corresponding to the association between SNS self-disclosure and bridging social capital.

Coding of Moderators

Two meta-analyses were conducted to examine the associations between global SNS use and bridging social capital and global SNS use and bonding social capital. Studies that met the inclusion criteria for these meta-analyses were coded for potential moderators (see below for descriptions). No study quality variables were coded because we did not identify any specific parameters that were useful as indicators of high-quality or low-quality studies. The first author developed a coding manual that specified the coding categories and possible codes, and eligible studies were coded by the first author and a doctoral-level student to obtain a measure of interrater reliability. The percent agreement between coders was 95%. Disagreements were resolved through discussion between the coders.

Gender. A measure of gender was provided by coding the proportion of female participants in each sample.

Culture. The country in which data were collected was coded to serve as an indicator of culture. The studies included data collected in 12 countries (or regions): the United States, the United Kingdom, the Netherlands, Germany, Japan, Singapore, Korea, China, Taiwan, Brazil, Turkey, and South Africa. Guided by the coding method developed by Suh, Diener, Oishi, and Triandis (1998), we coded studies conducted in China, Japan, Taiwan, and Singapore as collectivist cultures and the rest as individualistic cultures.

Average SNS time use. The average time spent on SNS was coded as the number of minutes per day.

Average number of SNS friends. Many studies reported the average number of SNS friends in their sample, which ranged from dozens to hundreds. Some studies reported frequency tables of total friends on the SNS. We recalculated this information to provide the average number of the friends in the sample.

SNS global use measure. The Facebook Intensity Scale developed by Ellison et al. (2007) was the most widely adopted measure of SNS usage. This measure includes two self-report

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assessments of Facebook behavior designed to measure the extent to which participants are actively engaged in Facebook activities, including the number of Facebook "friends" and the amount of time spent on Facebook on a typical day. This measure also includes a series of self-report questions designed to tap the extent to which participants are emotionally connected to Facebook and the extent to which Facebook is integrated into daily activities. In addition to the Facebook Intensity Scale, several studies directly used frequency of SNS use or duration time as a measure of global SNS usage.

Bridging social capital measure. The type of bridging social capital measure used in each study was coded. Although several self-developed scales were used, Williams' (2006) original version of the 5-item bridging Social Capital Scale and Ellison et al.'s (2007) adapted 9-item version were the most widely adopted measure of bridging social capital. Ellison added three new items to measure bridging social capital in the university context. An example item of bridging social capital from Ellison et al. (2007) is, "Interacting with people at MSU reminds me that everyone in the world is connected."

Bonding social capital measure. The type of bonding social capital measure used in each study was coded. Although several self-developed scales were used, the two most widely used measures of bonding social capital were Williams' (2006) version of the 5-item bonding Social Capital Scale and Ellison and colleagues (2007) adapted 5-item version. Ellison adapted Williams' version to be closely relate with specific context the scale was administered and thus was expected to have higher validity. An example item of bridging social capital from Ellison et al. (2007) is, "If I needed an emergency loan of $100, I know someone at MSU I can turn to."

Moderation Analysis

Two sets of moderation analyses were conducted to assess the associations between global SNS use and the two types of social capital (see Figure 2). Hunter and Schmidt (2004) recommended hierarchical moderator analyses when a sufficient number of studies exist. If moderators are related and the analyses are not hierarchical, failing to conduct hierarchical moderator analysis can lead to the wrong estimation. However, the number of studies in our meta-analyses was insufficient to perform hierarchical moderator analyses simultaneously considering all moderators. As a result, we conducted separate moderator analyses for each of the moderators and are cautious in our conclusions. The proportion of females, the average SNS use time, and average number of SNS friends were modeled as continuous variables; all other moderators were categorical.

Mediation Analysis

We used a meta-analytic correlation matrix as the primary data for testing our mediation models linking specific SNS behaviors to either bridging social capital or bonding social capital. The correlations in this matrix were created from the overall effect size for each cell. We ran our mediation model in Mplus 7, testing the hypothesis that the self-reported proportion of SNS friends who are considered friends offline fully mediates the relationship between SNS activities and social capital. We tested our hypothesis using a saturated model, including paths from SNS use to social capital, from SNS use to the proportion of actual friends on SNS, and from the proportion of actual friends on SNS to social capital. This approach allows for the computation of unbiased estimates of total, direct, and indirect effects. The sample size used was the harmonic mean across all studies included in the correlation matrix. Model fit was assessed using goodness-of-fit indices such as the comparative fit index (CFI), Tucker-Lewis index (TLI), the root mean square error of estimation (RMSEA), and the standardized root mean squared residual (SRMR). Based on the recommendations of Hu and Bentler (1999), CFI and TLI values exceeding .95 indicates good model fit, whereas RMSEA and SRMR should not surpass values of .08 and .06, respectively.

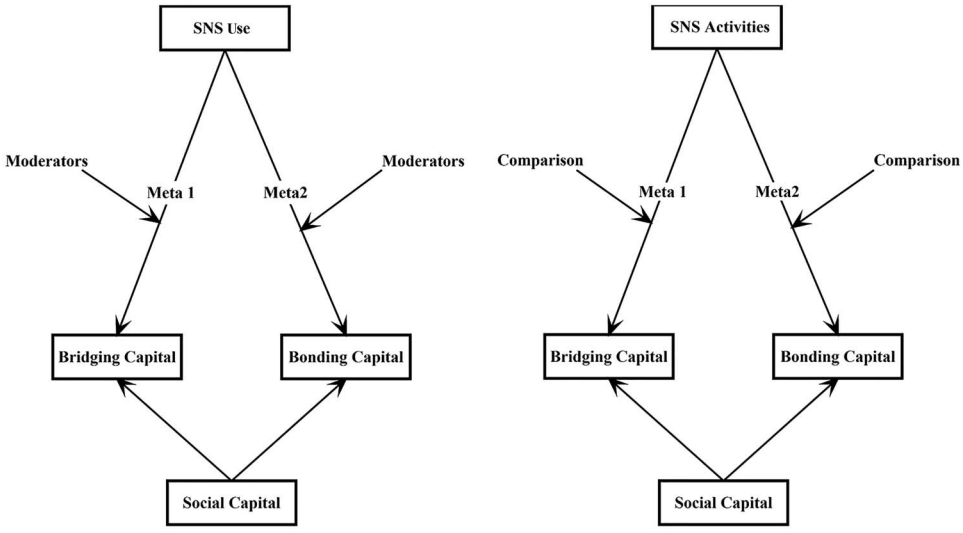

Figure 2. Overview of social networking online and social capital meta-analyses.

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Publication Bias Analysis

Following standard practice for testing publication bias in meta-analyses, we used the four methods: (a) we examined publication status as a moderator of the effect sizes; (b) we examined Egger's linear regression intercept; (c) we visually examined funnel plots of Effect Sizes × Standard Error to check possible bias; (d) we implemented Duval and Tweedie's trim-and-fill procedure (2000) to estimate how much the observed results could be influenced by bias.

Results

Meta-Analysis of Global SNS Use and Bridging Social Capital

The dataset included 50 independent effect sizes measuring the association between global SNS use and bridging social capital from 22,290 participants. A random-effects model indicated a moderate effect size for the association between global SNS use and bridging social capital (r = .32, 95% CI [.27, .37]; Cohen, 1992). The significant Q statistic (Q = 844.64, $p < .001$) and the large I^2 statistic (I^2 = 94.20) indicated that the high levels of heterogeneity are due to real differences as opposed to sampling error (Higgins, Thompson, Deeks, & Altman, 2003).

Global SNS Use and Bridging Social Capital Moderation Analyses

For categorical moderators, we used random effects subgroup analysis (analogous to analysis of variance) to test for moderation; for continuous moderators, we used random-effects regression analysis. Confidence intervals and significance tests for each categorical moderator are shown in Table 1 and 2. Results for the regression coefficients testing the effect of each continuous moderator are presented in the text.

Gender. We examined gender composition of the sample (% women) as a moderator and also tested whether there were gender differences in the relationship between SNS use and bridging social capital. The results showed that the relationship between SNS use and social capital was stronger for studies with a lower proportion of women, suggesting the association between SNS use and bridging social capital may be stronger for men than for women (k = 50, β = −.47, $p < .05$, R^2 = .04; see Figure 3).

Cultural differences. The effect sizes were stronger in samples collected in Western cultures compared with Eastern cultures ($Q^2_{between}$ = 4.45, $p < .05$).

Average use time. We tested whether average SNS use time (minutes per day) moderated the effect of SNS use on bridging social capital. Average time spent on the SNS did not correlate with the effect sizes of the samples (k = 26, β < .01, p = .33, $R^2 < .01$).

Average number of SNS friends. We also tested whether the average number of SNS friends moderated the effect of SNS use on bridging social capital. The results indicated that average number of total SNS friends did not moderate the association between SNS use and bridging social capital (k = 25, β < .01, p = .80, $R^2 < .01$).

Bridging social capital measure. We tested whether the strength of the association between SNS use and bridging social capital depended on which measure was used to measure bridging social capital (see Table 1). Effect sizes with different social capital measures were not significantly different from each other, though self-developed measures of social capital showed a lower overall effect size ($Q^2_{between}$ = 3.24, $p > .05$).

SNS global use measure. We tested whether the strength of the association between SNS use and bridging social capital depended on how global SNS use was measured (see Table 1). The

Table 1
Meta-Analysis of Global SNS Use and Bridging Social Capital

Moderator	r	95% CI, Left	95% CI, Right	k	N	I^2	$Q(df)$
Total	.32***	.27	.37	50	22290	94.20	844.64 (49)***
SNSs measure							
Frequency	.19***	.14	.23	5	1853	72.41	14.50 (4)**
Intensity	.35***	.34	.36	32	14711	94.28	542.00 (31)***
Time	.15***	.12	.17	13	5726	84.23	76.12 (12)***
Between-groups Q							19.33 (2)***
Capital measure							
Ellison et al. (2007)	.30***	.28	.32	20	7095	89.32	177.95 (19)***
Self-developed	.16***	.14	.19	11	4518	89.40	94.30 (10)***
Williams (2006)	.33***	.31	.35	19	10677	96.13	464.82 (18)***
Between-groups Q							3.24 (2)***
Culture							
Eastern	.25***	.18	.22	19	7860	91.66	215.74 (18)***
Western	.36***	.32	.35	29	14046	94.61	519.54 (28)***
Between-groups Q							4.45 (1)*
Publication status							
Published	.30***	.24	.36	32	17419	93.43	471.79 (31)***
Unpublished	.36***	.25	.45	18	4871	95.37	366.85 (17)***
Between-groups Q							.89 (1)

Note. SNS = social networking sites.
* $p < .05$. ** $p < .01$. *** $p < .001$.

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Table 2
Meta-Analysis of Global SNSs Use and Bonding Social Capital

Moderator	*r*	95% CI, Left	95% CI, Right	*k*	*N*	I^2	*Q*(*df*)
Total	.22***	.21	.24	43	19439	90.89	461.24 (42)***
SNS measure							
Frequency	.14***	.10	.18	6	2341	77.42	22.15 (5)***
Intensity	.27***	.25	.28	27	12551	90.97	288.01 (26)***
Time	.14***	.11	.17	10	4547	86.98	69.15 (9)***
Between-groups *Q*							8.44 (2)*
Capital measure							
Ellison et al. (2007)	.22***	.20	.25	18	5773	68.48	53.93 (17)***
Self-developed	.13***	.10	.16	8	4043	90.93	77.19 (7)***
Williams (2006)	.26***	.24	.28	17	9623	94.32	281.70 (16)***
Between-groups *Q*							.78 (2)
Culture							
Eastern	.24***	.18	.30	19	8060	88.01	150.16 (18)***
Western	.28***	.21	.35	21	10995	92.90	281.56 (20)***
Between-groups *Q*							.73 (1)
Publication status							
Published	.23***	.21	.25	29	15145	91.43	326.65 (28)***
Unpublished	.21***	.18	.23	14	4294	90.13	131.71 (13)***
Between-groups *Q*							.00 (1)

Note. SNS = social networking sites.
* $p < .05$. *** $p < .001$.

relationship between global SNS use and bridging social capital was weaker when researchers adopted SNS duration time and login in frequency as measures of global use ($Q^2_{between} = 19.33$, $p < .001$).

Publication bias. Eggar's regression intercept ($p > .10$), funnel plot, and moderator analysis of publication status ($p > .05$) all showed no evidence of publication bias (see Figure 4).

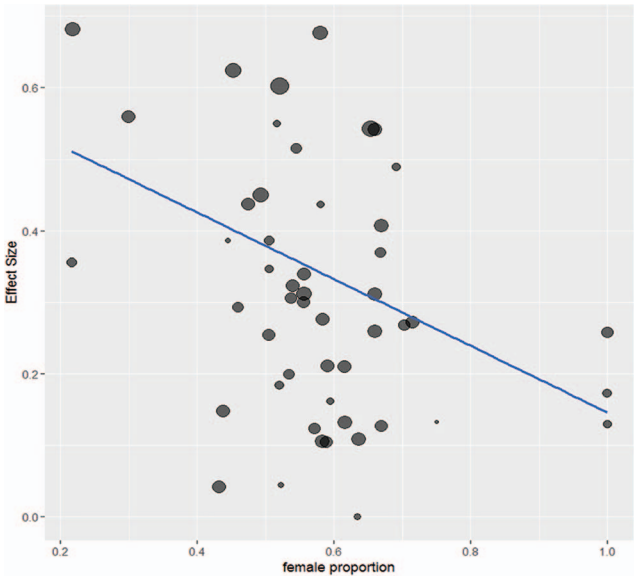

Figure 3. Relationship between female proportion and bridging social capital. Each point represents a single study. Point size is proportional to sample size (random effects metaregression). See the online article for the color version of this figure.

Meta-Analysis of Global SNS Use and Bonding Social Capital

The data set included 43 independent effect sizes for the association between global SNS use and bonding social capital from 19,439 participants. The significant *Q* statistic ($Q = 461.24$, $p < .001$) and large I^2 statistic ($I^2 = 90.89$) warrants the use of a random-effect model and further moderator analysis. Across all samples, the pooled association between global SNS use and social capital showed a moderate-sized effect ($r = .26$, 95% CI [.22, .31]; Cohen, 1992), which indicates that SNS use was positively associated with bonding social capital.

Global SNS Use and Bonding Social Capital Moderation Analyses. Next, we tested our moderation hypotheses using the same procedure as described previously. Confidence intervals and significance tests for each categorical moderator are shown in Table 2. Results for the regression coefficients testing the effect of each continuous moderator are presented in the text.

Gender. We examined gender composition of the sample (% women) as a moderator to assess whether there were gender differences in the relationship between global SNS use and bonding social capital. The results showed that the relationship between social capital and SNS usage was marginally stronger in samples containing a lower proportion of women, which suggests that the association may be stronger for men than for women ($k = 43$, $\beta = -.27$, $p = .09$, $R^2 = .02$), see Figure 5.

Cultural differences. The effect sizes for Western and Eastern cultures were not significantly different ($Q^2_{between} = .73$, $p > .05$).

Average use time. We tested whether average SNS use time (minutes per day) moderated the association between SNS use and bonding social capital. The average time spent on SNSs did not

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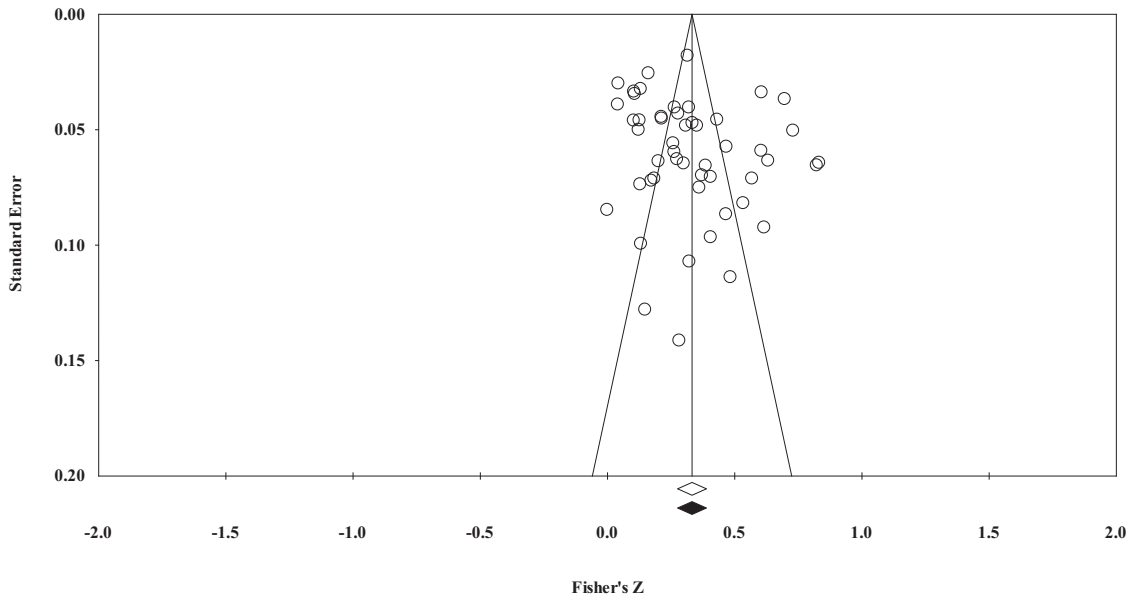

Figure 4. Funnel plot for studies examining the relationship between general social network site (SNS) usage and bridging social capital.

correlate with the effect sizes of each sample ($k = 20$, $\beta < .01$, $p = .53$, $R^2 < .01$).

Average number of SNS friends. The average number of SNS friends did not moderate the association between global SNS usage and bonding social capital ($k = 15$, $\beta < .01$, $p = .98$, $R^2 = .06$).

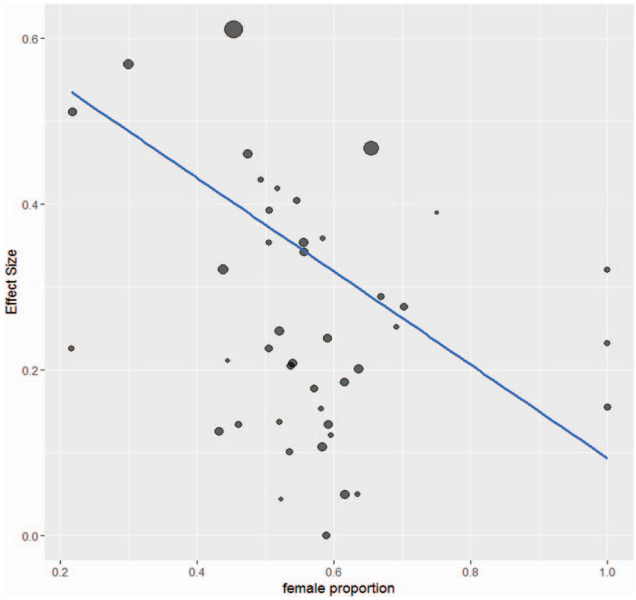

Figure 5. Relationship between female proportion and bonding capital. Each point represents a single study. Point size is proportional to sample size (random effects metaregression). See the online article for the color version of this figure.

Bonding social capital measure. We tested whether the strength of the association between SNS use and bonding social capital depended on which social capital measure was used (see Table 2). The measure used did not moderate the association ($Q^2_{between} = .78$, $p > .05$).

SNS global use measure. The association between global SNS use and bonding social capital was lower in studies that used duration time or visiting frequency as a measure of global SNS use compared to studies that used measures of intensity ($Q^2_{between} = 8.44$, $p < .001$).

Publication bias. Although moderator analysis publication status showed no evidence of publication bias ($p > .05$), the trim and fill (5 studies to the right side), Egger's regression intercept test ($t = 2.36$, $df = 41$, $p < .05$) and funnel plot all showed publication bias for the association between global SNS use and bonding social capital (see Figure 6). After adjusting the effect size, the corrected average effect was $r = .29$, 95% CI [.24, .34], $Q = 735.96$.

Meta-Analyses of SNS Activities and Bridging Social Capital

We obtained 45 effect sizes for the association between specific SNS activities and bridging social capital. The effect sizes were placed into six categories so that all effects were independent. There were nine ($N = 3{,}792$) independent effects for the association between self-disclosure and bridging social capital, 13($N = 4{,}532$) independent effects for the association between information seeking and bridging social capital, 11($N = 5{,}221$) independent effects for the association between replying and maintaining and bridging social capital, four ($N = 1{,}651$) independent effects for the association between gaming and entertainment and bridging social capital, two ($N = 1{,}055$) independent effects for the association between friendship initiation and bridging social capital, six ($N = 1{,}937$) indepen-

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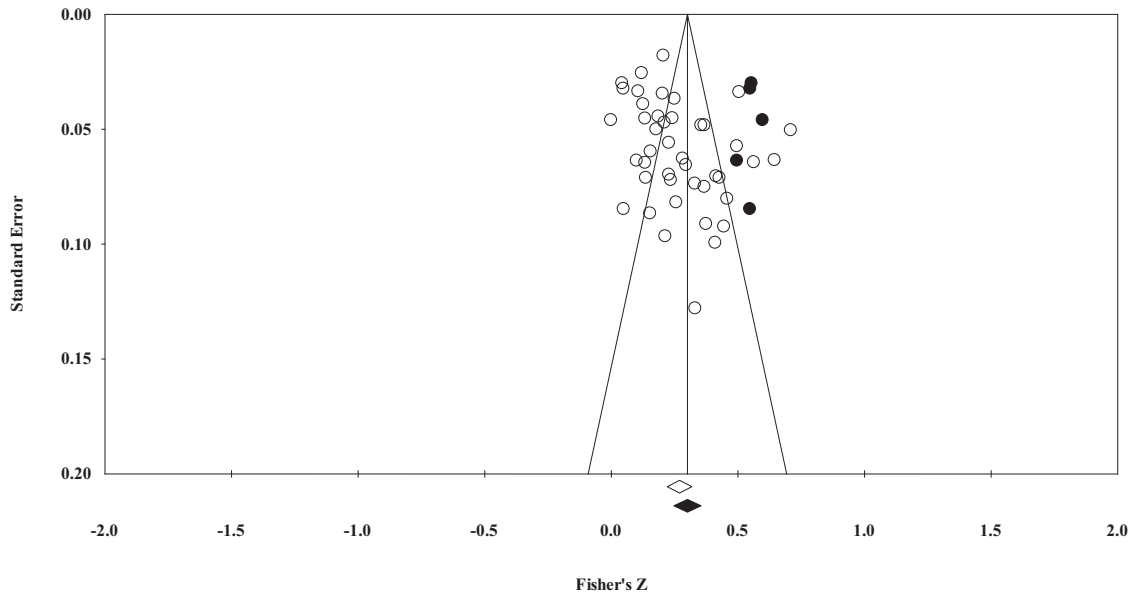

Figure 6. Funnel plot for studies examining the relationship between general social network site (SNS) usage and bonding social capital.

dent effects for the association between the proportion of SNS friends who are actual friends offline and bridging social capital (see Table 3). We again used random effects models to calculate the effect sizes.

Self-disclosure. Self-disclosure on SNSs was positively associated with bridging social capital ($r = .19$, $p < .001$, 95% CI [.11, .26]).

Information seeking. Information seeking on SNSs was positively associated with bridging social capital ($r = .25$, $p < .001$, 95% CI [.18, .32]).

Replying and maintaining. Replying and maintaining friendship on SNSs was positively associated with bridging social capital ($r = .36$, $p < .001$, 95% CI [.27, .44]).

Gaming and entertainment. Gaming and seeking entertainment on SNSs was positively associated with bridging social capital ($r = .17$, $p < .001$, 95% CI [.11, .24]).

Online friendship initiation. Friendship initiation on SNSs was weakly associated with bridging social capital ($r = .09$, $p < .01$, 95% CI [.03, .15]).

Table 3
Meta-Analysis of SNS Activities and Social Capital

Behavior	*r*	95% CI, Left	95% CI, Right	*k*	*N*	I^2	*Q*(*df*)
Bridging social capital							
Self-disclosure	.19***	.11	.26	9	3792	83.17	47.55
Entertainment and fun	.17***	.11	.24	4	1,651	39.16	4.93
Including offline friends	.23***	.19	.27	6	1937	.00	4.79
Information seeking	.25***	.18	.32	13	4532	84.07	75.31
Replying and maintaining	.36***	.27	.44	11	5221	91.37	115.92
Online friendship initiation	.09**	.03	.15	2	1055	.00	.07
Bonding social capital							
Self-disclosure	.20***	.16	.24	7	2768	73.86	22.95
Entertainment and fun	.12***	.07	.17	4	1651	.00	.77
Including offline friends	.25***	.21	.30	5	1817	.00	3.11
Information seeking	.18***	.14	.21	9	2765	83.77	49.28
Replying and maintaining	.24***	.21	.27	9	4418	72.45	29.04
Online friendship initiation	.03	–.03	.09	2	1055	.00	.64

** $p < .01$. *** $p < .001$.

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Including offline friends. The proportion of SNS friends who are considered actual friends offline was positively associated with bridging social capital ($r = .23$, $p < .001$, 95% CI [.19, .27]).

Comparison of the effect sizes showed that replying and maintaining friendships on SNS and information seeking are the activities most strongly associated with bridging social capital. Including offline friends in one's SNS friends is more strongly associated with the bridging social capital than initiating purely online friendships. SNS activities that take place solely online, such as online friendship formation and gaming for entertainment, show the weakest association with bridging social capital.

Meta-Analyses of SNS Activities and Bonding Social Capital

We obtained 36 effect sizes for the association between specific SNS activities and bonding social capital. We classified these effect sizes into 12 categories so that all effects were independent: seven ($N = 2{,}768$) for the association between self-disclosure and bonding social capital; nine ($N = 2{,}765$) for the association between information seeking and bonding social capital ($N = 4{,}418$) for the association between replying and maintaining and bonding social capital; four ($N = 1{,}651$) for the association between gaming and entertainment and bonding social capital; two ($N = 1{,}055$) for the association between friendship initiation and bonding social capital; five ($N = 1{,}817$) for the association between the proportion of SNS friends who are actual friends offline and bonding social capital (see Table 3).

Self-disclosure. Self-disclosure on SNSs was positively associated with bonding social capital ($r = .20$, $p < .001$, 95% CI [.16, .24]).

Information seeking. Information seeking on SNSs was positively associated with bonding social capital ($r = .18$, $p < .001$, 95% CI [.14, .21]).

Replying and maintaining. Replying and maintaining on SNSs was positively associated with bonding social capital ($r = .24$, $p < .001$, 95% CI [.21, .27]).

Gaming and entertainment. Gaming and seeking entertainment on SNSs was positively associated with bridging social capital ($r = .12$, $p < .001$, 95% CI [.07, .17]).

Online friendship initiation. Friendship initiation on SNSs showed a weak, positive association with bonding social capital ($r = .03$, $p < .01$, 95% CI [–.03, .09]).

Including offline friends. Including offline friends on SNSs was positively associated with bonding social capital ($r = .25$, $p < .001$, 95% CI [.21, .30]).

Comparison of the effects showed that replying and maintaining and self-disclosure were the SNS activities that were most strongly associated with bonding social capital. The proportion of offline friends included in the social network was more strongly associated with bonding social capital compared to the initiation of purely online friendships. SNS activities that take place solely online, such as online friendship initiation and SNS gaming, showed the weakest associations with bonding social capital.

Mediation Analysis

Meta-analytic structural equation modeling was used to test our proposed model. We first constructed the meta-analytic correlation matrix shown in Table 4. Because of the heterogeneity across studies, we used the random effects model in constructing the correlation matrix. We then entered that meta-analytic correlation matrix into a structural equation modeling analysis using Mplus 7 (Muthén & Muthén, 2012). Given that the sample sizes differed across the various cells of the matrix, we used the harmonic mean sample size to compute standard errors (Viswesvaran & Ones, 1995). As less weight is assigned to large samples, use of the harmonic mean results in more conservative estimates. The top half of Figure 7 reveals the results for the relationship between SNS activities and bridging social capital, and the bottom half reveals the results for their relationship with bonding social capital. Compared with the proposed mediation model, we made post hoc modifications.

Explaining bridging social capital. The proposed model had a poor fit to the data, $\chi^2(1) = 0.50$, $p = .26$, RMSEA$< .01$, CFI = 1.00, TLI = 1.01, SRMR = .01. Adding new and deleting redundant paths (based on modification indices and significance results), the resulting model (see upper side of Figure 7) provided good fit to the data, $\chi^2(2) = 2.66$, $p = .26$, RMSEA = .02, CFI = 1.00, TFI = .99, SRMR = .01. Estimates for the final model are presented at the top half of Figure 7. Overall, 15.9% of the variance in bridging social capital can be explained by the model. As expected, we found that information seeking ($\beta = .15$, $p < .001$) and replying and maintaining friendship ($\beta = .15$, $p < .001$) positively predicted bridging social capital. We also assessed the indirect effects of specific SNS activities on bridging social capital and their confidence intervals in Mplus. Results indicated two significant pathways (disclosure → proportion of offline friends in SNS → bridging capital, $\beta = .02$, $p < .01$; information seeking → proportion of offline friends in SNS → bridging capital, $\beta = .03$, $p < .001$). The self-reported proportion of SNS friends who are

Table 4
Corrected Meta-Analytic Intercorrelations Between Study Variables

Variable	1	2	3	4	5
1. Including offline friends	—				
2. Self-disclosure on SNS	.26* (4, 1114)	—			
3. Information searching	.32* (3, 1053)	.45* (2, 818)	—		
4. Replying and maintaining	.20* (3, 894)	.49* (3, 354)	.41* (3, 723)	—	
5. Bridging social capital	.23* (6, 1937)	.19* (9, 3792)	.25* (13, 4532)	.36* (11, 5221)	—
6. Bonding social capital	.25* (5, 1817)	.20* (7, 2768)	.18* (9, 2765)	.24* (9, 4418)	.587* (16, 7333)

Note. The number of independent samples (k) and cumulative sample sizes (N), respectively, are provided in parentheses.
* $p < .05$.

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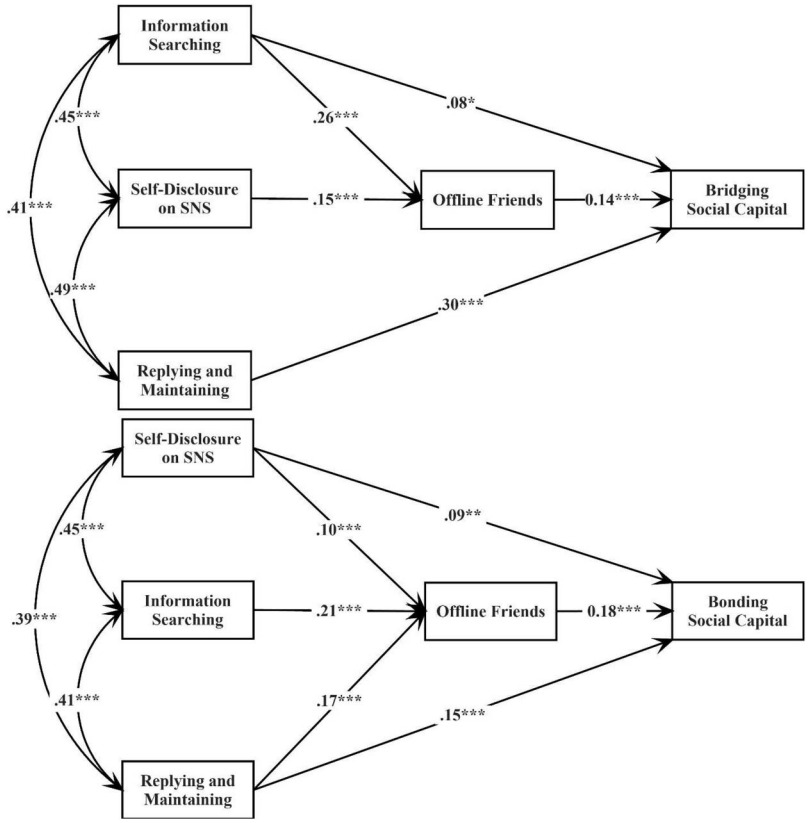

Figure 7. Path model for social network site (SNS) behaviors and social capital. Harmonic $N = 1{,}043$ for bridging social capital model; harmonic $N = 1{,}011$ for bonding social capital model. * $p < .05$. ** $p < .01$. *** $p < .001$.

considered actual friends offline mediates the association between self-disclosure and information seeking on bridging social capital.

Explaining bonding social capital. The proposed model was not a good fit to the data, $\chi^2(3) = 42.24$, $p < .001$, RMSEA = .02, CFI = 0.85, TFI = 0.64, SRMR = .06. We added two new paths to the model because their modification indices were large. The revised model provided perfect fit to the data, $\chi^2(1) = .50$, $p = .26$, RMSEA = .11, CFI = 1.00, TLI = 0.06, SRMR = .10. Estimates for the final model are presented in the bottom half of Figure 7. Overall, 10.9% of the variance in bonding social capital can be explained by the model. The Mplus results indicated that all three indirect pathways from specific SNS activities to bonding social capital were significant (disclosure → proportion of offline friends in SNS → bonding capital, $\beta = .02$, $p < .01$; information seeking → proportion of offline friends in SNS → bonding capital, $\beta = .04$, $p < .001$; replying and maintaining → proportion of offline friends in SNS → bonding capital, $\beta = .03$, $p < .001$). The self-reported proportion of SNS friends who are considered actual friends offline mediated the effects of self-disclosure, information seeking, and replying and maintaining on bonding social capital.

Discussion

The present meta-analyses confirmed that social network sites are useful tools to enable people to build social capital. Combining results of 50 independent samples with a total of 22,290 participants, we found a positive moderate association between SNS use and bridging social capital ($r = .32$, $p < .001$). That is, the more people used SNSs, the more bridging social capital they reported having. In parallel, combined results from 43 independent samples of 19,439 participants demonstrated a positive but smaller association between SNS use and bonding social capital ($r = .26$, $p < .001$). These results support the hypothesis (Hypothesis 2) that SNSs like Facebook are more strongly associated with bridging social capital than with bonding social capital, though SNS use contributes to both (Hypothesis 1).

The findings were mainly based on the "global use" measure, which was measured in several ways across studies, including total (or daily average) time spent online, frequency of visiting the SNS each day, and emotional attachment to or investment in SNS activity. People scoring high on any of these measures of SNS global use were the ones most likely to report having high social capital.

Separate meta-analyses elucidated the relationship between specific SNS activities and social capital. Apparently, not all SNS activities are equally effective in generating social capital, though they all yielded some (significant) benefit (Hypothesis 3). The activities that consistently had the strongest correlations with bridging social capital were replying/maintaining and seeking in-

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formation. Self-disclosure was next, albeit somewhat weaker. For bonding, the contribution of various SNS activities declined notably in comparison with bridging. The only exception was self-disclosure, which remained about the same and thus emerged as relatively more important for bonding than for bridging. Replying/maintaining and seeking information were also among the strongest predictors of bonding.

Thus, we found the same three main types of online activities contributed the most to building both kinds of social capital (bridging and bonding). These were as follows. First, self-disclosure in the form of posting status updates, photos, and other kinds of information about oneself manages one's self-presentation. Second, replying to other people's posts and sites, and in other ways continuing to interact online, helps to maintain and grow relationships. Leaving visible traces, such as commenting or clicking the "Like" button, is a reliable way to indicate that one has seen and attended to information on SNS (Ellison, Vitak, Gray, & Lampe, 2014). SNS users may reciprocate by "liking" posts of those who have given them positive "Like" responses. These transactions produce feelings of mutual fulfillment and enjoyment among the SNS users. Hence, SNS users who reply and "Like" frequently on SNSs may build more social capital in return from SNS friends (Ellison & Vitak, 2015). Such patterns may contribute to both bridging and bonding.

Third, seeking information enables SNS users to learn more about other people. Together, these three activities apparently facilitate the exchange of personal knowledge and build a sense of knowing each other—and more than that, of having a sufficiently good and useful relationship to qualify as social capital.

The other two SNS activities we studied, namely gaming/entertainment and initiating online friendships, contributed relatively little to building social capital. More precisely, gaming and entertainment had weak although significant effects on both kinds of social capital, whereas online initiation was only very weakly related to bonding and had a very slight boost for bridging. The implication is that building online worlds of contacts and activities that are separate from one's everyday, offline life is not really an effective way to increase feelings of having social capital. Some individuals may even find it tempting to construct online social worlds that are completely separate from their offline worlds—but this does not appear to have much value. Online activity divorced from offline social life does not increase people's sense of having social capital (Hypothesis 4). Such online activities may explain the seemingly contradictory findings that SNS use is also associated with loneliness (e.g., Kross et al., 2013; Liu & Baumeister, 2016).

Thinking of SNS friends as friends offline emerged as an important mediator of bridging social capital, and to a lesser extent of bonding social capital. It is useful to compare that result with the very weak (albeit significant, if barely so) effect of initiating online friendships on bridging capital. The implication is that SNS activity builds social capital not so much by reaching out to attract new contacts, but rather by strengthening and enriching relationships with people one has met offline, in the so-called real world. We had hypothesized something rather different: A priori, it seemed likely that people would build social capital, and especially the shallow bonds of bridging capital, by using the broad reach of SNSs to initiate interactions and relationships with people outside one's daily life. But that is not what we found (although there was weak evidence that that does happen occasionally). SNSs build bridging social capital mainly by facilitating contact and interaction among people who already know each other slightly. As they share information about themselves with each other, their relationship grows stronger, so that mere acquaintanceship can develop into social capital.

The involvement of offline friends emerged as a key factor in the process by which SNS activity builds social capital. The proportion of SNS friends who are thought of as real friends offline fully mediated the relationship between SNS disclosure and bridging social capital (Hypothesis 5; see Figure 7). It also partly mediated the link from information seeking and bridging capital. Having more SNS friends who are considered friends offline did not mediate the relationship between replying and maintaining and bridging social capital. This suggests that people build large social networks by revealing things about themselves, such as by posting photos and status updates, which are then seen by people they have met offline and have befriended on SNSs. They also build bridging capital by asking such casual acquaintances about their lives and seeking other sorts of information. In other words, SNSs build social capital by strengthening connections to offline acquaintances, and this starts with disclosing information about oneself and asking for information about the other person.

The broader implication is that SNS technologies create new pathways of communication for people who would not otherwise connect in a meaningful way. Haythornthwaite (2005) defined these connections as latent ties, which are social ties that are "technically possible but not activated socially." Ellison and colleagues (2007) pointed out that SNSs like Facebook provide the opportunity to convert latent ties to weak (or strong) ties by facilitating interactions among weakly tied people. SNS users comment on a post or "Like" a post to fulfill their need for popularity or narcissism to exchange bridging capital, such as information support (Ellison, Steinfield, & Lampe, 2007; Ellison & Vitak, 2015).

Turning to bonding social capital, thinking of SNS friends as real friends offline also accounted for a large proportion of the relationship between SNS activities and bonding social capital (Hypothesis 5). The perception that a higher proportion of SNS friends are actual friends mediated the relationship between information seeking and bonding social capital. The relationships between bonding social capital and both self-disclosure and replying/maintaining were partially mediated by the extent to which SNS friends were considered real friends offline. The so-called news feeds of SNSs can help people keep abreast of developments in other people's lives. For example, friends might post reports and photos about an exciting travel experience, and so one can see that information online and then use it to structure a conversation when one next sees that person at the office or gym. This can help to sustain or strengthen a relationship that might otherwise languish as a weak tie.

Moderators: Gender and Culture

We had hypothesized that men would use SNSs for bridging and women for bonding (Hypothesis 6). Men and women's personal offline social networks differ somewhat, with women's networks more focused on family and men's networks more focused on diverse working ties (Moore, 1990). Men seek social connection in

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a broad group with multiple people who are competing for a good position, and women seek social connection in close personal relationships based on mutual, dyadic intimacy (Baumeister & Sommer, 1997). From this perspective, men who use SNSs may broadcast stories to a broad, diverse group of people. Women have a larger number of friends, a higher proportion of friends who are kin, and greater diversity in their personal networks than men. Women also spend more time and write more on SNSs, but the high proportion of kin in their networks may limit the benefits of using SNSs to build bridging social capital.

Our findings only partly supported those hypotheses. Samples with more men did indeed show a stronger link between SNS use and bridging social capital, consistent with the view that men emphasize large networks of shallow relationships. We did not however find the reverse with bonding, namely that samples containing more women would show a stronger link between SNS use and bonding social capital. If anything, the marginal trend was in the opposite direction, such that SNS use increased bonding more for men than women. The conservative conclusion would be that gender was unrelated to bonding. Alternatively, one might take the marginal trend seriously and conclude that men use SNS activity more than women to build both kinds of social capital (though more for bridging than bonding).

As with gender, culture provided moderation effects that partly confirmed our predictions (Hypothesis 7). The correlations between SNS use and bridging social capital were stronger in Western than Eastern countries. For bonding social capital, culture made no difference. Prior research has documented the cultural differences in SNS use in Western and East Asian societies. People in Western cultures tend to use SNSs to expand their social circles, and people in Eastern cultures mainly use SNSs to obtain social support from family and close friends. American college students, for example, had larger networks with a higher proportion of loose ties compared to their Korean counterparts who maintained smaller and more tightly knit networks with a roughly even ratio of strong and weak ties (Choi, Kim, Sung, & Sohn, 2011). Our findings provide additional evidence for these cultural difference by suggesting that SNSs are associated with bridging capital more in Western than in Eastern cultures. Culture was irrelevant to bonding, meanwhile.

Limitations and Future Directions

As with any meta-analysis, our findings are limited by the available evidence. Most obviously, the available studies focus on people who now access and use SNSs, which are a distinct subset (though a large and growing one) of the world population as a whole. People without access to such technology are mostly missing from this research, and indeed large categories of people (e.g., citizens of Africa) are almost entirely excluded, so one should not generalize. Even our findings of gender differences should not be generalized uncritically, as it is possible that the nonusers of SNSs differ systematically by gender from each other and from users. Moreover, use is almost certainly tied to current technology, as SNSs were unheard of a quarter century ago, and the rapid pace of technological change makes it hazardous to speculate about long-term future trends. Future research therefore should be alert to how relationships between SNS use and social capital may change as new and culturally different populations come online and further technological advances make as yet unforeseen interaction patterns possible.

Most of the studies dealt with student samples, and so generalizing beyond them is risky. Moreover, and of greater theoretical interest, different populations might use SNSs in different ways. We note that none of the samples had an average age above 60, and so a large segment of the population may be excluded from these data. In our view, perhaps the most important limitation of the present literature is that hardly any studies were conducted in work or business contexts—precisely where bridging social capital in particular may be most relevant and useful (see Kietzmann et al., 2011). We exhort future researchers to focus on SNS use and social capital in connection with work.

The reliance on self-report measures of social capital is understandable but also raises caveats. Our findings pertain to how people rate their social capital, in response to hypothetical questions such as whether one knows someone to whom one might turn in need for emotional or financial support. Whether such support would actually be forthcoming is not inherent in these data, let alone whether people actually make use of online social capital in these ways. The perception of having social capital is itself important and noteworthy, but future research should move ahead to examine how often and under what circumstances people make use of online social capital to solve problems and facilitate goal pursuits.

Another important limitation is that most findings are cross-sectional surveys and thus are essentially correlational. Although our hypotheses focused on how SNS use can contribute to building social capital, it is also plausible that having online social capital can cause increased use of SNSs (and conversely, a lack of online social capital might reduce motivation to spend time online). Future research should emphasize longitudinal designs, which can begin to test causal hypotheses and elucidate how social capital does emerge and develop in connection with SNS participation.

Conclusions and Implications

We found that people report more social capital in connection with spending more time on SNSs, especially when they are more emotionally involved in the SNS world and integrate it more regularly into their everyday activities. The links were stronger for bridging than for bonding. Our findings were consistent with SNSs media niche position (Liu & Yang, 2016). SNSs provide a communication channel that is less intimate and widely used among acquaintances and strangers because they are strongly dependent on the Internet access. Additionally, the greater contribution of bridging is perhaps especially striking given that most of the data is based on university students and collected on campus. Presumably bridging is much more centrally important in the workplace than on the college campus, and future studies that sample more workers may find an even greater link to bridging.

Our findings did not provide much evidence for an online-initiation sequence, by which people would meet new acquaintances online and then either get to know these people offline also or simply build a satisfying social world of purely online friends. Instead, the data pointed toward an offline-to-online sequence. In that view, the main way that SNS participation enriches social capital is that it facilitates contact and information exchange among people who have met each other offline, thereby enriching

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the incipient relationship. By disclosing information about oneself, inquiring about others, and replying to others' comments, people can apparently transform mere distant acquaintanceships into weak ties (or possibly even stronger ties), thereby increasing social capital. One practical implication is that purely depending on online friends to accumulate social capital is not a good strategy. Our findings may also be useful for media designers by highlighting cultural differences in social media use. People from Eastern cultures may have more intense and close online networks than people from Western cultures (Liu & Yang, 2016). Media providers could benefit from considering this cultural difference in product development.

The need to form social networks marked by cooperation, trust, and mutual benefit may be as old as humankind. SNSs offer a very new and powerful technological means by which people can accomplish this. Our findings suggest that an increasing number of people worldwide are successfully making use of this.

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Appendix A

Studies Included in Global SNS Use and Bridging Social Capital Meta-Analysis

	Publication		Sample statistics			Country and culture			Measures		Average usage		Effect sizes	
Study	Status	Year	*N*	*M* age	Women	Country	IDV	EWC	SNS	Capital	Time	Friends	*r*	corr.
1. Antheunis (2014)	P	2010	3,068	13.46	53.70%	NLD	80	W	I	W	62.31	228.00	.208	.306
2. Aubrey (2008)	U	2006	507	19.68	61.50%	USA	91	W	T	W	NA	NA	.200	.210
3. Aubrey (2013)	P	2011	473	19.68	58.90%	USA	91	W	T	W	53.40	NA	.100	.104
4. Barker (2013)	U	2012	236	43.04	58%	USA	91	W	I	E*	NA	NA	.530	.677
5. Bouchillon (2013)	P	2010	838	NA	63.60%	USA	91	W	I	W	NA	NA	.094	.108
6. Brooks (2014)	P	2011	235	45.00	66.80%	USA	91	W	F	W	NA	217.74	.350	.369
7. Chen (2011)	U	2011	64	20.95	43.80%	CHN	20	E	I	E*	80.00	188.00	.120	.148
8. Dohmen (2012)	U	2010	90	21.30	55.56%	NLD	80	W	T	W	NA	NA	.268	.312
9. Ellison (2011)	P	2011	614	45.00	66%	USA	91	W	I	E*	33.89	207.00	.274	.311
10. Greenhow (2011)	P	2008	452	17.00	53.90%	USA	91	W	I	E*	NA	NA	.283	.323
11. Guo (2014)	P	2013	142	NA	63.38%	JPN	46	E	T	W	NA	NA	.000	.000
12. Huang (2009)	U	2007	401	20.05	57.10%	TWN	17	E	I	E*	31.45	19.65	.103	.123
13. Huang (2014)	U	2010	1522	15.00	59.50%	CHN	20	E	I	E*	49.00	40.00	.120	.161
14. Isaacson (2011)	U	2011	541	19.00	71.50%	USA	91	W	I	E*	107.40	498.15	.230	.272
15. Jang (2014)	P	2012	283	32.07	1.00	USA	91	W	F	S	NA	NA	.240	.258
16. Jang (2014)	P	2013	195	36.36	1.00	USA	91	W	F	S	NA	NA	.160	.172
17. Jang (2014)	P	2014	187	42.54	1.00	USA	91	W	F	S	NA	NA	.120	.129
18. Ji (2010)	P	2009	208	26.30	.216	KOR	18	E	T	E*	22.64	53.03	.328	.356
19. Ji (2010)	P	2009	80	27.20	.494	USA	91	W	T	E*	22.22	116.04	.415	.450
20. Ji (2010)	P	2009	53	25.20	.583	CHN	20	E	T	E*	40.63	105.56	.255	.276
21. Jiang (2014)	P	2012	200	22.90	.545	GBR	89	W	I	E*	30.00	40.00	.463	.515
22. Jin (2015)	P	2011	306	NA	.475	KOR	18	E	I	S	NA	NA	.370	.437

(*Appendices continue*)

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Appendix A (*continued*)

Study	Publication		Sample statistics			Country and culture			Measures		Average usage		Effect sizes	
	Status	Year	*N*	*M* age	Women	Country	IDV	EWC	SNS	Capital	Time	Friends	*r*	corr.
23. Kwon (2013)	U	2009	152	20.20	.691	USA	91	W	I	E*	76.00	735.00	.410	.489
24. Lampe (2012)	U	2011	614	43.88	.660	USA	91	W	T	W	33.90	207.00	.250	.259
25. Lee (2014)	P	2012	256	20.90	.703	KOR	18	E	I	E*	69.80	275.00	.240	.268
26. Li (2014)	P	2012	204	24.40	.505	USA	NA	NA	I	E*	37.46	199.03	.332	.386
27. Li (2014)	P	2012	180	24.40	.505	USA	NA	NA	I	E*	75.29	400.99	.300	.347
28. Lin (2015)	P	2013	890	22.62	.583	TWN	17	E	T	S	NA	NA	.096	.105
29. Lin (2015)	P	2013	1109	35.73	.523	TWN	17	E	T	S	101.93	NA	.040	.044
30. Lineberry (2012)	U	2012	953	NA	.616	USA	91	W	F	S	NA	NA	.110	.131
31. Liu (2013)	P	2011	322	19.89	.505	CHN	20	E	I	E*	NA	NA	.220	.254
32. Maksl (2013)	P	2009	872	19.53	.654	USA	91	W	I	W	108.52	681.00	.470	.542
33. Malkhasyan (2013)	U	2011	741	NA	.520	ARM	30	W	I	W	104.90	250.00	.500	.603
34. Mo (2014)	P	2012	431	NA	.556	CHN	20	E	T	W	NA	NA	.290	.339
35. Pasame+ (2011)	P	2009	120	30.00	.517	TUR	37	W	I	S	NA	NA	.480	.549
36. Phua (2012)	P	2010	395	20.6	.453	USA	91	W	I	W	42.00	214.00	.53	.624
37. Ruo (2012)	U	2012	431	NA	.556	CHN	20	E	I	W	NA	NA	.290	.300
38. Skoric (2011)	P	2009	249	21.39	.535	SGP	20	E	I	W	NA	NA	.150	.199
39. Steinfield (2007)	P	2006	288	20.10	.660	USA	91	W	I	E*	32.56	223.09	.460	.541
40. Steinfield (2007)	P	2007	481	20.60	.670	USA	91	W	I	E*	53.76	339.26	.350	.407
41. Suek (2009)	U	2007	104	21.30	.750	USA	91	W	I	E*	NA	NA	.110	.132
42. Sun (2014)	U	2012	136	NA	.581	CHN	20	E	I	S	NA	NA	.364	.436
43. Sun (2014)	U	2012	110	NA	.445	USA	91	W	I	S	NA	NA	.322	.386
44. Yang (2013)	U	2013	200	19.93	.520	CHN	20	E	I	W	57.30	572.12	.164	.183
45. Yokoyama (2013)	U	2013	251	44.70	.299	BRA	38	W	I	W	153.60	260.00	.498	.560
46. Yokoyama (2013)	U	2013	244	40.69	.217	JPN	46	E	I	W	75.60	75.00	.623	.682
47. Yoon (2014)	P	2012	242	25	.460	KOR	18	E	I	W	NA	NA	.243	.292
48. Young (2014)	P	2011	491	21.30	.590	ZAF	65	W	I	E*	NA	395.19	.184	.211
49. Zhong (2014)	P	2012	654	21.00	.432	CHN	20	E	T	W	NA	NA	.039	.042
50. Zuniga (2012)	P	2009	475	45.76	.670	USA	91	W	T	S	45.00	NA	.120	.126

Note. Studies are listed by alphabetical order of author. Status = publication status; Year = data collection year; N = sample size; M age = average age; Women = proportion of women in the sample; Country = data collection country (area); IDV = individualism score; EWC = Eastern/Western culture; SNS = SNS measure; Capital = bridging social capital measures; Time = average SNS use time; Friends = average total SNS friends; r = raw correlation; corr. = effect size corrected with reliability; E = Eastern culture; W = Western culture; I = SNS Intensity; T = time; F = frequency; W = Williams (2006); E* = Ellison et al. (2007); *p* = published; U = unpublished; USA = United States of America; GBR = United Kingdom; DEU = Germany; NLD = Netherlands; JPN = Japan; SGP = Singapore; TAI = Taiwan; CHN = China; KOR = Republic of Korea; BRA = Brazil; ZAF = South Africa; TUR = Turkey; ARM = Armenia.

Appendix B

Studies Included in Global SNS Use and Bonding Social Capital Meta-Analysis

Study	Publication		Sample statistics			Country and culture			Measures		Average usage		Effect sizes	
	Status	Year	*N*	*M* age	Women	Country	IDV	EWC	SNS	Capital	Time	Friends	*r*	corr.
1. Antheunis (2014)	P	2009	3,068	13.46	.537	NLD	80	W	I	W	62.31	228	.149	.204
2. Aubrey (2008)	U	2009	507	19.68	.615	USA	91	W	T	W	NA	NA	.173	.185
3. Aubrey (2013)	P	2009	473	19.68	.589	USA	91	W	T	W	53.40	NA	.000	.000
4. Bouchillon (2013)	P	2009	838	NA	.636	USA	91	W	I	E*	NA	NA	.164	.201
5. Brooks (2014)	P	2011	235	45.00	.668	USA	91	W	F	W	NA	217.74	.270	.288
6. Chen (2011)	U	2009	64	20.95	.438	CHN	20	E	I	E*	80.00	188.00	.230	.321
7. Greenhow (2011)	P	2009	452	17.00	.539	USA	91	W	I	E*	NA	121.00	.160	.208
8. Guo (2014)	P	2009	142	NA	.634	JPN	46	E	T	W	NA	NA	.040	.050
9. Huang (2009)	U	2009	401	20.05	.571	TWN	17	E	I	E*	31.45	19.65	.140	.177
10. Huang (2014)	P	2009	1522	15.00	.595	CHN	20	E	I	E*	49.00	40.00	.090	.121
11. Jang (2014)	P	2012	283	32.07	1.000	USA	91	W	F	S	NA	NA	.140	.155

(*Appendices continue*)

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Appendix B (*continued*)

Study	Publication		Sample statistics			Country and culture			Measures		Average usage		Effect sizes	
	Status	Year	*N*	*M* age	Women	Country	IDV	EWC	SNS	Capital	Time	Friends	*r*	corr.
12. Jang (2014)	P	2012	195	36.36	1.000	USA	91	W	F	S	NA	NA	.210	.232
13. Jang (2014)	P	2013	187	42.54	1.000	USA	91	W	F	S	NA	NA	.290	.320
14. Ji (2010)	P	2009	208	26.30	.216	KOR	18	E	T	E*	22.64	53.03	.206	.225
15. Ji (2010)	P	2009	80	27.20	.494	USA	91	W	T	E*	22.22	116.04	.393	.429
16. Ji (2010)	P	2009	53	25.20	.583	CHN	20	E	T	E*	40.63	105.56	.329	.359
17. Jiang (2014)	P	2009	200	22.90	.545	GBR	89	E	I	E*	30.00	40.00	.367	.404
18. Jin (2013)	P	2009	306	NA	.475	KOR	18	E	I	S	NA	NA	.383	.460
19. Kwon (2013)	U	2009	152	20.20	.691	USA	91	W	I	E*	76.00	735.00	.200	.252
20. Lee (2014)	P	2012	256	20.90	.703	KOR	18	E	I	E*	69.80	275.00	.230	.276
21. Li (2014)	P	2012	204	24.40	.505	USA	NA	NA	I	E*	37.46	199.03	.332	.393
22. Li (2014)	P	2012	180	24.40	.505	USA	NA	NA	I	E*	75.29	400.99	.300	.353
23. Lin (2015)	P	2009	1109	35.73	.523	TWN	17	E	T	S	NA	NA	.042	.044
24. Lin (2015)	P	2009	890	22.62	.583	TWN	17	E	T	S	101.93	NA	.096	.107
25. Lineberry (2012)	U	2009	953	NA	.616	USA	91	W	F	S	NA	NA	.040	.049
26. Liu (2013)	P	2009	322	19.89	.505	CHN	20	E	I	E*	NA	NA	.180	.225
27. Maksl (2013)	P	2009	872	19.53	.654	USA	91	W	I	W	108.52	681.00	.416	.467
28. Malkhasyan (2013)	U	2009	741	NA	.520	ARM	30	W	I	W	104.90	250.00	.196	.246
29. Mo (2015)	P	2009	431	NA	.556	CHN	20	E	T	W	NA	NA	.320	.353
30. Pasame+ (2011)	P	2009	120	30.00	.517	TUR	37	W	I	S	NA	NA	.340	.419
31. Phua (2012)	P	2008	395	20.60	.453	USA	91	W	I	W	42.00	214.00	.510	.611
32. Ruo (2012)	U	2012	431	NA	.556	CHN	20	E	I	W	NA	NA	.320	.342
33. Skoric (2011)	P	2009	249	21.39	.535	SGP	20	E	I	W	NA	NA	.080	.101
34. Suek (2009)	U	2009	104	21.30	.750	USA	91	W	I	E*	NA	NA	.320	.390
35. Sun (2014)	U	2009	136	NA	.581	CHN	20	E	I	S	NA	NA	.120	.153
36. Sun (2014)	U	2009	110	NA	.445	USA	91	W	I	S	NA	NA	.165	.211
37. Yang (2013)	U	2009	200	19.93	.520	CHN	20	E	I	W	57.30	572.12	.126	.137
38. Yokoyama (2013)	U	2009	244	40.69	.217	JPN	46	E	I	W	153.60	260.00	.464	.511
39. Yokoyama (2013)	U	2009	251	44.70	.299	BRA	38	W	I	W	75.60	75.00	.505	.569
40. Yoon (2014)	P	2012	242	NA	.460	KOR	18	E	I	W	NA	NA	.111	.134
41. Young (2014)	P	2009	491	21.30	.590	ZAF	65	W	I	E*	NA	395.19	.195	.238
42. Zhong (2014)	P	2012	654	21.00	.432	CHN	20	E	T	W	NA	NA	.113	.126
43. Zhong (2013)	P	2010	488	25.62	.592	DEU	67	W	F	W	NA	NA	.120	.134

Note. Studies are listed by alphabetical order of author. Status = publication status; Year = data collection year; N = sample size; M age = average age; Women = proportion of women in the sample; Country = data collection country (area); IDV = individualism score; EWC = Eastern/Western culture; SNS = SNS measure; Capital = bonding social capital measures; Time = average SNS use time; Friends = average total SNS friends; r = raw correlation; corr. = effect size corrected with reliability; E = Eastern culture; W = Western culture; I = SNS Intensity; T = time; F = frequency; W = Williams (2006); E* = Ellison et al. (2007); *p* = published; U = unpublished; USA = United States of America; GBR = United Kingdom; DEU = Germany; NLD = Netherlands; JPN = Japan; SGP = Singapore; TAI = Taiwan; CHN = China; KOR = Republic of Korea; BRA = Brazil; ZAF = South Africa; TUR = Turkey; ARM = Armenia.

Appendix C

Studies Included in Social Networking Site Activity and Bridging Social Capital Meta-Analyses

Study	*M* age	% Women	Country	EWC	Activity	*N*	*r*
1. Hsu (2014)	NA	.61	USA	W	D	458	.230
2. Lee (2014)	20.90	.70	KOR	E	D	256	.221
3. Liu+(2014)	19.20	.70	CHN	E	D	264	.020
4. Maksl (2013)	19.53	.65	USA	W	D	872	.179
5. Stutzman (2012)	21.16	.67	USA	W	D	230	.141
6. Vitak (2012)	30.00	.65	USA	W	D	364	.247
7. Yang (2013)	19.93	.52	CHN	E	D	200	.095
8. Yoder (2011)	19.85	.78	USA	W	D	574	.400
9. Yoder (2011)	19.85	.78	USA	W	D	574	.100

(*Appendices continue*)

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Appendix C (*continued*)

Study	*M* age	% Women	Country	EWC	Activity	*N*	*r*
10. Kwon (2012)	NA	.63	JPN	E	E	142	.270
11. Huang (2009)	20.05	.57	TWN	E	E	401	.140
12. Guo (2014)	20.20	.69	USA	W	E	155	.270
13. Lineberry (2012)	NA	.62	USA	W	E	953	.130
14. Brooks (2014)	45.00	.67	USA	W	F	236	.320
15. Carpenter (2011)	21.51	.70	USA	W	F	189	.190
16. DeAndrea (2011)	NA	.70	USA	W	F	265	.290
17. Jung (2013)	42.70	.73	USA	W	F	666	.213
18. Kramer (2014)	25.35	.56	USA	W	F	317	.220
19. Liu+(2014)	19.20	.70	CHN	E	F	264	.173
20. Lampe (2012)	43.88	.66	USA	W	I	614	.292
21. Brooks (2014)	45.00	.67	USA	W	I	236	.540
22. Chen (2011)	20.95	.44	CHN	E	I	64	.285
23. Ellison (2011)	45.00	.66	USA	W	I	614	.250
24. Ellison (2010)	20.40	.62	USA	W	I	450	.200
25. Guo (2014)	NA	.63	JPN	E	I	142	.390
26. Huang (2009)	20.05	.57	TWN	E	I	401	.110
27. Kwon (2012)	20.20	.69	USA	W	I	152	.270
28. Lineberry (2012)	NA	.62	USA	W	I	953	.090
29. Rui (2014)	NA	.50	USA	W	I	223	.330
30. Suek (2009)	21.30	.75	USA	W	I	104	.230
31. Suek (2009)	21.30	.75	USA	W	I	104	.160
32. Zuniga (2012)	45.76	.67	USA	W	I	475	.110
33. Brooks (2014)	45.00	.67	USA	W	R	235	.590
34. Carpenter (2011)	21.51	.70	USA	W	R	189	.500
35. Ellison (2014)	44.00	.69	USA	W	R	1647	.265
36. Huang (2009)	20.05	.57	TWN	E	R	401	.280
37. Kwon (2012)	20.20	.69	USA	W	R	153	.470
38. Zhong (2014)	21.00	.43	CHN	E	R	654	.357
39. Lampe (2012)	43.88	.66	USA	W	R	614	.105
40. Guo (2014)	NA	.63	JPN	E	R	142	.190
41. Jung (2013)	42.70	.73	USA	W	R	666	.504
42. Lee (2014)	20.90	.70	KOR	E	R	256	.300
43. Liu +(2014)	19.20	.70	CHN	E	R	264	.330
44. Huang (2009)	20.05	.57	TWN	E	T	401	.080
45. Zhong (2014)	21.00	.43	CHN	E	T	654	.097

Note. Liu+ (2014) = Liu & Brown (2014); D = disclosure; In the EWC column: E = Eastern culture; W = Western culture, In the Activity column: E = entertainment; F = including offline friends; I = information seeking; T = online friendship initiation; R = replying and maintaining.

Appendix D

Studies Included in Social Networking Site Activity and Bonding Social Capital Meta-Analyses

Study	*M* age	% Women	Country	EWC	Activity	*N*	*r*
1. Stutzman (2012)	21.16	.670	USA	W	D	230	.141
2. Liu+ (2014)	19.20	.705	CHN	E	D	264	.020
3. Lee (2014)	20.90	.703	KOR	E	D	256	.342
4. Maksl (2013)	19.53	.654	USA	W	D	872	.181
5. Yang (2013)	19.93	.520	CHN	E	D	200	.172
6. Hsu (2014)	NA	.612	USA	W	D	458	.180
7. Trepte (2013)	25.62	.592	DEU	W	D	488	.310
8. Kwon (2012)	20.20	.691	USA	W	E	155	.130
9. Huang (2009)	20.05	.571	TWN	E	E	401	.080
10. Lineberry (2012)	NA	.616	USA	W	E	953	.130
11. Guo (2014)	NA	.634	JPN	E	E	142	.130
12. Brooks (2014)	45.00	.668	USA	W	F	237	.340

(*Appendices continue*)

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Appendix D (*continued*)

Study	*M* age	% Women	Country	EWC	Activity	*N*	*r*
13. Liu+ (2014)	19.20	.705	CHN	E	F	264	.270
14. Krämer (2014)	25.35	.565	USA	W	F	317	.250
15. Jung (2013)	42.70	.732	USA	W	F	666	.238
16. Gray (2013)	19.60	.559	USA	W	F	333	.209
17. Rui (2014)	NA	.505	USA	W	I	223	.330
18. Ellison (2010)	20.40	.620	USA	W	I	450	.141
19. Brooks (2014)	45.00	.668	USA	W	I	236	.420
20. Kwon (2012)	20.20	.691	USA	W	I	152	.220
21. Huang (2009)	20.05	.571	TWN	E	I	401	.110
22. Lineberry (2012)	NA	.616	USA	W	I	953	.090
23. Guo (2014)	NA	.634	JPN	E	I	142	.390
24. Suek (2009)	21.30	.750	USA	W	I	104	−.090
25. Suek (2009)	21.30	.750	USA	W	I	104	.290
26. Zhong (2014)	21.00	.432	CHN	E	T	654	.051
27. Huang (2009)	20.05	.571	TWN	E	T	401	.000
28. Zhong (2014)	21.00	.432	CHN	E	R	654	.319
29. Brooks (2014)	45.00	.668	USA	W	R	235	.440
30. Kwon (2012)	20.20	.691	USA	W	R	153	.250
31. Huang (2009)	20.05	.571	TWN	E	R	401	.250
32. Ellison (2014)	44.00	.690	USA	W	R	1647	.173
33. Liu+ (2014)	19.20	.705	CHN	E	R	264	.240
34. Lee (2014)	20.90	.703	KOR	E	R	256	.283
35. Jung (2013)	42.70	.732	USA	W	R	666	.259
36. Guo (2014)	NA	.634	JPN	E	R	142	.090

Note. Liu+ (2014) = Liu & Brown (2014); D = disclosure; In the EWC column: E = Eastern culture; W = Western culture, In the Activity column: E = entertainment; F = including offline friends; I = information seeking; T = online friendship initiation; R = replying and maintaining.

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