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Social Capital and Internet Use: The Irrelevant, the Bad, and the Good

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Abstract

The social effects of Internet use have been a major concern for social scientists and society alike. How the Internet affects social capital has been a hot topic in sociology and other social sciences: Is the Internet reinforcing and complementing social capital? Or is it isolating people and diminishing their social capital? Social capital is here defined as the resources that are embedded in one's social ties. This article reviews the literature on the subject, looking at three perspectives: one that suggests no relationship between the Internet and social capital, a second that suggests a negative relationship between the Internet and social capital, and a third that suggests a positive relationship between the Internet and social capital. I conclude by showing that despite the prominent dystopian view of the Internet in the public and in some academic discourse (and the moral panic associated with it), research supports a positive relationship between Internet use and social capital. In addition, I discuss new trends and directions for future research.

I. Introduction

The social effects of the Internet have been largely debated in the last decade. But there is a contention between (i) the public and some academic discourse, which claim a range of negative effects such as social isolation (Turkle 2011; Virilio 2000), and (ii) research that shows positive effects such as an expansion of social connectivity (Wang & Wellman 2010).

This article sheds light on the social effects of the Internet, through the concept of social capital. Social capital is a multidisciplinary concept with a variety of definitions, but "the basic idea of social capital is that one's family, friends, and associates constitute an important asset, one that can be called upon in a crisis, enjoyed for its own sake, and/or leveraged for material gain" (Woolcock 2001, 20).

Social capital relates to a set of positive outcomes, such as finding jobs or landing better jobs (Lin and Erickson 2008), social status (Lin 2001), well-being, social integration (Adler and Kwon 2002; Putnam 2000; Halpern 2005), better

management of common resources (Ostrom and Ahn 2003), and alleviation of poverty (Grootaert and Bastelaer 2001). And it is also a strong predictor of academic performance, employment, occupational attainment, civic engagement, and social cohesion (Portes 1998; Putnam 2000; Lin and Erickson 2008). So, those with more social capital appear to beat an advantage over those with less.

Thus, social capital is a valuable conceptual tool to analyze the social impact of the Internet (Quan-Haase and Wellman 2004). In this article, I review a plethora of empirical research to answer a key question: Is there any relationship between social capital and Internet use? In answering this question, I aim to provide a critical map of this field of study and to address the wide concerns about the Internet's effects on society. Because social capital is an elastic concept, I will begin with some considerations about its definition and measurement.

II. What is social capital? Definition and measurement

Definition

Social capital is largely used in sociology (Bourdieu 1980; Coleman 1988; Lin 2001; Lin and Erickson 2008; Field 2008) and in a range of other social sciences, from economics (Becker 1996; Woolcock 2001; Sabatini 2009) to political science (Putnam et al. 1993; Putnam 1995; 2000; Fukuyama 1995; Ostrom 1990; 2000).

Despite its broad scientific and public appeal, social capital lacks a generally agreed upon definition (Field 2008; Portes 1998). Each discipline focuses on a certain aspect of social capital: e.g. sociologists focus on social ties and resources (Bourdieu 1980; 1986; Lin 2001), whereas political scientists focus on civic engagement and trust (Putnam 2000; Halpern 2005). This difference seems to be based on a limited interaction between disciplines (Akçomak 2011) and on the wide application of social capital as an umbrella term – what sometimes leads to a "conceptual chaos" (Fine 2010, 5).

Within sociology, definitions also vary. Sociologist James Coleman, one of the original theorists of social capital, contributed to this variance by defining social capital by function: "It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure" (Coleman 1988, 98). For some authors, particularly social network theorists, social capital equals social networks (Glanville and Bienenstock 2009), while for others, it also includes elements such as social trust (Coleman 1988; Field 2008), norms (Coleman 1987; Field 2008), resources (Bourdieu 1980; 1986; Lin 2001), forms of civic engagement (Field 2008).

Social relationships (social networks or social ties) are the only common element of the definitions of social capital. Social capital equals the benefits we can obtain

from our social relationships; hence, social relationships are a prerequisite for the formation and accumulation of social capital (Lin 1999; Coleman 1988). In the words of Pierre Bourdieu, who provides the first contemporary definition of social capital, social capital is "the sum of actual or potential resources related to the possession of a durable network of more or less institutionalized relationships of acquaintance and recognition" (Bourdieu 1980, 2).

Theoretically, it is clear that relationships and resources are main elements of social capital; it is not clear, however, how norms, civic engagement, or social trust can be elements of social capital (Lin and Erickson 2008). Empirically, research indicates low or marginal associations between social capital and norms, civic engagement, and social trust, which suggest that these are independent concepts (Bekkers et al. 2008; Miyata et al. 2008; Tindall and Cormier 2008; Magee 2008). As such, drawing on Bourdieu (1980) and Lin's (2001) work, I define social capital as: the resources (actual or potential) that are embedded in our social networks and can be accessed and mobilized when needed. These resources include social, economic, and political assets, such as social and emotional support, financial help, or power/reputation- related benefits.

Measurement: dimensions of social capital

Besides the conceptual ambiguity of social capital, one can find a methodological ambiguity. Social capital is measured through different dimensions, from social relationships to civic engagement. Once again, a common element in the measurement of social capital is related to social networks (i.e. quantity and quality of social ties). This element generally corresponds to two dimensions of social capital: bonding and bridging. These dimensions were coined by Gittell and Vidal in 1998 but popularized by Putnam (2000). The divergence is on which characteristics of these social networks should be taken into account, such as density, homogeneity, bridges, or structural holes (Glanville and Bienenstock 2009).

Bonding is usually related to homogeneous and close-knit groups, such as family or close friends known as strong ties (Hampton 2011). Bonding social capital corresponds to the resources available in one's strong ties. Strong ties tend to be the source of primary personal interaction and support (Strait 2000; Hampton 2011; Haythornthwaite 2005). Bonding social capital provides social and emotional support (e.g. having someone to take care of us when we are sick), also named expressive actions, which play a role in maintaining resources (Lin 2001).

Because bonding social capital is more than the sum of close ties, we can find a variety of instruments to measure it: (i) the number of strong ties and the frequency of interaction with those ties – the latter is used to assess the quality of the relationship with those ties (Small 2009); (ii) instruments such as the name

generator, the position generator, and the resources generator (Laumann 1966; Lin and Dumin 1986; Van der Gaag and Snijders 2005); (iii) and bonding scales (Williams 2006). This variety of instruments is related not only to the different definitions of social capital but also to the complexity of measuring personal social networks. While studies suggest that a larger network and a higher interaction are associated with more access to resources (Finsveen and Van Oorschot 2008), structure and function do not always correlate: first, size and intensity of one's networks do not point to resources available in those networks; second, each measured resource is wrongly assumed as evenly available to the individual; and third, ties may have a set of resources but need to be willing to give access to those resources (Van der Gaag and Snijders 2005).

For instance, the name generator and the position generator measure the size, density, and diversity of one's social network. But the first measures social relationships and not the resources available through them, and the second restricts information on social resources, focusing on the importance of job prestige and instrumental actions, such as finding a job, rather than on expressive actions, such as social support (Lin 2001; Van der Gaag, Snijders, and Flap 2008). The resources generator measures a list of specific resources that are embedded in a social network (Van der Gaag and Snijders 2005). Each generator emphasizes particular aspects of social networks and is chosen according to the research goals (Van der Gaag, Snijders, and Flap 2008).

Bridging is usually related to more diverse and heterogeneous groups, such as acquaintances, i.e. weak ties (Hampton 2011). Bridging social capital is mainly based on weak ties, although a strong tie can also provide bridging, and a weak tie can also provide bonding (Hampton 2011). Weak ties are more crosscutting than strong ties and present a lower level of homophily when compared with strong ties (Hampton 2011). Weak ties have access to different resources, such as information on job leads (Granovetter 1973; 1974). So, bridging social capital allows individuals to access resources not available in their close social networks, being useful to gain resources, i.e. for instrumental actions such as finding a job (Lin 2001).

Bridging social capital is also more than the sum of weak ties. The measurement of this dimension includes the number of weak ties, frequency of interaction with those ties, measures of social diversity and social participation (Pajak 2006; Sabatini 2009), the name generator (Laumann 1966), the position generator (Lin and Dumin 1986), the resources generator (Van der Gaag and Snijders 2005), and bridging scales (Williams 2006). The measurement of bridging is less standardized than bonding, and we have fewer tools to measure it. Enumerating weak ties might be unfruitful, since not all weak ties equal bridging, size does not mean diversity (Hampton 2011), and it does not seize the importance of networks' locations such as bridges or structural holes (Lin 2001). For instance, when there is a structural hole between two ties, i.e. divisions between non-

redundant contacts, there is also a connection with benefits (Burt 1992). Again, the measurement of social capital is affected by the complexity of measuring social networks. Nevertheless, we have to be able to "combine the structure of networks with the content of social capital to better understand social reality" (Moody and Paxton 2009, 1500).

In this review, and to be consistent with the definition of social capital I present here, I only consider bonding and bridging to be the dimensions of social capital. I am also only focusing on individual-level social capital.

III. Social capital and Internet use

Since "Social capital is about networks, and the Net is the network to end all networks" (Putnam 2000, 171), several questions arise concerning the relationship between the Internet and social capital.

On the one hand, e.g. the web's low cost, high speed, and ubiquity create possibilities or social affordances that are promising in terms of production and accrual of social capital (Wellman et al. 2003). This low cost, high speed, and ubiquity afford a constant social connectivity: computer-mediated communication (CMC) supports the development of personal ties (without many of the common geographic constraints) and the connection with larger groups and communities of interest (Wellman 2001). The Internet can contribute to social capital because it increases contact with family members, friends, and acquaintances that live close or far (Rainie and Wellman 2012), and allows individuals to create new ties and to activate latent ties – those ties that are latent but not yet activated, such as a friend of a friend (Haythornthwaite 2005). For instance, social networking sites such as Facebook allow us not only to connect with new people but also to connect with friends of friends, through the suggestions that it presents and the possibility of seeing our friends' networks.

The social affordances of the Internet "allow individuals to perceive aspects of their social environment, such as who else is in a chat room, who was cosent [sic] a message, or who are the friends of my friends on a social network site" (Hogan and Quan-Haase 2010, 310) facilitating interaction with a range of ties and different ways of negotiating that interaction. For example, the Internet's two-way interaction and synchronous and asynchronous characteristics facilitate brief interactions and multitasking, i.e. doing other things while interacting with different ties (Resnick 2001). So, the Internet can enhance distinct interactions, thus promoting the creation and maintenance of social capital as well as forms of managing that social capital. But, on the other hand, issues such as the digital divide, misrepresentation (mainly using anonymity to cheat and deceive online), homophily, and cyberbalkanization (group atomization and out-group antagonism) can directly threaten social capital, excluding and isolating people or fostering a narrowed inward-looking form of social capital (Putnam 2000).

Putnam (2000) argues that social capital is decreasing in the United States, but he is unsure about the impact of the Internet. He suggests that meeting online is not the same as meeting offline, but calls for research. Challenging Putnam's conclusions, Lin (2001) shows that social capital increased since the 1990s, through cybernetworks. Using the example of the Falun Gong (a Chinese spiritual movement), Lin shows how their hierarchical organization used cybernetworks to recruit, train, inform, and mobilize followers, creating a collective social capital. The capacity to mobilize millions of followers represented a threat to the Chinese Communist Party (Lin 2001). Although cybernetworks can equalize opportunities for its members, it presupposes an unequal distribution of capital for those excluded (Lin 2001).

To group perspectives on the Internet and social capital, Quan-Haase and Wellman (2004) defined three approaches:

1. The Internet transforms social capital: early claims that the Internet would allow for a new sociability and new forms of community pointed to a change in social capital (Wellman 2001; Lin 2001; Quan-Haase and Wellman 2004).

2. The Internet diminishes social capital: early dystopian assumptions about the Internet claimed a range of ills, from a loss of community and social connectivity (cf. Wang and Wellman 2010) to the displacement of the physical self (Virilio 1999; 2000). The Internet would create isolation, addiction, and diminish social capital.

3. The Internet supplements social capital: the Internet would allow people to maintain social capital, through existing and new ties. In fact, "Both the history of the telephone and the early evidence on Internet use strongly suggest that computer-mediated communities will turn out to complement, not replace, face-to-face communities" (Putnam 2000, 179).

But most studies on the subject are cross-sectional, not allowing long-term or cause-effect conclusions. We cannot, therefore, determine if the Internet transforms or diminishes social capital or if it is the other way around. To be more precise about a measurable relationship between social capital and Internet use, and to address my key question, this article explores three perspectives:

1. There is no relationship between social capital and Internet use.
2. There is a negative relationship between social capital and Internet use.
3. There is a positive relationship between social capital and Internet use.

In each perspective, I review studies that first, claim to be about social capital and general Internet use; second, share my definition of social capital; and third, use proxy indicators, i.e. indicators that are related to the used definition of social

capital. Internet use is measured through frequency of usage, which is the main indicator in the literature (Wang and Wellman 2010). I focus on general Internet use, although I end by briefly tackling social networking sites because of their relevance to the field. To conduct this literature search, I have used a number of databases, namely Proquest (Sociology, Sociological Abstracts, IBSS, and Social Sciences), JSTOR, Web of Science, B-on, and Questia. This review is, therefore, limited by these criteria and mainly restricted to sociology.

The irrelevant: social capital and Internet use are not related

Despite initial utopian versus dystopian assumptions about the Internet and social capital, I found two studies that show no relationship between the Internet and social capital.

Uslaner (2004) analyzed data from two surveys (a 1998 survey on technology use by the Pew Center for The People and The Press and the 2000 Trust and Privacy Survey of the Pew Internet and American Life Project) to measure the association between Internet use, trust, and measures of sociability. He concluded that the Internet is neither related to trust nor to sociability: "Most of the time, then, the Net is neutral. It neither creates social bonds nor destroys them. It does not build up trust nor destroy it" (Uslaner 2004, 21). For Uslaner, there is little proof that the Internet fosters new communities and even less proof that the Internet is moving people away from their social ties or making them less trusting. The Internet is "an additional outlet" for people who are already connected with others (Uslaner 2004, 13). While Uslaner uses trust as a dimension of social capital, which is not compatible with the criteria I have defined earlier, he uses data on sociability that can be used as a proxy to measure social capital.

Similarly, a longitudinal panel data of 700 Swiss individuals (1998 and 2001) show that Internet use is not associated with a decrease or an increase of an individual's network size of close friends or with the time they spend socializing with those friends (Franzen 2003). Changes in network size were only significant when related to marital status, namely marriage and divorce. This article follows a network analysis approach that only considers close relationships outside the family (what can be defined as peer bonding), which restricts the analysis of social capital.

The bad: social capital and Internet use are negatively related

The studies reviewed in this section do not claim to be analyzing social capital, but they measure indicators of social involvement and connectivity, which tap into social capital. Moreover, these studies are always cited in relation to social capital (Quan-Haase and Wellman 2004; Steinfield, Ellison, and Lampe 2008).

Kraut and colleagues (1998) studied Internet use and well-being by following new

Internet users: 169 people in 73 households during 1995–1996. The results showed that heavy use of the Internet was associated with declines in participants' communication with family members in the household, declines in the size of their social circle, and increases in depression and loneliness. This was named the "Internet paradox" since participants used the Internet for communication purposes, which is usually associated with positive effects. Several authors criticized the selection of the participants, since it included individuals in a stage of life associated with a decline of social contact such as youngsters who would leave home in the near future for university studies (Shapiro 1999; Amichai-Hamburger and Ben-Artzi 2000). Also, the Internet users at the time were newbies: still experimenting with the new medium and did not interact with many of their social ties because they were not online. These results were revisited in a follow-up study (1998–1999) that analyzed the long-term impact of Internet use on 208 members of the original sample (Kraut et al. 2002). Findings indicated that the negative effects were no longer observable.

A time diary study of a representative sample of 6,000 Americans (aged 18–64), by Nie et al. (2002), also found negative effects of Internet use. The authors concluded that the more time was spent on the Internet, the less time people spent in direct contact with friends, families, and colleagues. This is known as the time displacement hypothesis – time online would replace time with family and friends, face-to-face interaction, and other social activities. Internet use at home had a strong negative impact on the time spent with family and friends, while Internet use at work was strongly associated with decreased time with colleagues but did not affect time with family and friends.

The authors also claim that watching TV is more sociable than being on the Internet: first, because people watch TV in-group, and second, because they are "less alone" during this activity (Nie, Hillygus, and Erbring 2002). But watching TV with others does not mean interaction per se (maybe a short exchange of reactions and feedback) or even a meaningful one. The authors' emphasis on face-to-face interaction and the time displacement hypothesis fails to acknowledge that the Internet also allows for interaction and engagement with others. Not all online activities are social, but many are. However, the authors characterize online interaction as simply antisocial: "One simply cannot be engaged with others while being engaged on the Internet" (Nie, Hillygus, and Erbring 2002, 230).

The good: social capital and Internet use are positively related

Research generally supports the positive association between social capital and the Internet. This association can be arranged in three parts: firstly, the Internet complements social capital; secondly, the Internet is positively related to social capital; and thirdly, the Internet creates and maintains social capital.

First of all, research shows that the Internet complements social capital while dismissing the time displacement hypothesis. In a study of 20,075 American and Canadian adults, those with the most Internet usage continued to communicate by phone and meet face-to-face (Quan-Haase and Wellman 2004). The authors concluded, “Although the Internet helps to connect far-flung community, it also helps to connect local community” (Quan-Haase and Wellman 2004, 125). Similarly, Robinson and Martin (2010) analyzed two data sets – the time-series data from the US General Social Survey (1995–2006) and the 2003–2005 American Time-Use Survey – and found no evidence of time displacement in Internet use and activities related to social capital, such as socializing and church attendance. Nevertheless, respondents who spent more time online had fewer social visits with relatives. But this was compensated by more visits with friends, compared with non-Internet users.

Secondly, a bulk of studies corroborates the positive relationship between social capital and Internet use: a study of 14,000 Australians conducted in 2004 showed that social capital was positively related to Internet usage for the following indicators: number and intensity of contacts, the diversity of individual networks of influence, and civic engagement (Alessandrini 2006). Estimating the effect of broadband Internet access on social capital (using German individual-level data for 2008), Bauernschuster, Falck, and Woessmann (2011) found a positive relationship between the selected social capital indicators (informal interactions, interactions with friends, civic engagement, and political work) and having broadband access at home. Likewise, Neves (2012) found a positive relationship between social capital and the Internet on a representative sample of 417 inhabitants of Lisbon, Portugal. The likelihood of having a higher level of social capital increased with Internet use and decreased with age.

Finally, studies demonstrate how the Internet contributes to the production and accrual of social capital. In a study of a representative sample of 2,200 American adults in 2004, Boase et al. (2006) concluded that the Internet helps build social capital at different levels: first, the Internet supports social connectedness (the more people talk online, the more they see each other face-to-face and talk on the phone); second, the Internet promotes the so-called “networked individualism” by allowing people to look for a range of suitable people and resources; third, people use the Internet to put their social networks into motion when they need help, thus accessing and mobilizing their social capital; and fourth, Internet users had larger social networks than non-users, which would potentially allow them to have more ties to draw resources from.

This connection between Internet usage and larger and more diverse social networks is also supported by other studies in the United States (Hampton et al. 2011). Also in Japan, in a study of 1,002 adults in 2002, Miyata et al. (2008) concluded that the more men participated in online communities, the more their networks were diversified (at the same gender level and not cross-gender).

However, the same did not hold for women. Although other studies have not found any gender difference and this might be related to cultural aspects of the Japanese society, we cannot dismiss a "gendered social capital" (Burt 1998) in this relationship with the Internet.

IV. Bonding, bridging, and Internet use

The studies reviewed so far analyzed social capital as a whole, but recent scholarship compares specific dimensions of social capital such as bonding and bridging. As with social capital, bonding and bridging are generally positively related to Internet use. Despite early claims that the Internet was more favorable to the establishment of weak ties and hence for bridging social capital (Best and Krueger 2006; Haythornthwaite 2002), the social affordances of the Internet seem to allow for both bridging and bonding: the Internet facilitates new forms of interaction with existing ties, new ways of forming ties, and new possibilities for recovering old ties and to convert latent ties into real ties (Ellison, Steinfield, and Lampe 2007; Haythornthwaite 2005).

The need to adapt the measurement of social capital to the Internet resulted in the development of the Internet Social Capital Scales that distinguish online and offline bonding and bridging (Williams 2006). Comparing bonding and bridging online and offline in a sample of US inhabitants (N = 884), Williams (2007) found that there was more bonding offline and more bridging online. Time spent online was negatively associated with offline bonding and bridging and positively associated with higher levels of online bonding and bridging (Williams 2007). These results support the time displacement hypothesis advanced by Nie et al. (2002): Internet use relates to a decrease in offline social capital. But the opposite is also true: Internet use relates to an increase of online social capital (Williams 2007). A recent study of Portuguese Internet users in Lisbon (N = 417) found that offline bonding and bridging are positively associated with Internet usage (Neves 2012). Unexpectedly, Internet use did not predict online bonding or online bridging. The author proposes several tentative reasons for these results: particularly that the division between the offline and online dimensions might be a fragile one, since the offline and the online are progressively enmeshed in people's lives (Neves 2012).

Although this article is primarily based on general Internet use, because of the pervasiveness of social networking sites (SNS), I decided to briefly address SNS and social capital. Most studies on SNS and social capital focus on bonding and bridging. This reflects two emerging trends in the field: One is to look at specific social media instead of at the Internet in general, and the other is to compare dimensions of social capital. SNS were also mostly hypothesized as a way of enhancing weak ties, due to the characteristics of the medium: convenience, low entry cost, and easy usage of the service (Donath and boyd 2004). SNS users are able to create and maintain large networks, in a cheap and easy way.

Research shows that Facebook use is positively related to bridging and bonding social capital (Ellison, Steinfield, and Lampe 2007; Steinfield, Ellison, and Lampe 2008; Ellison et al. 2010; Brandtzaeg et al. 2010). But in a follow-up of their 2006 study of undergraduate students, which supported a positive relationship between the Internet and bridging and bonding, Ellison et al. (2007) and Vitak et al. (2011) concluded that Facebook was less correlated with bonding within the university setting in 2010 than it was in 2006 (N=325). Nevertheless, the intensity of Facebook use was related to specific behaviors: replying to a friend who posts a support-related update and being friends with a family member were positively associated with social support (Vitak, Ellison, and Steinfield 2011).

This relationship to specific behaviors or online activities started to be central in the study of social capital and the Internet, over the study of general frequency of usage (Burke, Kraut, and Marlow 2011). In a study of Facebook users and uses, Burke et al. (2011) explored three online activities: directed communication with individual friends, passive consumption of social news, and broadcasting. They surveyed a convenience sample of Facebook users in two waves (2009 and 2010) and looked at their server logs, matching social behavior. Their findings show that only person-to-person exchanges were associated (positively) with bridging, and they found no association between Facebook use and bonding.

So SNS, or at least Facebook, appear to have less impact on bonding social capital. However, in a recent longitudinal study of a representative sample of Norwegian online users (N = 2,001) in three waves (2008, 2009, and 2010), Brandtzaeg (2012) compared SNS users and non-users, as well as different types of SNS users. The results show that SNS users score higher in the selected dimensions of social capital: face-to-face interaction, number of acquaintances, and bridging. The author also compared different types of SNS users and concluded that socializers, those who mostly use SNS for social interaction, had greater social capital than the other types of users. Nonetheless, Brandtzaeg (2012) found that “number of acquaintances” correlated with SNS usage but not bridging or “face-to-face.” These different results might be related to different measurements, cultural aspects, and to the study of different types of SNS.

V. Discussion

The only perspective that has provided systematic evidence so far is the positive relationship between Internet use and social capital. The Internet seems to be contributing to social capital not only through the social connections it supports but also through the general information and resources that it affords (Boase et al. 2006). This does not mean, of course, that the Internet has only positive effects on society. Social capital can also be negative and promote segregation, inequality, conflict, and crime (Portes 1998; Levi 1996; Ostrom and Ahn 2003; Putnam 2000; Streeten 2002).

The non-relationship between social capital and the Internet found by Uslaner (2004) and Franzen (2003) might be related to the indicators used to assess that relationship: Uslaner used measures of sociability, such as how wide is your social support network, how often you visit family members, and how frequently you call friends; and Frazen used the number of close friends and time spent socializing with those friends. A more robust analysis of social capital includes a variety of other indicators as discussed previously. These studies also report two different countries (US and Switzerland) and go back to 1998, 2000, and 2001, a period when the Internet was not as embedded in people's lives.

The negative relationship between Internet use and social capital hasn't been robustly proven. The follow-up study of Kraut et al. (2002) reported that the negative effects found earlier were no longer evident. The study by Nie, Hillygus, and Erbring (2002) neglected to consider that time spent online can also be social.

In terms of dimensions of social capital, although bonding and bridging are generally positively associated with Internet use, it seems there is a stronger relationship between the Internet and bridging than with bonding. This difference might be a result of the media multiplexity hypothesis (Haythornthwaite 2005), which posits that pairs that are more strongly tied make more use of the available media. People use a variety of ways to connect with close ties, whereas the Internet seems to be the most used, inexpensive, and convenient medium to connect with weak ties. The bridging association with Internet use refutes the cyberbalkanization hypothesis, which claimed that the Internet would lead to out-group antagonism (Williams 2007).

So, despite the moral panic around the effects of the Internet and the sense of rapid change of the Internet and its practices, there are positive stable trends (Hogan and Quan-Haase 2010). One of those trends seems to be the positive relationship between the Internet and social capital, upheld by the social affordances of the Internet (Wellman et al. 2003).

The reviewed studies are, however, mainly cross-sectional and cannot account for long- term effects or causality (or when longitudinal, are mostly based on a convenience sample or in a short period of time). In addition, as common in the social capital literature, there is not a single measurement approach. Although I tried to pair together similar approaches, one can still find a variety of indicators. For instance, in the analysis of SNS, some studies (Burke, Kraut, and Marlow 2011; Steinfield, Ellison, and Lampe 2008) measured bonding and bridging with the Internet Social Capital Scales (Williams 2006), whereas Brandtzaeg's study (2012) measured indicators, such as "number of acquaintances", "frequency of face- to-face interactions with close friends," and a bridging scale from Pajak (2006) that measures social diversity. This could explain the different results, since Brandtzaeg did not find any correlation between bridging and SNS in

Norway.

In conclusion, this review helps to identify a number of research trends and directions for future research. Recent research trends explore different social media, different online activities, and different types of uses and users, instead of simply the frequency of general Internet use. Furthermore, the access to server logs opened new avenues of research: researchers can examine behavior instead of perceptions or motivations (Burke, Kraut, and Marlow 2011). There is also an increased interest in investigating dimensions of social capital, such as bonding and bridging, in its online and offline forms. The online and the offline are, however, increasingly intertwined (maybe due to the domestication of the Internet). For instance, strong relationships online tend to be also strong relationships offline (Hogan and Quan-Haase 2010).

In terms of directions for future research, much of the focus on social capital and the Internet is on access to social capital (i.e. social capital that is perceived as available by the individuals). While this emphasis is important, it is equally important to explore the mobilization of social capital. Does the Internet help people to mobilize their social capital? How and for which kind of actions or resources?

The field also lacks an intersectional approach that considers other factors such as stratification or reputation in the access and mobilization of social capital. Additionally, it would be interesting to look at the formation of social capital online and types of interaction that facilitate it, as well as to follow the changes of Internet use in the life course and its influence on social capital.

Finally, social capital researchers face a serious methodological challenge: we need to agree on an index of indicators and push for longitudinal studies, representative samples, and cross- national studies. In addition, social capital research has been mainly quantitative, and we need mixed and qualitative research that can integrate contexts, meanings, and motivations, providing a more in-depth understanding of social capital and the Internet.

References

Adler, Paul and Seok Kwon 2002. ‘Social Capital: Prospects for a New Concept.’ The Academy of Management Review 27: 17–40.

Akçomak, Semih 2011. ‘Social Capital of Social Capital Researchers.’ Review of Economics and Institutions 2: 1–28.

Alessandrini, Megan 2006. ‘Getting Connected: Can Social Capital be Virtual?’ Webology 3.

Amichai-Hamburger, Yair and E. Ben-Artzi. 2000. ‘The Relationship Between

Extraversion and Neuroticism and the Different Uses of the Internet.' Computers in Human Behavior 16: 441–449.

Bauernschuster, Stefan, Oliver Falck, and Ludger Woessmann 2011. 'Surfing Alone? The Internet and Social Capital: Evidence from an Unforeseeable Technological Mistake.' IZA Discussion Paper, 5747.

Becker, Gary 1996. Accounting for Tastes. Cambridge: Harvard University Press.

Bekkers, René, Beate Volker, Martin Van der Gaag and Henk Flap 2008. 'Social Networks of Participants in Voluntary Associations'. Pp. 185–205 in Social Capital. An International Research Program, edited by Nan Lin and B. Erickson. Oxford: Oxford University Press.

Best, Samuel and Brian Krueger 2006. 'Online Interactions and Social Capital: Distinguishing Between New and Existing Ties'. Social Science Computer Review 24: 395–410.

Boase, Jeffrey, John Horrigan, Barry Wellman and Lee Rainie 2006. The Strength of Internet Ties. Washington, DC: Pew Internet and American Life Project.

Bourdieu, Pierre 1980. 'Le Capital Social. Notes Provisoires.' Actes de la Recherche en Sciences Sociales 31: 2–3.

Bourdieu, Pierre 1986. 'The Forms of Capital'. Pp. 46–58 in Handbook of Theory and Research for the Sociology of Education, edited by John E. Richardson. Grennword Press: New York.

Brandtzæg, Peter, Jan Heim and Birgit Kaare 2010. 'Bridging and Bonding in Social Network Sites – Investigating Family-Based Capital.' International Journal of Web Based Communities, 6: 231–353.

Brandtzæg, Petter B. 2012. 'Social Networking Sites: Their Users and Social Implications — A Longitudinal Study.' Journal of Computer-Mediated Communication 17: 467–488.

Burke, Moira, Robert Kraut, and Cameron Marlow 2011. 'Social Capital on Facebook: Differentiating Uses and Users.' Proceedings of CHI, Vancouver, Canada.

Burt, Ronald 1992. Structural Holes: The Social Structure of Competition. Cambridge: Harvard University Press.

Burt, Ronald 1998. 'The Gender of Social Capital.' Rationality and Society 10: 5–46.

Coleman, James 1987. ‘Norms as Social Capital’. Pp. 133–155 in Economic Imperialism, edited by Gerard Radnitzky and Peter Bernholz. New York: Paragon.

Coleman, James 1988. ‘Social Capital in the Creation of Human Capital.’ The American Journal of Sociology 94: 95–120.

Donath, Judith and danah boyd 2004. ‘Public Displays of Connection.’ BT Technology Journal, 22: 71–82.

Ellison, Nicole, Charles Steinfield and Cliff Lampe 2007. ‘The Benefits of Facebook “friends:” Social Capital and College Students’ Use of Online Social Network Sites.’ Journal of Computer-Mediated Communication 12.

Ellison, Nicole, Cliff Lampe, Charles Steinfield and Jessica Vitak 2010. ‘With a Little Help from my Friends: Social Network Sites and Social Capital.’ Pp. 124–145 in A Networked Self: Identity, Community, and Culture on Social Network Sites, edited by Zizi Papacharissi. New York: Routledge.

Field, John 2008. Social Capital. Routledge: New York.

Fine, Ben 2010. Theories of Social Capital. Researchers Behaving Badly. London: Pluto Press.

Finsveen, Ellen and Wim van Oorschot 2008. ‘Access to Resources in Networks: A Theoretical and Empirical Critique of Networks as a Proxy for Social Capital.’ Acta Sociologica 51: 293–307.

Franzen, Axel. 2003. ‘Social Capital and the Internet: Evidence from Swiss Panel Data.’ Kyklos 56: 341–360.

Fukuyama, Francis 1995. Trust: The Social Virtues and the Creation of Prosperity. London: Hamish Hamilton.

Glanville, Jennifer and Elisa Bienenstock 2009. ‘A Typology for Understanding the Connections Among Different Forms of Social Capital.’ American Behavioral Scientist 52: 1507–1530.

Granovetter, Mark S. 1974. Getting a Job: A Study of Contacts and Careers. Cambridge: Harvard University Press.

Granovetter, Mark S. 1973. ‘The Strength of Weak Ties.’ The American Journal of Sociology 78: 1360–1380.

Grootaert, Christaan and Thierry Van Bastelaer 2001. Understanding and Measuring Social Capital: A Synthesis of Findings and Recommendations from the Social Capital Initiative. The World Bank.

Halpern, David 2005. Social Capital. Polity Press: Cambridge, UK.

Hampton, Keith 2011. 'Comparing Bonding and Bridging Ties for Democratic Engagement: Everyday Use of Communication Technologies within Social Networks for Civic and Civil Behaviors.' Information, Communication and Society 14: 510–528.

Hampton, Keith, Lauren Goulet, Lee Rainie and Kristen Purcell 2011. Social Networking Sites and Our Lives. Pew Internet & American Life Project.

Haythornthwaite, Caroline 2005. 'Social Networks and Internet Connectivity Effects.' Information, Communication & Society 8: 125–147.

Haythornthwaite, Caroline 2002. 'Strong, Weak, and Latent Ties and the Impact of New Media.' The Information Society 18: 1–17.

Hogan, Bernie and Anabel Quan-Haase 2010. 'Persistence and Change in Social Media.' Bulletin of Science Technology Society 30: 309–315.

Kraut, Robert, Michael Patterson, Vicki Lundmark, Sara Kiesler, Tridas Mukophadhyay and William Scherlis 1998. 'Internet Paradox: A Social Technology that Reduces Social Involvement and Psychological Well-being?' American Psychologist 53: 1017–1031.

Kraut, Robert, Sara Kiesler, Bonka Boneva, Jonathon Cummings, Vicki Helgeson and Anne Crawford 2002. 'Internet Paradox Revisited.' Journal of Social Issues 58: 49–74.

Laumann, Edward 1966. Prestige and Association in an Urban Community. New York: BobbsMerrill.

Levi, Margaret 1996. 'Social and Unsocial Capital: A Review Essay of Putnam's Making Democracy Work.' Politics and Society 24: 45–55.

Lin, Nan and Mary Dumin 1986. 'Access to Occupations through Social Ties.' Social Networks 8: 365–385.

Lin, Nan 1999. 'Building a Network Theory of Social Capital.' Connections 22: 28–51.

Lin, Nan 2001. Social Capital: A Theory of Structure and Action. London: Cambridge University Press.

Lin, Nan and Bonnie Erickson 2008. 'Theory, Measurement, and the Research Enterprise on Social Capital.' Pp. 1–26 in Social Capital. An International Research Program, edited by N. Lin and B. Erickson. Oxford: Oxford University Press.

Magee, Marc Porter 2008. 'Civic Participation and Social Capital: A Social Network Analysis in Two American Counties.' Pp. 308–330 in Social Capital. An International Research Program, edited by N. Lin and B. Erickson. Oxford: Oxford University Press.

Miyata, Kakuko, Ken'ichi Ikeda and Tetsuro Kobayashi 2008. 'The Internet, Social Capital, Civic Engagement, and Gender in Japan.' Pp. 296–233 in Social Capital. An International Research Program, edited by N. Lin and B. Erickson.Oxford: Oxford University Press.

Moody, James and Pamela Paxton 2009. 'Building Bridges: Linking Social Capital and Social Networks to Improve Theory and Research' American Behavioral Scientist 52: 1491–1506.

Neves, Barbara Barbosa 2012. 'Social Capital and Internet Usage: A Study in Lisbon.' Doctoral dissertation. Technical University of Lisbon, Portugal.

Nie, Norman. H., D. Sunshine Hillygus and Lutz Erbring 2002. 'Internet Use, Interpersonal Relations, and Sociability: A Time Diary Study.' Pp. 215–243 in Internet in Everyday Life, edited by Barry Wellman and C. Haythornthwaite. Oxford: Blackwell.

Ostrom, Elinor and T. K. Ahn 2003. Foundations of Social Capital. Cornwall: Edward Elgar Publishing.

Ostrom, Elinor 1990. Governing the Commons: The Evolution of Institutions for Collective Action. New York: Cambridge University Press.

Ostrom, Elinor 2000. 'Social Capital: A Fad Or a Fundamental Concept?' Pp. 172–214 in Social Capital: A Multifaceted Perspective, edited by Ismail Serageldin and Partha Dasgupta. Washington D.C.: The World Bank.

Pajak, K. 2006. 'A Tool for Measuring Bridging Social Capital.' Paper presented at the ESA Research Network for the Sociology of culture. Ghent, Belgium.

Portes, Alejandro 1998. 'Social Capital: Its Origins and Applications in Modern Sociology.' Annual Review of Sociology 22: 1–24.

Putnam, Robert 1995. 'Bowling Alone: America's Declining Social Capital.' Journal of Democracy 6: 65–78.

Putnam, Robert 2000. Bowling Alone. The Collapse and Revival of American Community. New York, US: Simon and Schuster Paperbacks.

Putnam, Robert, Robert Leonardi, and Rafaella Y. Nanetti 1993. Making Democracy Work. Civic Traditions in Modern Italy. New Jersey: Princeton

University Press.

Quan-Haase, Anabel and Barry Wellman 2004. 'How Does the Internet Affect Social Capital?' Pp. 113–132 in Social Capital and Information Technology, edited by M. Huysman and V. Wulf. Cambridge: The MIT Press.

Rainie, Lee and Barry Wellman 2012. Networked. Cambridge: MIT Press.

Resnick, Paul 2001. 'Beyond Bowling Together: Sociotechnical Capital.' HCI in the New Millennium, edited by J. Carroll. Boston, MA: Addison-Wesley.

Robinson, John and Steven Martin 2010. 'IT Use and Declining Social Capital?' Journal of Social Science Computer Reviews 28: 45–63.

Sabatini, Fabio 2009. 'Social Capital as Social Networks: A New Framework for Measurement and an Empirical Analysis of its Determinants and Consequences.' Journal of Socio-Economics 38: 429–442.

Shapiro, Judith 1999. 'Loneliness: Paradox or Artifact?' American Psychologist 54: 782–783.

Small, Mario L. 2009. Unanticipated Gains. Origins of Network Inequality in Everyday Life. Oxford: Oxford University Press.

Steinfield, Charles, Nicole B. Ellison and Cliff Lampe 2008. 'Social Capital, Self-esteem, and Use of Online Social Network Sites: A Longitudinal Analysis.' Journal of Applied Developmental Psychology 29: 434–445.

Strait, Bruce 2000. 'Ego's Important Discussants or Significant People: An Experiment in Varying the Wording of Personal Network Name Generators.' Social Networks 22: 123–40.

Streeten, Paul 2002. 'Reflections on Social and Antisocial Capital.' Journal of Human Development and Capabilities 3: 7–22.

Tindall, David and Jeffrey Cormier 2008. 'Gender, Network Capital, Social Capital, and Political Capital: The Consequences of Personal Network Diversity for Environmentalists in British Columbia'. Pp. 282–307 in Social Capital: An International Research Program, edited by N. Lin and B. Erickson. Oxford: Oxford University Press.

Turkle, Sherry 2011. Alone Together: Why We Expect More from Technology and Less from Each Other. New York: Basic Books.

Uslaner, Eric M. 2004. 'Trust, Civic Engagement, and the Internet.' Political Communication 21: 223–242.

Van der Gaag, Martin and Tom Snijders 2005. 'The Resource Generator: Social Capital Quantification with Concrete Times.' Social Networks 27: 1–27.

Van der Gaag, Martin, Tom Snijders and Henk Flap 2008. 'Position Generator Measures and their Relationship to Other Social Capital Measures.' Social Capital. An International Research Program, edited by Lin Nan and Bonnie Erickson. Oxford: Oxford University Press.

Virilio, Paul 1999. Politics of the Very Worst. New York: Semiotext(e).

Virilio, Paul 2000. The Information Bomb. London: Verso.

Vitak, Jessica, Nicole Ellison and Charles Steinfield 2011. 'The Ties that Bond: Re-examining the Relationship between Facebook Use and Bonding Social Capital.' In Proceedings of the 44th Annual Hawaii International Conference on System Sciences (CD-ROM). Computer Society Press.

Wang, Hua and Barry Wellman 2010. 'Social Connectivity in America: Changes in Adult Friendship Network Size from 2002 to 2007.' American Behavioral Scientist 53: 1148–1169.

Wellman, Barry 2001. 'Physical Place and Cyberspace: The Rise of Personalized Networks.' International Urban and Regional Research 25: 227–252.

Wellman, Barry, Anabel Quan-Haase, Jeffrey Boase, Wenhong Chen, Keith Hampton, Isabel Isla de Diaz and Kakuko

Miyata 2003. 'The Social Affordances of the Internet for Networked Individualism.' Journal of Computer-Mediated Communication 8.

Williams, Dmitri 2006. 'On and Off the Net: Scales for Social Capital in an Online Era'. Journal of Computer-Mediated Communication 11: 593–628.

Williams, Dmitri 2007. 'The Impact of Time Online: Social Capital and Cyberbalkanization.' Cyberpsychology & Behavior 8: 580–584.

Woolcock, Michael 2001. 'The Place of Social Capital in Understanding Social and Economic Outcomes.' Canadian Journal of Policy Research 2: 1–17.