

Access to specific social resources across different social media: divergent consequences of the time spent with new contacts

Abstract

Despite a large number of studies on the social impact of the Internet, little is known about the specific social resources to which social media provide access. Most studies have either examined issues surrounding the question whether or not new online contacts have been established or they have focused on the distinction between perceived bridging capital and bonding capital. Research has rarely focused on the kind of specific benefits that may arise due to the establishment of new online contacts. In this context, the study examines the specific forms of social capital which can be accessed via different social media (i.e. email lists, instant messaging, multiplayer games, weblogs and -forums, chat rooms, social networking sites and an own weblog). The paper makes a distinction between the maintenance of existing contacts and the making of new contacts. Utilizing a random sample of Internet users from a major city in the Netherlands, we find that new online relationships do not always provide access to specific resources. But the type of social media employed for communication with new contacts has an influence on the provision (or non-provision) of access to resources and to the kind of resources which are accessed.

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1. Introduction

Since the mid-1990s, research on the social impact of the Internet has been growing. A central question of this research has been how to explain the link between Internet use, on the one hand, and the relationships of users and their social involvement, on the other hand. For policy makers, a better understanding of this relationship has been important to know more about the particular social gains that can be obtained from Internet use leading to a better quality of life (Burrows et al, 2000). While early findings have been ambivalent about this relationship (e.g. Kraut, Patterson et al. (1998); Katz and Rice (2002)), recent studies have drawn more positive conclusions (Brandzaeg, 2012; Hampton, Sessions, & Her, 2011; Robinson & Martin, 2010). The differences in the results can be explained, firstly, by looking at the changing character of the Internet itself related to new emerging technologies and growing opportunities for social interaction and, secondly, by methodological inconsistencies inherent in the different studies. In addition, two other limitations have characterized earlier studies making it more difficult to draw more general conclusions about the impact of the Internet on relationships of users.

The first limitation stems from the fact that the consequences of Internet use are depending on the purpose and form of Internet use. As we will explain below, many findings in the literature show that there is a need for a more detailed consideration of how users actually utilize the Internet. With the increasing popularity of a growing number of social media sites, the need for a more detailed examination of Internet use has become even more valuable. However, research has just started to address these issues and to compare the effects of different social media. We are overcoming this limitation by including a variety of different social media (i.e. email lists, instant messaging, multiplayer games, weblogs and -forums, chat rooms, social networking sites and an own weblog).

A second limitation of many studies has been that even if in-depth analysis of the establishment of new contacts through the Internet has been undertaken, the *specific* social resources gained through these contacts have not been examined. Recent findings suggest that making new online contacts does neither automatically lead to more social support or reduced feelings of loneliness (Vergeer & Pelzer, 2009) nor does it always provide access to instrumental help when needed (Stefanone, Kwon, & Lackaff, 2012). Some studies distinguish between weak and strong ties, or bridging and bonding capital. These studies tend to look at the individual's *perception* of bonding and bridging capital of Internet users (Williams, 2006a) which may be associated with psychological well-being. Research, however, indicates that perceived bridging and bonding capital does not predict whether instrumental help is actually gained (Stefanone, Kwon, & Lackaff, 2012). In general it seems that both limitations - insufficient distinction between different social media and a lack of discrimination between specific social resources - may have biased previous studies on the social impact of the Internet. Therefore the question remains as to what kind of specific benefits do users gain from new online relationships.

To address this question, we focused on the benefits acquired via new online contacts. We propose that it makes a difference whether a new weak tie provides access to new job opportunities, to new knowledge, to the press, or to something completely different. In order to examine this relationship we studied 1) the time spent on a particular social media and 2) the new, specific social resources to which they may or may not provide access to (in the online as well as in the offline world). To calculate the time spent using a specific social media, we used as a proxy the proportion of time spent with people first met on the Internet (new contacts). Information about the relationship between time investments in social media and specific social capital outcomes is important for the formulation of policies aimed at

utilizing the Internet to strengthen self-help, the provision of support, and the empowerment of citizens (Burrows, et al., 2000).

For the paper, we used survey data from a random sample of adult residential Internet users in a large city in the Netherlands. We focus on adult users because many resources to be accessed via social media are not of interest to most teenage users (e.g., access to potential employers). The data have been collected during winter 2007. At this time, the use of social media was still rising, allowing us to study the social capital outcomes of time investments in social media in the early phase of development. The focus of research was on the following social media: email lists, instant messaging, multiplayer games, weblogs and -forums, chat rooms, social networking sites and writing an own weblog. Based on this data, we studied whether (or not) new contacts established via different social media also provided benefits in terms of social resources to users.

The structure of the paper is as follows: First, we reflect on the current theoretical discussion on Internet use and social relationships. From the discussion, we derive the background for formulating a set of testable hypotheses (see section two). Second, we describe the design and measurements of the study (see section three). Third, we present the results of different regression models, which examine the link between the time spent on communicating with new contacts (by means of social network sites, blogs, etc.) and access to new specific social resources. In this section, we show that social media differ in their effects on access to specific social resources. The type of social media utilized by a user also affects whether access to particular resources is realized (see section four). In the final section of the paper, we summarize the results and discuss consequences for further research.

2. Literature review: Access to specific social resources and social media

In our study, the social capital of individuals consists of resources, which can be accessed via relationships. These relationships generate an overall network that is advantageous for individuals to reach their goals (Coleman 1988; Portes 1998; Putnam 2000). Examples of resources accessed via relationships are new pieces of information that acquaintances may have or social support that close friends are willing to provide. Even if the literature on social capital and Internet use has rapidly grown over the past years, it has not reached a consensus yet (Kraut, Lundmark et al. 1998; Rainie and Kohut 2000; Nie 2001; Wellman, Quan-Haase et al. 2001). The discussion has, however, demonstrated the need for further, more detailed analysis of the relationship between social capital and Internet use. Based on early discussions, recent studies have focused on two important issues in the area by concentrating on a) different aspects of social capital of users and by distinguishing b) between different forms of Internet use.

Since the 1990s, research has extensively analyzed social capital of users, but rarely conceptualized this capital in terms of specific resources, which can be provided by the Internet. Typically, offline and online social capital are treated as rather distinct worlds (see Williams, 2006a). Some studies have examined the extent to which the use of the Internet (either in more general terms or more specifically with respect to the usage of particular social media), has led to the establishment of new contacts or friends (e.g., Di Gennaro & Dutton, 2007; Hampton, 2007). While these studies provide meaningful insights, they do not directly address the core definition of social capital. Making new contacts on the Internet does not always provide access to resources (Stefanone, Kwon, & Lackaff, 2012; Vergeer & Pelzer, 2009). Moreover, even if new contacts provide access, they may vary with respect to the number or the type of benefits provided.

Other studies have used the distinction between (perceived) bridging capital and bonding capital (Ellison, Gray, Vitak, Lampe, & Fiore, 2013; Steinfield, Ellison, & Lampe, 2008; Williams, 2006a). This distinction was made popular by Putnam (2000). Bonding social capital refers to benefits that result from relations to similar others and homogeneous groups, whereas bridging capital refers to benefits from relations to distant others. In the mean time, these two types of social capital (more or less) coincide with the distinction between strong (emotionally close) versus weak ties (Granovetter, 1973). This distinction has been useful because it provides new insights into the nature of new online contacts. It can be seen as a first attempt to distinguish between the different kinds of benefits of new online contacts. Recently, studies have increasingly focused on the perception of bonding and bridging capital of individuals. However, it remains unclear whether these perceptions are good predictors of having access to tangible resources (see Stefanone, Kwon, & Lackaff, 2012). Furthermore, the distinction masks a number of very different social consequences that are linked to a bridging or a bonding tie with respect to the quality of life of users. It makes a difference whether a weak tie provides access to the press (which is desirable for some bloggers), to a new hiring employer (desirable for a job-searching employee), to knowledge useful for solving medical or legal problems (desirable for people with medical or legal problems), or offers completely different benefits.

In the field of social network analysis, a tool for the measurement of access to specific social resources has been validated in a general population survey (van der Gaag & Snijders, 2005). By using this measurement, we are able to distinguish between five specific social resources:

- 1) *Knowledge resources*: Many Internet users look for factual information that helps them in solving practical problems, such as health problems, tax problems, juridical problems, etc. These problems often are solved in knowledge exchanges of online communities (Jin, Zhou, Lee, & Cheung, 2013; Matzat, 2004).

2) *Social support*: This type of benefit refers to the emotional comfort in areas where access to factual knowledge is insufficient to solve a problem, but users might ask for assurance about 'correct' behavior. In different online communities, a variety of problems is discussed related to e.g. personal, family, or work matters (Burrows et al., 2000; Dannecker & Lechner, 2007).

3) *Access to employer*: Many new online contacts consist of weak ties that are known to be helpful in getting a job (Granovetter, 1973). We therefore examine whether a new online contact provides access to an *employer* who is hiring new employees.

4) *Access to press or media*: With the growing popularity of blogs, the role of journalists is changing. Some scholars actually claim that it will become easier to act as a journalist even as a layman (Tremaine, 2006), making it interesting to study whether online contacts provide access to the *press or news media*.

5) *Physical support*: There is a debate about whether the Internet, apart from creating a global village, also supports local connections (Hampton & Wellman, 2003; Hampton, Lee, & Her, 2011). In line with this debate, we focus on access to a local contact willing to provide physical help in case of moving to a different location (relocation).

In order to examine different forms of social media and their options to provide access to particular resources, we follow Best and Krueger's (2006) distinction between (i) the establishment of a new contact and (ii) the maintenance of an already existing contact. By using a random sample of residents living in the United States, both authors found that users of chat rooms, multiplayer games, and message boards (discussion forums) report a much higher proportion of online communication with new contacts (established online). However, email and instant messaging more often involved communication with people already met earlier (Best and Krueger 2006).

The relationship between use of a variety of social media and the emergence of new contacts was further investigated by Di Gennaro and Dutton (2007). Using a random sample of Internet users in the United Kingdom, both authors found, in general, that Internet use for the purpose of communicating and learning is associated with a higher likelihood of making new friends online. However, a similar positive association could not be discovered with respect to Internet use for other purposes such as ecommerce. In further examining the different forms of social media, Zhao (2006) concluded that email users, when compared to users of social media (chat, discussion forums, emailing lists), tend to maintain a much larger proportion of their contacts via telephone calls, face-to-face meetings, or letters, suggesting that communication via these social media takes place much more often with strangers (Zhao 2006). Furthermore, Valkenburg and Peter (2007) and Leung (2001) found that instant messaging tends to be used for intimate communication with known others, but not often for making new contacts, whereas chatroom communication is more often associated with communicating with strangers. Best and Krueger (2006) demonstrate, in addition, that the time spent online with people first encountered online is linked to two of their indicators of social capital (generalized trust and generalized integrity), but the time spent online with previously existing contacts is not. They conclude that three social media platforms (i.e. chat communication, multiplayer games, and discussion forums) are used for communication with strangers and that the total time of communication with strangers is associated with indicators of social capital.

The findings do not address the unique contribution of each medium to access specific resources nor do they characterize a specific resource. In this respect, the results of Di Gennaro and Dutton (2007) have been insightful. Both authors show that the use of chat and message boards (discussion forums) is associated with a higher likelihood of finding new friends online, but the use of email, instant messaging, and maintaining a blog is not. Given

that friends often provide social support (help and assistance in critical life events), we test the following hypothesis:

H1: The more time Internet users spend on chat room communication with strangers, the higher the likelihood that they gain access to social support.

Based on the discussion above, we expected that the use of chatroom communication, multiplayer games, or discussion forums as a method to communicate with strangers may provide access to new resources, but the use of instant messaging may not. We therefore did not expect that instant messaging will help users to gain access to new specific social resources.

H2: Time spent communicating with strangers via instant messaging does not increase the likelihood of gaining access to specific social resources.

On the Internet, discussion forums provide information on a large variety of topics. Many offer advice for practical problems, such as social, medical, or legal difficulties (Coulson & Shaw, 2013; Burrows et al., 2000). These discussions may even result in local, face-to-face meetings (Dannecker & Lechner, 2007). We therefore test whether the use of discussion forums to communicate with strangers provides access to knowledge resources, social support, and physical help during relocation. This leads to the following hypothesis:

H3: The more time Internet users spend on communication with strangers in discussion forums, the higher the likelihood that they gain access to social support (H3A), to physical help during relocation (H3B), and to knowledge resources (H3C).

According to the findings by Di Gennaro and Dutton (2007), maintaining a blog does not increase the likelihood of making friends online. However, many bloggers regard themselves as watchdogs of the press and media and maintain their blogs for journalistic purposes (Tremayne, 2006). Journalists carefully watch the blogosphere and take bloggers' contents into account (Lowrey & Burleson, 2008) and bloggers sometimes offer alternative accounts for public events that finally find their way into the news of professional journalism (Robinson, 2009). Activities of these "citizen journalists" are driven by their heterogeneous networks (Kim & Lowrey, 2014) and they negotiate their relationships with journalists (Robinson, 2009). News journalists, in turn, also strive for a regular contact to news bloggers (Newman, Dutton, & Blank, 2012). According to Newman, Dutton, and Blank (2012), these ongoing trends contribute to the existence of a new media ecology that creates links between professional journalists and bloggers. However, evidence on whether blogs offer access to the press is missing. We therefore test the following prediction:

H4: The more time Internet users spend on communication with strangers via their personal blogs, the higher the likelihood that they gain access to newspapers, radio, or TV.

Research on multiplayer games has demonstrated that socializing with others is an important motivation for users to start gaming. Steinkuehler and Williams (2006) argue that multiplayer games might be suited for the development of social capital, and they expect multiplayer games to offer more opportunities for bridging rather than bonding social capital. Empirical evidence for these expected effects, however, has rather been scarce. In a study by Williams (2006b), the results have been mixed. Furthermore, only specific forms of using multiplayer games, such as participation in e-sports clans, which are linked to the offline world (Trepte, Reinecke, Juechems, 2012) or frequent collective actions accompanied by a strong sense of belonging to groups within the game (Zhong, 2011), were found to be associated with online

bridging and bonding capital. At the same time, bridging and bonding capital does not predict if instrumental help will be gained in case it is needed (Stefanone, Kwon, & Lackaff, 2012). Because of these mixed findings we do not propose a hypothesis about access to resources via multiplayer games.

Recently, the discussion has focused on increasing interaction between users accessing social networking sites (SNS). The findings in the literature indicate that even if the maintenance of contacts with familiar people from the offline world is the most important function of SNS (Ellison, Steinfield, & Lampe, 2007; 2011), SNS are also used to make new contacts (Muscanell & Guadagno, 2012). SNS may provide access to a variety of specific social resources. A high level of Facebook use is associated with bridging and bonding capital (Ellison, Steinfield, & Lampe, 2007; Steinfield, Ellison, & Lampe, 2008). Valenzuela, Park and Kee (2009) indicate that a substantial number of Facebook users are active in common interest groups providing potential access to knowledge resources. Moreover, some SNS explicitly claim to facilitate the development of new business contacts between professionals who actively pursue social networking, potentially leading to access to hiring employers. Research not only shows that Facebook use is associated with social support (Hampton, Goulet, Rainie, & Purcell, 2011; Johnson, et al., 2013), but it is also instrumental in keeping in touch with people known from the offline world (Subrahmanyam, Reich, Waechter, & Espinoza, 2008). Therefore, at least some offline contacts are likely to live in close proximity. It may be that these local contacts allow SNS users to get in touch with other new contacts in their proximity who are willing to provide physical help during relocation. We therefore test the following hypotheses:

H5: The more time users spend on communication with strangers via SNS, the greater the likelihood that they gain access to social support (H5A), physical help during relocation (H5B), hiring employers (H5C), and knowledge resources (H5D).

Existing research on the use of email lists does not provide a clear picture with respect to the provision of specific social resources for the “average” residential user. In a longitudinal analysis of residents of four neighborhoods in Boston, Hampton (2007) found that active use of a neighborhood email list was associated with a higher number of neighbors a residential user did know. The findings by Hampton and Wellman (2003) also suggest that neighborhood email lists may increase local contacts. However, to the best of our knowledge, there is no evidence suggesting that many residents use local email lists. We therefore do not propose a specific hypothesis on the general effects of email list use for residential users. It should be noted that we do not suppose a technological determinism with respect to social media. Rather, it is the combination of the particular social media and the type of use (new contact versus maintenance of existing contacts) that may affect access to resources. Furthermore, we examine the access to specific resources that is provided by particular social media in general to the ‘average’ residential user who spends some time on social media communication with strangers. We therefore do not focus on specific sub-types of media, e.g., e-sports multiplayer gaming (Trepte, Reinecke, & Juechems, 2012) or specific usage forms, such as sending requests for help on Facebook (Ellison et al., 2013) or using specific connection strategies (Ellison, Steinfield, & Lampe, 2011) that are relevant only for some users (see Figure 1 for an overview of all hypotheses).

(Figure 1 here)

3. Research design, measurements, and descriptives

For the empirical analysis, we used multivariate logistic regression analyses to examine the likelihood of an individual obtaining access to the five specific resources depending on a number of independent variables. We studied the effects of social media usage while controlling for differences in Internet use and demographic characteristics that are known to be related to social capital (see below). The data used for the analysis was gathered via a survey, which used a random sample of 885 respondents from the area of Eindhoven, a large Dutch city with 200,000 inhabitants. The survey was conducted in November and December 2007 using telephone interviews of adult household members with Internet access (response rate of 29.31%). The Netherlands is, according to the statistical office of the EU, one of the forerunners in Internet usage in Europe. In 2009, 90% of the Dutch households were connected to the Internet whereas the European average at this time was 65% (Amsterdam, 2012). In 2007/2008, at the time of the data collection, intensity and breadth of Internet use was on the rise in The Netherlands. Whereas in 2005 only about 68% of the Dutch Internet users were online on a daily basis, this percentage grew to 86% in 2011 (CBS, 2012b). Whereas in 2007 only 20% of all Dutch Internet users utilized mobile devices, this share reached 60% in 2012 (CBS, 2012c). The digital skills of Dutch users in 2007 were close to the European average. One out of seven users considered him- or herself as highly skilled (CBS, 2012d). As the descriptive findings below will show, the use of social media at the end of 2007 in Eindhoven was rising.

Measurements

Dependent variables (access to specific social resources):

All variables consist of slightly adapted versions of items from the resource generator of van Der Gaag and Snijders (2005). The items were introduced in the following way: "Could you please tell us whether you became acquainted with someone online during the past 12 months

who you know has the following characteristics. By 'getting acquainted,' we mean that you would greet and talk to the person in case you meet him or her online. Did you get acquainted online with someone you knew ...". Response options were "yes" (=1), "no" (=0), and "don't know" (=0). For our purpose of measuring access to resources, it is crucial that a respondent definitely knows that a new contact can potentially provide the specific resource. We therefore did not distinguish between respondents who knew that the resource was not available and respondents who did not know whether it is potentially available. Accordingly, we measured access to the five resources in the following way:

1. Knowledge resources: We constructed an additive scale ($\alpha=.90$) that measures access to information about factual issues, using the following items: "...(s)he has a higher college degree," "...(s)he has a lower college degree," "...(s)he can write and talk in a foreign language," "...(s)he could write a letter of recommendation for a solicitation," "...(s)he knows a lot about financial matters (e.g., tax regulations)," "...(s)he could give medical advice if you disagree with your doctor," "...(s)he could give juridical advice in the event of problems with your work, with a landlord, etc." Because of the skewed distribution, the variable was dichotomized (score 0 vs. ≥ 1).

2. Social support: This scale measures access to help in case of personal issues. We constructed an additive scale ($\alpha=.85$) with the following items: "...(s)he could provide advice in the event of problems with your work," "...(s)he could provide advice in the event of problems in your family," "...(s)he would be willing to talk about important personal matters." Because of the skewed distribution, this variable was also dichotomized (score 0 vs. ≥ 1).

3. Contact with hiring employers (*EMPLOYER*): "...(s)he hires new personnel" (yes=1).

4. Contact with the press (*PRESS*): "...(s)he has good contacts with the newspapers, radio, or TV" (yes=1).

5. Physical help during moving: (RELOCATION): "...(s)he could help if you are moving" (yes=1).

The measurements have been validated earlier in a general population survey in The Netherlands (van der Gaag & Snijders, 2005). Moreover, as shown below, access to resources is correlated with other variables as one would expect, indicating some convergent validity.

Independent variables

We used a slightly modified approach originally developed by Best and Krueger (2006). They measured the time spent online communicating with previously known and unknown people ("strangers") using various social media. We focused only on forms of online communication that regularly offer the opportunity to make new contacts and extended the list of media that Best and Krueger (2006) used. We started by asking respondents to estimate how many hours a week (s)he used different social media. If respondents indicated that they used a particular medium, we immediately provided the respondent with the follow-up question: how much of the time they spent communicating via the specific medium was used to communicate with people they had first encountered on the Internet during the last 12 months. The categories used were all, most, about half, some (about 25%), very little (about 5-10%) or no time at all. We then multiplied the time spent using a specific medium by the proportion of time spent with people first met on the Internet to calculate the number of hours spent online with new contacts (for details see Best and Krueger, 2006). For every medium, the natural logarithm of the resulting score is taken to correct the right-side skewness of the score distribution. This leads to seven indicators estimating the time spent communicating with strangers via i) email lists, ii) instant messaging, iii) multiplayer gaming, iv) weblogs/discussion forums, v) chat room communication, vi) social networking sites, and vii) personal weblogs. We made no

distinction between the use of weblogs and discussion forums because pre-tests showed that a number of respondents had difficulty distinguishing between these applications, unless they maintained their own blog (= "personal weblog"). This may be a peculiarity of the time of data collection (November 2007) when the adoption of social media in The Netherlands was on the rise, leading to many new users of some social media with little usage experience.

Control variables

We measured the weekly total time (in log[minutes]) an individual used the Internet for private purposes during the previous three months. We defined private purpose as Internet activities carried out from home during the spare time of the individual. This is a straightforward measure of Internet use that does not take into account different social media. In order to examine the time spent maintaining already existing contacts from the offline world, we applied the above-mentioned measurement procedure developed by Best and Krueger (2006) to derive a score for the time spent on the seven social media for communication with known contacts. These measures were totaled across all seven applications and their natural logarithm was taken to correct for right-side skewness of the score distribution, leading to one overall indicator for the time spent online via these social media on contacts already known by the user.

To control for a variety of individual characteristics, we introduced a number of variables for marital status, gender, home ownership, family size, number of offline friends, education, age, interest in new contacts (7-point Likert scale) and digital literacy. The last variable is based on an adapted version of a scale proposed by Hargittai (2009). For a full description of all variables, see Appendix 1. For the hypotheses testing, we used multivariate logistic regression analyses of the likelihood of obtaining access to five specific resources. We analyzed whether

the time spent on communication to strangers via a specific social medium provides access to a specific social resource while controlling for other characteristics of the user.

Descriptive findings

Table 1 gives an overview of the respondents' most important characteristics. A typical respondent in our sample was of Dutch origin, about 50 years of age, had a college education, and resided in a household with 2.7 other members. The respondent was employed in a permanent or part-time fashion and had an average annual income of €36,157. The sample characteristics did not differ from characteristics of the Eindhoven population except for age and Dutch origin. In the sample, the respondents were older (because we sampled only adult users) and the percentage of foreigners was lower compared to the Eindhoven population. The lower proportion of foreigners is an issue to be taken into account in the interpretation of the findings.

(Table 1 here)

Respondents used different media to varying degrees. More than 95% of respondents in our sample used email at least on a weekly basis. In contrast, as shown in Table 2, instant messaging and discussion forums/weblogs were used by fewer than 25% of the respondents and 11% of the respondents were chat users. The percentage of users of social media like social networking sites, multiplayer games, and email lists, was about 10-11%. Only 4.2% of the respondents maintained their own weblog. The numbers are not surprising because in 2007/2008 the number of social media users was just rising (CBS, 2012b; 2012c).

(Table 2 here)

Table 3 shows that several social media are used for communication with strangers and for the maintenance of existing contacts. Furthermore, all social media are used to some extent for communicating with strangers. Especially among chat group users, a large proportion (50%) of users spends all of their communication time by talking to strangers.

(Table 3 here)

A minority of respondents established a new online contact during the previous 12 months (10%, or 88 respondents). This is less than the 20% reported by Di Gennaro and Dutton (2007). However, their sample included teenagers (older than 13 years) whereas this study covers the adult population. As Table 4 shows, only some, but not all, of those who claimed to have made new online contacts also gained access to a specific resource, and for some resources this was a rather small number. A relatively large number of those who established new online contacts claimed to have also gained access to knowledge resources (82%, or 8.2% of the total sample). Furthermore, 65.9% of those who made a new contact also claimed to have gained access to social support. In contrast, 34.1% acquired access to physical help during moving, 30.7% gained access to the press, and 26.1% made contact with a hiring employer. Finally, 5.7% of those who made a new contact stated that the new online contact did not provide access to any resource listed by the 13 items of the resource generator. The results show that not all new online contacts are of equal value. Rather, new contacts established on the Internet provide access to qualitatively different social resources, and sometimes to no resources at all.

(Table 4 here)

4. Results

In the following, we present the results of the multivariate logistic regression analyses of the likelihood of obtaining access to one of five specific resources. We found that people who are single and have a stronger interest in making new contacts are more likely to obtain access to many different resources. Homeowners are less likely to meet people online who could provide physical help during relocation. These findings show that the statistical model presented reflects also other user preferences (i.e. house owners are less likely to move to other areas, compared to people in rented houses). The results show that people who are more motivated are more likely to gain access to resources that are of particular interest to them, thereby indicating convergent validity of the resource generator. Spending more time online in general does increase the likelihood of access to knowledge and physical help. The more time is spent on communication with people known in the offline world, the higher the likelihood of getting access to knowledge, the press, and a potential employer.

(Table 5 here)

Next, we analyzed the effects of the use of different social media to test the hypotheses. We found that the more time spent with strangers via chat room communication, the more often the user obtained access to social support. This provides support for hypothesis H1. The time spent communicating with strangers via instant messaging is not significantly associated with the likelihood of gaining access to any of the five specific resources. This supports hypothesis H2. The time spent communicating with strangers by means of discussion forums and blogs has a number of effects. It increases the likelihood of access to social support and knowledge resources, providing support for hypotheses H3A and H3C. In addition, the results show only weak evidence ($\chi^2=3.52$, $df=1$, $p=0.06$) for an effect of forums/blogs on the likelihood of gaining access to physical help, providing only limited support for hypothesis H3B. Users who spend more time communicating with strangers through their own blogs tend to be

among those who get access to the press, which is in accordance with hypothesis H4. The time spent communicating with strangers via multiplayer games does not show any significant effect. The pattern of effects of time spent communicating with strangers via social networking sites was not as expected. There was no significant effect on the likelihood of gaining access to knowledge, a potential employer, or social support. These findings do not confirm hypotheses H5A, H5C, and H5D. Only weak evidence was found for hypothesis H5B, implying a significant effect of SNS on the likelihood of gaining access to physical help during relocation ($\chi^2=3.70$, $df=1$, $p=0.055$).

Moreover, there were some unexpected results of the analyses. The likelihood of access to the press significantly increases with the time spent communicating with strangers via blogs/discussion forums and social networking sites. The former may be a result of the use of blogs by many journalists. It seems that users who maintain blogs get access to the press as well as those who utilize other users' blogs for communicating with strangers. Furthermore, the likelihood of getting access to a potential employer increases with the time spent communicating with strangers via blogs/discussion forums and decreases with the time spent on communication with strangers via chat.

To summarize our findings, the analysis provides three new insights. First, the time spent communicating with strangers via blogs or discussion forums is consistently associated with a higher likelihood of a) gaining access to knowledge resources, b) gaining social support via new online contacts, c) finding a potential employer, and d) making contacts in the press. In addition, there is weak evidence for a positive effect on the likelihood of finding local physical help during moving. This is a form of communication with strangers that is linked to access to a variety of different social resources. Second, the time spent on communication with strangers via three social media platforms is not related to access to any specific social

resource. The time spent communicating with strangers via multiplayer games, email lists, or instant messaging does not significantly increase the likelihood of access to any resource. Third, the time spent on three other social media is significantly related to access to a limited number of specific social resources. The time spent communicating with strangers through chat applications is linked to the likelihood of finding online social support. The time spent communicating with strangers via social networking sites is associated with a significantly higher likelihood of making new contacts with the press and finding local help during a relocation. The time spent communicating with strangers through one's own blog is significantly associated with the likelihood of finding a new potential employer and making new contacts in the press. Figure 2 provides an overview of the findings.

(Figure 2 here)

The results presented in Table 4 indicate that not all newly established online relationships are of equal value to the user. First, Table 4 demonstrates that only some new online contacts provide access to specific social resources, whereas others do not. Second, some resources are rarely accessed. This extends the findings of earlier research indicating that new online contacts not always lead to more resources (Vergeer & Pelzer, 2009; Stefanone, Kwon, & Lackaff, 2012). Third, as Table 5 indicates, the likelihood of obtaining access to a specific resource is affected by the type of social media utilized for meeting strangers online. The time spent on communicating via multiplayer games, instant messaging, and email lists does not increase the chances of building new relationships that provide access to any of the examined specific social resources. This is in line with earlier findings about instant messaging communication (Best & Krueger, 2006; Di Gennaro & Dutton, 2007; Valkenburg & Peter, 2007). The findings with respect to multiplayer games do not provide evidence for the claims

of some researchers that multiplayer games in general offer public meeting spaces that regularly provide access to new (bridging) social capital (Steinkuehler & Williams, 2006).

5. Summary and conclusions

Research about the impact of the Internet on the social capital of its users has increased since the mid-1990s, but it still is characterized by at least two important limitations. First, many studies have examined whether and under what kind of conditions the Internet facilitates the development of new contacts. However, findings suggest that not all new online relationships provide access to useful social resources (Vergeer & Pelzer, 2009). It is unclear under what kind of conditions new online relationships provide access to specific resources, such as knowledge, contacts in the press, hiring employers, and other resources. While a number of studies have focused on the distinction between bridging and bonding social capital, it is still unclear whether they are good predictors to characterize access to specific resources (Stefanone, Kwon, & Lackaff, 2012). Second, findings in the literature suggest that differences between specific social media should be studied in greater detail. In this context, Best and Krueger (2006) have distinguished between the purpose of making new online contacts and the purpose of maintaining existing relationships by means of social media. Their results indicate that different social media are used for different purposes.

We then distinguish between seven social media that offer the potential for making new contacts and gaining access to social resources. Using survey data of a random sample of adult residential Internet users in a Dutch city that was collected in 2007, we examined in detail whether the time spent communicating with strangers provided access to a number of specific social resources.

The findings show that users can get access to all five types of resources that were examined, demonstrating the rich potential of social media for user empowerment, social policy, and self-help in diverse ways (Burrows et al, 2000). Furthermore, the outcomes suggest that social media differ with respect to the resources they provide access to. They indicate that some new relationships that were established via some social media did not provide access to any specific social resource. Almost 6% of the respondents who made new contacts on the Internet did not find access to any specific resource that was listed among the 13 items of the resource generator. Whether or not a new online relationship provides access to a resource and, in case access is provided, the type of specific resource accessed, is dependent on the selected social media and the relational goal (maintenance of existing contacts versus talking to strangers). The results suggest that there is no technological determinism since the impact partly depends on the user's relational goal. At the same time, they clarify that different social media do have a different impact, even if they are used for the same individual purpose, namely communicating with strangers. The findings suggest that the different media may be grouped into three categories. 1. For some social media, we find no evidence that the time spent on communication with strangers for the average residential user can be converted into access to any specific resources. 2. The time spent on other social media can be converted into access to specific resources that are useful for well-defined purposes. 3. Only a few social media may be multifunctional, in the sense that the time spent on them for communication with strangers can be converted into access to a variety of different specific social resources.

For a better understanding of the findings, the following points should be taken into account. The results do not imply that communication through email lists, instant messaging, or multiplayer games is without any social benefits. There might be other social resources to which these communication forms provide access that were not included in the resource generator. Furthermore, the analysis concentrates only on the time investments of the

“average” residential user. The findings, do not exclude the possibility that users of specific multiplayer games, such as cooperative games (Zhong, 2011), may gain access to some specific resources. They also do not rule out that users who utilize social media in special advantageous ways, for instance by applying specific connection strategies on SNS (Ellison, Steinfield, & Lampe, 2011) may profit in different ways. Rather, the outcomes show that in 2007 the “average” adult residential user did (or did not) benefit (with respect to specific resources) from the time investments on a specific social media. The findings provide insights into the opportunities for the average residential user to gain access to specific resources via various social media in the early phase of their diffusion.

The study has a number of limitations. It is a cross-sectional study, which limits the ability to pinpoint the causality of relationships between variables. Further research should examine the exact ways in which communication time with strangers and access to specific resources are causally linked. For instance, users of SNS may actively mobilize their relations to reach specific benefits (Ellison, Gray, Vitak, Lampe, & Fiore, 2013). Moreover, it cannot be ruled out that the causality sometimes runs in the opposite direction as expected. For instance, users may spend more time communicating with strangers via their own blogs because they have already established contacts with the press. The results suggest that these relationships should further be studied by using a longitudinal design. Another limitation of the study is that the sample of users is limited to one city. Additional research should determine whether the results can be replicated using a larger nation-wide sample. In addition, the research was not able to distinguish between the effects of the use of discussion forums and blogs and it did not cover the use of social media by Dutch ethnic minorities and foreigners. Questions of unequal access to resources were not touched and should be subject to follow-up research.

The pattern of access to specific resources suggests that for finding the “right” relationship on the Internet (with respect to getting access to resources that the user needs), users profit from knowledge about the potential and the limitations of different social media for gaining access to specific social resources. A user looking for access to social support could use discussion forums in combination with chat communication. Access to the press may best be achieved by using blog communication or social networking sites. These results point to possible strategies for Internet users to draw on particular social media in order to find different types of new resources. Otherwise, much time and energy might be wasted, and users might be disappointed after weeks of intensive communication as desired benefits might not emerge. Community and service administrators would also profit from knowledge about the different consequences of various online services. They could inform users about specific benefits of their specific service. This may be an important factor for crafting a reasonable (evidence-based) user information policy. In addition, information about the likely consequences of specific social media obviously is of interest to policy makers and to parents of young Internet users exploring the Internet.

Finally, the findings have important implications for future research. First, they support the claim that it is not enough to study only the development of new contacts on the Internet or to distinguish only between bridging and bonding social capital. The specific gains and different consequences of online communication for the quality of life of Internet users (Burrows et al, 2000) cannot be uncovered by using this distinction. In contrast, a more in-depth analysis seems appropriate. Second, to assess the specific gains, it is crucial to make a more detailed distinction between the affordances of different social media for communication with strangers that provide access to specific resources. Some detailed findings of this study may be specific to the time of the data collection that has been at an early phase of the diffusion of some social media. In the meantime, social media are more popular, new social media,

including Twitter, emerged, and existing social media, such as Facebook, extended their repertoire by including tools for group communication, audience segmentation, and other features. All these changes are likely to affect the types of resources that can be accessed. Future research could use the findings of this study that covers an early phase of the diffusion of social media, as a frame of reference to see how the range of accessed resources has changed. The results are a first step towards disentangling in a systematic way the social resources that different social media can –or cannot- provide access to.

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TABLES

Table 1: Selected sample and population characteristics

Characteristic	Arithmetic mean / proportion	
	sample	Eindhoven
Dutch origin (in percent)	90.22	72.46
Average age (in years)	50.02	39.5
College education (in percent)	65.25	66.03 ^(b)
Male (in percent)	53.8	50.6
Mean household income (in Euro)	36.157	38.100 ^(b)
Average household size	2.71	2.25
In labor force	63.86	64.5 ^(a)

Notes: n=880, data for Eindhoven are from Statistics Netherlands (CBS, 2012) for 2007 with the exception of (a) 2006 and (b) 2005.

Table 2: Use of Internet Applications (n=874 because of 6 respondents with missing values)

Weekly time allocated	Instant Mess.		Weblogs & Forums		Chat	
	n	%	n	%	n	%
< 30 min.	72	8.2	123	14.1	32	3.7
30-60 min	41	4.7	39	4.4	10	1,1
1-2 hours	42	4.8	29	3.3	22	2.5
2-4 hours	24	2.7	21	2.4	6	0.7
4-7 hours	17	2.0	4	0.5	5	0,6
> 7 hours	28	3.2	10	1.1	14	1,6
Never	644	73.7	643	73.6	778	89.0
Do not know	6	0.7	5	0.6	7	0.8
Total	874	100%	874	100%	874	100%

Weekly time allocated	SNSs		Email lists		On Line Games (Multiplayer)		Personal Weblog	
	n	%	n	%	n	%	n	%
< 30 min.	29	3.3	25	2.9	17	2.0	18	2.0
30-60 min	23	2.6	11	1.3	11	1.3	5	0.6
1-2 hours	24	2.8	20	2.3	16	1.8	8	0.9
2-4 hours	7	0.8	7	0.8	11	1.3	2	0.2
4-7 hours	2	0.2	4	0.4	7	0.8	0	0.0
> 7 hours	4	0.5	5	0.6	16	1.8	5	0.3
Never	780	89.2	787	90.0	794	90.8	837	95.8
Do not know	5	0.6	15	1.7	2	0.2	1	1.1
Total	874	100%	874	100%	874	100%	874	100%

Table 3: Use of online applications for communication with strangers: Percentage of communication time with this service spent communicating with strangers*

Service	N (=number of users)	Percentage of communication time					
		No time	Very little (=ca 5-10%)	Some (=about 25%)	About half	Most	All
Instant messaging	210	21.9	6.2	6.2	11.0	8.1	46.7
Email lists	56	30.4	10.7	8.9	12.5	8.9	28.6
SNS	78	23.1	18.0	10.3	5.1	7.7	35.9
Discussion forums/blogs	192	28.1	17.7	7.8	14.1	2.1	30.2
Personal blogs	32	25.0	25.0	0	15.6	3.1	31.3
Multiplayer games	77	22.1	11.7	2.6	14.3	6.5	42.9
Chat groups	84	17.9	13.1	8.3	4.8	6.0	50.0

*: in percentages of number of users

Table 4: Dependent variables: Access to specific resources (n=88)

Resource	number	Percentage of respondents
Knowledge	72	81.8
Social support	58	65.9
Contact with hiring employees	23	26.1
Contact with the press	27	30.7
Physical help during relocation	30	34.1
Access to no resources	5	5.7

Table 5: Logistic regressions of access to specific resources: Unstandardized Coefficients (Standard Errors in Brackets)

Regression	1	2	3	4	5
Time Variables (Log_e): time spent on communication with strangers via...	RELOCATION	SOCIAL SUPPORT	KNOWLEDGE	EMPLOYER	PRESS
...EMAIL-LISTS	-0.03 (0.20)	-0.15 (0.19)	0.05 (0.15)	-0.32 (0.36)	-0.55 (0.33)
...INSTANT_MESSAGING	0.09 (0.18)	-0.07 (0.13)	0.07 (0.11)	0.32 (0.20)	0.29 (0.18)
...MULTI_PLAYER_GAMES	-0.17 (0.17)	-0.04 (0.13)	-0.03 (0.12)	-0.42 (0.29)	-0.13 (0.22)
...BLOGS_&_FORUMS	0.30 (0.15)	0.45** (0.11)	0.45** (0.10)	0.88** (0.24)	0.56** (0.19)
...CHAT_ROOMS	0.17 (0.18)	0.28* (0.14)	0.09 (0.13)	-0.64* (0.39)	-0.26 (0.26)
...SOCIAL_NETWORK_SITES	0.37 (0.19)	0.19 (0.15)	0.16 (0.15)	0.46 (0.29)	0.59* (0.24)
...OWN_BLOG	-0.38 (0.34)	0.32 (0.24)	0.16 (0.23)	1.00** (0.40)	0.74* (0.31)
Other time variables (Log_e)					
OLD_CONTACTS_ALL_APPLICATIONS	0.12 (0.12)	0.16 (0.09)	0.22** (0.08)	0.61** (0.21)	0.80** (0.24)
USE_INTERNET_GENERAL	0.78** (0.29)	0.24 (0.16)	0.28* (0.14)	0.12 (0.26)	-0.18 (0.25)
Other control variables					
BEING SINGLE	1.59** (0.60)	1.26** (0.43)	1.11** (0.39)	2.67** (0.82)	0.52 (0.69)
GENDER (MALE=1)	-0.51 (0.65)	0.26 (0.42)	0.47 (0.38)	2.66** (0.97)	-0.06 (0.66)
HOME OWNERSHIP	-1.61** (0.58)	-0.72 (0.43)	-0.74 (0.39)	-0.97 (0.78)	-0.29 (0.72)
HAVING NO CHILDREN	0.84 (0.74)	-0.34 (0.53)	-0.32 (0.46)	-2.84* (1.23)	-0.41 (0.88)
NUMBER OFFLINE FRIENDS (5 CATEGORIES)	0.02 (0.21)	0.03 (0.14)	-0.02 (0.13)	-0.09 (0.24)	0.29 (0.24)
EDUCATION	-0.09 (0.20)	-0.7 (0.13)	-0.01 (0.12)	0.29 (0.28)	0.35 (0.24)
AGE	0.05 (0.03)	-0.01 (0.02)	0.00 (0.02)	0.02 (0.03)	0.05 (0.03)
DIGITAL LITERACY	0.07 (0.43)	0.09 (0.30)	0.15 (0.26)	-0.25 (0.56)	0.24 (0.47)
INTEREST IN NEW CONTACTS	0.71** (0.32)	0.39* (0.18)	0.30* (0.15)	1.04** (0.47)	0.78* (0.34)
LR χ^2	68.76	89.74	127.30	89.21	67.842
<i>P</i>	0.000***	0.000***	0.000***	0.000***	0.000***
Nagelkerke Pseudo <i>R</i> ²	0.426	0.352	0.353	0.583	0.435


Note 1: n=607, *** = significant at 0.001; ** = significant at 0.01, * = significant at 0.05.

Note 2: The reported significance levels are based on (unbiased) Likelihood-Ratio tests.

Figure 1: Overview of hypotheses

Hypotheses		
x	y	
The more time is spent communicating with strangers via...	→ ...the higher the likelihood of gaining access to the following resources:	
	strong tie	weak tie
...chat communication	social support (H1)	-
...instant messaging	none (H2)	
...discussion for a/blogs	social support (H3A) / physical help (H3B)	knowledge (H3C)
...personal blogs	-	press (H4)
...multiplayer games	?	?
...SNS	social support (H5A) / physical help (H5B)	employer (H5C) / knowledge (H5D)
...email lists	-	-

Figure 2: Overview of findings

Effects		
x	y	
The more time is spent communicating with strangers via...	 ...the higher the likelihood of gaining access to the following resources:	
	strong tie	weak tie
...chat communication	social support (H1)	-
...instant messaging	none (H2)	
...discussion fora/blogs	social support (H3A) / physical help (H3b)*	knowledge (H3C) / press / employer
...personal blogs	-	press (H4) / employer
...multiplayer games	-	-
...SNS	physical help (H5b)*	press
...email lists	-	-

*: only weak support

Appendix: Variable and Description (n=607)

Variable	Mean	Standard Deviation
Independent variables		
Time spent on communication with strangers via email lists (\log_e)	0.20	0.90
Time spent on communication with strangers via instant messaging (\log_e)	0.76	1.63
Time spent on communication with strangers via multiplayer games (\log_e)	0.32	1.18
Time spent on communication with strangers via blogs/discussion forums (\log_e)	0.55	1.28
Time spent on communication with strangers via chat rooms (\log_e)	0.30	1.08
Time spent on communication with strangers via social networking sites (\log_e)	0.26	0.94
Time spent on communication with strangers via personal blogs (\log_e)	0.07	0.50
Control variables		
Time online spent on already existing contacts via all 7 online applications (\log_e)	2.84	2.28
Time spent on the Internet (\log_e)	4.02	1.55
Being single	0.19	0.39
Being male	0.53	0.50
Being homeowner	0.83	0.38
Having no children	0.26	0.44
Number offline friends (5 categories)	2.54	1.54
Education	6.20	1.51
Age	49.51	13.91
digital literacy (mean score of 11 5-point Likert items, 1=low, 5=high, $\alpha=0.90$)	3.32	0.88
Interest in new contacts (1=very low, 7=very high)	5.24	1.54