# Social Isolation and New Technology

**How the internet and mobile phones impact Americans' social networks.**

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**Keith Hampton**

**Lauren Sessions**

**Eun Ja Her**

**Lee Rainie**
Director

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# Executive Summary

## Executive Summary

This Pew Internet Personal Networks and Community survey is the first ever that examines the role of the internet and cell phones in the way that people interact with those in their core social network. Our key findings challenge previous research and commonplace fears about the harmful social impact of new technology:

» Americans are not as isolated as has been previously reported.  We find that the extent of social isolation has hardly changed since 1985, contrary to concerns that the prevalence of severe isolation has tripled since then. Only 6% of the adult population has no one with whom they can discuss important matters or who they consider to be "especially significant" in their life.

» We confirm that Americans' discussion networks have shrunk by about a third since 1985 and have become less diverse because they contain fewer non-family members. However, contrary to the considerable concern that people's use of the internet and cell phones could be tied to the trend towards smaller networks, we find that ownership of a mobile phone and participation in a variety of internet activities are associated with larger and more diverse core discussion networks. (Discussion networks are a key measure of people's most important social ties.)

» Social media activities are associated with several beneficial social activities, including having discussion networks that are more likely to contain people from different backgrounds. For instance, frequent internet users, and those who maintain a blog are much more likely to confide in someone who is of another race. Those who share photos online are more likely to report that they discuss important matters with someone who is a member of another political party.

» When we examine people's full personal network – their strong ties and weak ties – internet use in general and use of social networking services such as Facebook in particular are associated with having a more diverse social network. Again, this flies against the notion that technology pulls people away from social engagement.

» Some have worried that internet use limits people's participation in their local communities, but we find that most internet activities have little or a positive relationship to local activity. For instance, internet users are as likely as anyone else to visit with their neighbors in person. Cell phone users, those who use the internet frequently at work, and bloggers are more likely to belong to a local voluntary association, such as a youth group or a charitable organization. However, we find some evidence that use of social networking services (e.g., Facebook, MySpace, LinkedIn) substitutes for some neighborhood involvement.

» Internet use does not pull people away from public places. Rather, it is associated with engagement in places such as parks, cafes, and restaurants, the kinds of locales where research shows that people are likely to encounter a wider array of people and diverse points of view. Indeed, internet access has become a common component of people's experiences within many public spaces. For instance, of those Americans who have been in a library within the past month, 38% logged on to the internet while they were there, 18% have done so in a café or coffee shop.

» People's mobile phone use outpaces their use of landline phones as a primary method of staying in touch with their closest family and friends, but face-to-face contact still trumps all other methods. On average in a typical year, people have in-person contact with their core network ties on about 210 days; they have mobile-phone contact on 195 days of the year; landline phone contact on 125 days; text-messaging contact on the mobile phone 125 days; email contact 72 days; instant messaging contact 55 days; contact via social networking websites 39 days; and contact via letters or cards on 8 days.

» Challenging the assumption that internet use encourages social contact across vast distances, we find that many internet technologies are used as much for local contact as they are for distant communication.

**Next: Overview**

# Overview

## Overview

This report adds new insights to an ongoing debate about the extent of social isolation in America. A widely-reported 2006 study argued that since 1985 Americans have become more socially isolated, the size of their discussion networks has declined, and the diversity of those people with whom they discuss important matters has decreased. In particular, the study found that Americans have fewer close ties to those from their neighborhoods and from voluntary associations. Sociologists Miller McPherson, Lynn Smith-Lovin and Matthew Brashears suggest that new technologies, such as the internet and mobile phone, may play a role in advancing this trend.[1] Specifically, they argue that the type of social ties supported by these technologies are relatively weak and geographically dispersed, not the strong, often locally-based ties that tend to be a part of peoples' core discussion network. They depicted the rise of internet and mobile phones as one of the major trends that pulls people away from traditional social settings, neighborhoods, voluntary associations, and public spaces that have been associated with large and diverse core networks.

The survey results reported here were undertaken to explore issues that have not been probed directly in that study and other related research on social isolation: the role of the internet and mobile phone in people's core social networks.

This Pew Internet Personal Networks and Community survey finds that Americans are not as isolated as has been previously reported. People's use of the mobile phone and the internet is associated with larger and more diverse discussion networks. And, when we examine people's full personal network – their strong and weak ties – internet use in general and use of social networking services such as Facebook in particular are associated with more diverse social networks.

**A word about our methodology and findings**

In this survey, we are trying to understand how technology and other factors are related to the size, diversity and character of people's social networks. But we face a challenge. If we were simply to compare the social networks of people who are heavy users of technology with those who do not use technology, we would have no way of knowing whether any differences we observe were associated with demographic or other differences between these groups, rather than with their differing patterns of technology use. That's because some demographic traits, such as more years of education, are associated with larger core social networks. And those with more formal education are also more likely to use technology.

To deal with this challenge, we use a statistical technique called regression analysis, which allows us to examine the relationship between technology use and network size while holding constant other factors such as education, age or gender. Thus, most of the results reported here are not shown as simple comparisons of the behavior of groups on our key measures, which is the typical approach of Pew Internet reports. Rather, the findings compare the social networks of people who use certain technologies with demographically similar people who do not use the technologies. For example, we use regression analysis to compare the average size of the social network of a demographically typical American who uses the internet and has a cell phone with an American who shares the same demographic characteristics but does not use the internet or a cell phone.

Another common type of analysis in the report estimates how much more likely a certain outcome is (such as having at least one person of a different race or ethnic group in a social network) for people who use certain technology compared with people who do not, all other things being equal. For example, holding demographic characteristics constant, the regression analysis finds that a person who blogs is nearly twice as likely as a demographically similar person (e.g., the same sex, age, education and marital status)

who does not blog to have someone of a different race in their core discussion network.

As with all studies that use data collected at only one point in time, none of the results we report should be interpreted as explanations of cause and effect. We cannot say from these findings that internet and mobile-phone use *cause* people to have bigger, more diverse networks. We can and do say that technology use is often strongly associated with larger and more diverse social networks.

**Are Americans more socially isolated?**

Our survey results challenge the finding that an increasing number of Americans have no one with whom they can discuss important matters. However, our findings support existing research that suggests that the average size and diversity of core discussion networks have declined. Our findings show:

- Compared to 1985, there has been small-to-modest change, rather than a large drop in the number of people who report that they have no one with whom they can discuss important matters. 12% of Americans have no discussion confidants. Few Americans are truly socially isolated. Only 6% of the adult population has no one with whom they can discuss important matters or who they consider to be "especially significant" in their life.
- The average size of Americans' core discussion networks has declined since 1985; the mean network size has dropped by about one-third or a loss of approximately one confidant.
- The diversity of core discussion networks has markedly declined; discussion networks are less likely to contain non-kin – that is, people who are not relatives by blood or marriage; although the decline is not as steep as has been previously reported.

**Is internet or mobile phone use related to smaller or less diverse core networks?**

Use of newer information and communication technologies (ICTs), such as the internet and mobile phones, is not the social change responsible for the restructuring of Americans' core networks. We found that ownership of a mobile phone and participation in a variety of internet activities were associated with larger and more diverse core discussion networks:

- Larger core discussion networks are associated with owning a cell phone, and use of the internet for sharing digital photos and instant messaging. On average, the size of core discussion networks is 12% larger amongst cell phone users, 9% larger for those who share photos online, and 9% bigger for those who use instant messaging.
- Whereas only 45% of Americans discuss important matters with someone who is not a family member, internet users are 55% more likely to have a non-kin discussion partners.
- Internet users are 38% less likely to rely exclusively on their spouses/partners as discussion confidants. Those who use instant messaging are even less likely, 36% less likely than other internet users, or 59% less likely than non-internet users to rely exclusively on their spouses/partners for important matters.
- Those who use the internet to upload photos to share online are 61% more likely to have discussion partners that cross political lines.
- Maintaining a blog is associated with a 95% higher likelihood of having a cross-race discussion confidant. Frequent at home internet users are also 53% more likely to have a confidant of a different race.

When we explored the size and diversity of people's core networks - their strongest social ties that include both those with whom they "discuss important matters" and those they consider "especially significant" in their life - there continued to be a strong, positive relationship between the size and diversity of people's closest social ties, mobile phone use, and participation in a range of internet activities.

- Mobile phone users and those who go online to use instant messaging have larger

core networks. Mobile phone users' core networks tend to be 12% larger than non-users, and those who use instant messaging have core networks that are an average of 11% larger than those who do not.

- Mobile phone users, general internet users, and especially internet users who go online at home more than once per day, share digital photos online, or exchange instant messages have more non-kin in their core networks. The diversity of core networks tends to be 25% larger for mobile phone users and 15% larger for internet users. However, some internet activities are associated with having an even larger non-kin core networks. Compared to other internet users, those who frequently use the internet at home tend to have an additional 17% non-kin, those who share photos average 12% more non-kin, and those who use instant messaging tend to have 19% more non-kin.

**Is internet use leading to less face-to-face contact with our closest social ties or with local social ties?**

Whereas most studies of core social networks focus exclusively on face-to-face contact, this analysis looked at the many ways that people maintain social networks using communication media. When those other kinds of interactions are taken into account, we find:

- In-person contact remains the dominant means of communication with core network members. On average, there is face-to-face contact with each tie on 210 out of 365 days per year.
- Mobile phone use has replaced the landline telephone as the most frequently mediated form of communication – 195 days per year.
- Text messaging has tied the landline telephone as the third most popular means of contact between core ties – 125 days per year.
- Cards and letters are the least frequent means of social contact – 8 letters or cards per year.
- When available, other ICTs supplement these dominant modes of communication:

email (72 days per year), instant messaging (55 days per year), and social networking websites (39 days per year).

Contrary to the assumption that internet use encourages social contact across vast distances, we found that many internet technologies are used as much for local contact as they are for distant communication.

- In-person contact, landline telephones, mobile phones, and text messaging (SMS) are used most frequently for contact with local social ties.
- Cards and letters are used most extensively with distant social ties.
- Email, social networking services, and instant messaging promote "glocalization" – that is, they are used as frequently to maintain nearby core social ties as they are used to maintain ties at a distance.

**Are core network members also our "friends" on social networking services such as Facebook, MySpace, LinkedIn?**

Social networking services, such as Facebook, provide new opportunities for users to maintain core social networks. Core ties can be highly influential in decision making and exposure to ideas, issues, and opinion. This makes core network members prime targets for marketers and interest groups who may want to use social networking services to influence decision making about consumer products or political opinion.

- A majority - 71% - of all users of social networking services have listed at least one member of their core network of influentials as a "friend" on a social networking service.
- The use of social networking services to maintain core networks is highest among 18-22-year-olds. Thirty percent of 18-22-year-olds use a social networking service to maintain contact with 90% or more of their core influentials.

**Is internet use related to less interaction with neighbors or lower levels of participation in local voluntary associations?**

Contrary to the argument that internet use limits people's participation in the local community, local institutions, and local spaces, our findings show that most internet activities are associated with higher levels of local activity. However, we find some evidence that use of social networking services (e.g., Facebook, MySpace, LinkedIn) substitutes for some level of neighborhood involvement.

- With the exception of those who use social networking services, internet users are no more or less likely than non-users to know at least some of their neighbors. Users of social networking services are 30% less likely to know at least some neighbors.
- Internet and mobile phone users are as likely as non-users to talk to their neighbors in-person at least once per month. And, they supplement their local contact with email. 10% of internet users send emails to their neighbors.
- Users of social networking services are 26% less likely to use their neighbors as a source of companionship, but they remain as likely as other people to provide companionship to their neighbors.
- Internet users are 40% less likely to rely on neighbors for help in caring for themselves or a family member. Those who use social networking services are even less likely to rely on neighbors for family care, they are 39% less likely than other internet users, or 64% less likely than non-internet users, to rely on neighbors for help in caring for themselves or a family member.
- Internet users are 26% less likely to rely on their neighbors for help with small services, such as household chores, repairs, and lending tools, but they remain as likely to help their neighbors with the same activities.
- Owners of a mobile phone, frequent internet users at work, and bloggers are more likely to belong to a local voluntary group, such as a neighborhood association, sports league, youth group, church, or social club.

When the internet is used as a medium for neighborhood social contact, such as a neighborhood email list or community forum (e.g., i-neighbors.org), participants tend to have very high levels of local engagement.

- 60% of those who use an online neighborhood discussion forum know "all or most" of their neighbors, compared to 40% of Americans.
- 79% who use an online neighborhood discussion forum talk with neighbors in-person at least once a month, compared to 61% of the general population.
- 43% of those on a neighborhood discussion forum talk to neighbors on the telephone at least once a month, compared to the average of 25%.
- 70% on a neighborhood discussion forum listened to a neighbor's problems in the previous six months, and 63% received similar support from neighbors, compared to 49% who gave and 36% who received this support in the general population.

**Is internet use associated with "cocooning," or a withdrawal from public and semipublic spaces?**

Public spaces, such as parks, libraries, and community centers, as well as "third places" highlighted by analyst Ray Oldenburg [1], such as cafés and restaurants, are an important source of exposure to diverse ideas, issues, and opinions – as well as meeting places for interacting with social ties.[2] Contrary to concerns that internet use leads to withdrawal from public spaces, we generally found that interest use is associated with engagement in such places.

- Compared to those who do not use the internet, internet users are 42% more likely to visit a public park or plaza and 45% more likely to visit a coffee shop or café.
- Bloggers are 61% more likely to visit a public park than internet users who do not maintain a blog, or about 2.3 times more likely than non-internet users.

The findings also show that internet access has become a common component of people's experiences within many public spaces. We asked respondents who had visited public spaces whether they had access the internet there in the past month. Examining all visits to public and semipublic spaces, we found that a significant proportion of people accessed the internet either through a cell phone, wifi network, or some other means at

these locales:

- 36% of library patrons.
- 18% of those in cafés or coffee shops.
- 14% who visited a community center.
- 11% of people who frequented a bar.
- 8% of visitors to public parks and plazas.
- 6% of customers at fast food restaurants.
- 7% of customers at other restaurants.
- 5% of people who visited a church, synagogue, mosque, or temple.

**Are internet and mobile phone use associated with more or less diverse personal networks?**

When the diversity of people's full social network was measured, we found the expected: that participation in traditional social milieus, such as neighborhoods, voluntary groups, and public spaces, accounts for much of the diversity in people's social networks. However, we also discovered that internet use, and in particular the use of social networking services, are independently associated with higher levels of network diversity.

- Compared to those who do not use the internet, most people who use the internet and use a social networking service, such as Facebook, MySpace, or LinkedIn, have social networks that are about 20% more diverse.

Newer information and communication technologies provide new settings and a means of communication that independently contribute to the diversity of people's social networks.

**Next: Acknowledgments**

[1] The study, "Social Isolation in America: Changes in Core Discussion Networks over Two Decades," can be examined here: http://www.asanet.org/galleries/default-file/June06ASRFeature.pdf

[2] The numbered references throughout this report refer to other research that is documented in the References section at the end of this report.

# Acknowledgments

## Acknowledgments

**About the Pew Internet & American Life Project:** The Pew Internet Project is an initiative of the Pew Research Center, a nonprofit "fact tank" that provides information on the issues, attitudes, and trends shaping America and the world. The Pew Internet Project explores the impact of the internet on children, families, communities, the work place, schools, health care and civic/political life.  The Project is nonpartisan and takes no position on policy issues. Support for the Project is provided by The Pew Charitable Trusts. More information is available at www.pewinternet.org

**Keith N. Hampton** is an assistant professor in the Annenberg School for Communication at the University of Pennsylvania. He received his Ph.D. and M.A. in sociology from the University of Toronto, and a B.A. in sociology from the University of Calgary. His research interests focus on the relationship between new information and communication technologies, social networks, and the urban environment. He is past-Chair of the American Sociological Association's Section on Communication and Information Technologies (CITASA). At the University of Pennsylvania, he offers courses in social network analysis and in new media. More information on his research can be found at www.mysocialnetwork.net. He can also be followed on Twitter at www.twitter.com/mysocnet

**Lauren F. Sessions** is a doctoral student at the Annenberg School for Communication

at the University of Pennsylvania. She received an M.A. in Communication from the University of Pennsylvania and a B.A. in Sociology from Tufts University. Her current research interests include information and communication technologies and social networks. Before starting her graduate studies Lauren worked in technology research and consulting at Forrester Research.

**Eun Ja Her** is a doctoral student at the Annenberg School for Communication at the University of Pennsylvania. She received her M.A. and B.A. in Communication from Seoul National University. Her current research interests focus on changes in social network and interpersonal communication as a result of new information and communication technologies.

# Part 1: Introduction

## "Social Isolation in America: Changes in Core Discussion Networks"

In 2006 sociologists Miller McPherson, Lynn Smith-Lovin and Matthew Brashears delivered grim research findings: Americans' core discussion networks, the network of people with whom people can discuss important matters, have shrunk and become less diverse over the past twenty years. They found that people depend more on a small network of home-centered kin and less on a larger network that includes ties from voluntary groups and neighborhoods. The authors argued that a large, unexpected social change was responsible for this trend and suggested it might be the rising popularity of new communication and information technologies such as the internet and mobile phone. Their study did not directly explore this possibility. Our current study was designed to probe:  Is people's use of the internet and cell phones tied to a reduction in the size and diversity of core discussion networks and social networks more broadly?

In their paper "Social Isolation in America: Changes in Core Discussion Networks" McPherson, Smith-Lovin and Brashears presented bleak findings from their analysis of the 2004 General Social Survey (GSS), a large biennial survey that explores social and economic trends. The authors found that, in comparison to the 1985 GSS, the data gathered in 2004 showed that the average number of confidants with whom Americans discuss important matters fell from 2.94 to 2.08. Furthermore, in 2004 a full 25% of Americans reported having no close confidants – almost a threefold increase since 1985.

McPherson et al. also argued that core discussion networks had not only shrunk but had become less diverse. A high proportion of those confidants lost between 1985 and 2004 were non-kin (not family members). That resulted in networks composed of a larger proportion of family members. In particular, spouses, partners, and parents were found

to make up an increasingly large part of Americans' core networks. The people Americans met through participation outside the home, such as in neighborhoods and voluntary organizations, had been disproportionately dropped from core networks.

The implications of these changes to the composition and structure of personal networks are far reaching. The diminished number of core ties in discussion networks suggests that Americans have fewer people with whom they can discuss important things, resulting in a decrease in the availability of social support to them. Scholars have showed that this includes access to emotional aid and companionship, and less access to critical resources in a crisis [2]. Core discussion ties are also important because other research has demonstrated that they are highly influential in attitude and opinion formation [3, 4]. Fewer and less diverse ties for the discussion of important matters may also lessen awareness of the many sides to an issue, shape opinion quality, and reduce political participation [5, 6]. Those with larger, more diverse networks tend to be more trusting and more tolerant [7]. They cope with daily troubles and trauma more effectively and tend to be physically and mentally healthier [8].

If the number and diversity of those with whom people discuss important matters is threatened, so is the ability of individuals to be healthy, informed, and active participants in American democracy.

While the rise of the internet and mobile connectivity coincides with the reported decline of core discussion networks, the mixed evidence on mobile phone use and internet activities does not provide a clear link between these trends (a review of this literature can be found in Appendix A: Extended Literature Review). However, until now, no study has focused directly on the composition of core networks and the role of internet and mobile phone use.

## The Personal Networks and Community Survey

In July and August 2008, the Pew Internet & American Life Project conducted a landline and cellular random digit dial survey of 2,512 Americans, aged 18 and older. The goal of this study was to replicate and expand on the methodology used in the 1985/2004 GSS to measure core discussion networks. We wanted to explore the relationship between internet and mobile phone use and the size and composition of core discussion networks. Specifically, the intent was to address issues raised by McPherson, Smith-Lovin, and Brashears in their 2006 work that suggest that internet or mobile phone users disengage from local relations, are involved in fewer voluntary associations, have less public and more private activities, and that users of these ICTs sacrifice strong ties to confidants for a large array of dispersed social ties.

Key questions are:

- Are Americans more socially isolated than in the past?
- Has the average size of core discussion networks changed?
- Are core discussion networks less diverse and more kin centered?
- Is the use of the internet and mobile phones associated with social isolation or smaller, less diverse core networks?
- What role do ICTs play in the maintenance of core networks?
- Does the internet or mobile phone withdraw people from neighborhood networks or participation in local institutions?
- Is internet or mobile phone use associated with "cocooning," or a tendency to participate less in public and semipublic spaces?
- Does the use of ICTs contribute to a large, diverse personal network, or a small, insular network?

To address these questions, it was necessary to explore the possibility that the findings of the 2004 GSS are misleading.

The Pew Internet Personal Networks and Community Survey replicated key components of the 2004 GSS survey module on social networks. In addition, we

attempted to minimize any technical problems that may have biased the 2004 GSS data, including problems with question order in the GSS survey instrument, and problems with the wording of the GSS survey (a complete discussion of these issues can be found in Appendix B: The GSS Controversy).[3] A key component of the approach to overcome some of the limitations of the GSS data was the incorporation of a second question in the Pew survey that asked participants to list names of people in their core network.

As in the GSS, Pew Internet participants were asked to provide a list of people in response to the question:

*"From time to time, most people discuss important matters with other people.  Looking back over the last six months — who are the people with whom you discussed matters that are important to you?"*

Unlike the GSS, the Pew Internet survey respondents were also asked:

*"Looking back over the last six months, who are the people especially significant in your life?"*

The use of a second "name generator" allows us to test the possibility that something has changed in the way Americans think about the idea of "discussion." If they do not think that "discussion" takes place outside face-to-face meetings, this second question was inserted to make sure that they were providing us the names of the major social actors in their lives, *not* simply giving us the names of those with whom they had face-to-face deliberations. We were interested in trying to get respondents to think in a more fully-rounded way about the key ties in their social networks. If the meaning of "discuss" has changed in Americans' minds since the 1985 GSS survey, then a shift is expected to be observed: internet and cell phone users would be more likely than non-users to have people in their lives who are "especially significant," but who might not be listed as "discussion" partners when they are dealing with important matters.[4]

Participants were asked additional questions about their neighborhood, participation in voluntary groups, use of public and semipublic spaces, network diversity, and use of the internet and mobile phones (a complete discussion of the survey methodology can be found in Appendix C: Methodology).[5]

## Another look at the General Social Survey

Much of the analysis presented in this report draws comparisons to data collected as part of the 1985 and 2004 General Social Surveys. For ease of comparison, key variables from the 1985 and 2004 GSS have been reanalyzed and presented Table 1a and Table 1b. This analysis is based on the revised 2004 GSS dataset that was adjusted after researchers discovered that 41 cases were misclassified in the original dataset [11]. In addition, there are three key differences between the analysis of the GSS data used in this report and the analyses of previous authors [12, 13].

The first difference is that when the GSS asked participants about those with whom they discuss important matters, respondents could provide up to five unique names; the interviewer then asked detailed questions about each name provided. The GSS interviewer also noted if the respondent provided more than five names, but did not ask questions about these additional people. The Pew Internet Personal Networks and Community Survey replicated this procedure, recording up to five names to each name generator, but to reduce survey length did not record if participants listed more than the maximum of five names.

The second difference is in the presentation of a key variable for network diversity. Prior analysis of the GSS social network data on the diversity of core discussion networks focuses on the kin/non-kin composition of the networks [12, 13]. That focus is replicated in the current analysis. However, in prior work, when calculating the percentage of respondents that have "at least one non-kin confidant" researchers coded any name

given by a respondent as a "non-kin" if the respondent identified him/her as having a connection classified as "co-worker," "friend," "advisor," "neighbor," or "group member," even if s/he was also identified by the respondent as a spouse, parent, sibling, child, or other family member. For example, if a core tie was identified as both a brother and a neighbor, this tie was classified as non-kin. We were stricter in interpreting who could be non-kin; if a name given by a participant was identified as a spouse, parent, sibling, child or other family member, that name could not also be coded as non-kin.[6] The way we used to identify kin/non-kin changed the characterization of 269 cases in the 1985 GSS, and 146 cases in 2004.

The final difference is in the analysis of spousal networks. When previous researchers calculated variables such as "spouse is only confidant" or "at least one non-spouse kin," they did so using all survey respondents. We limit this portion of our analysis only to those who reported being married or cohabitating with a partner. Thus, our analysis of spousal networks was applied to 870 people who lived as part of a couple in the 1985 GSS (rather than the full sample of 1,531 people) and 771 in the 2004 GSS (rather than the full sample of 1,426).

Table 1a and 1b report data from the 1985 and 2004 GSS that have been structured to match the Pew Internet Personal Networks and Community Survey - capping the number of core ties at five per name generator, conforming to our understanding of what should be considered non-kin, and constrained variables that focus on spousal networks to include only those who are married.

When the 1985 and 2004 GSS are compared, based on our analytical changes, the findings show the same general pattern that was reported by McPherson, Smith-Lovin, and Brashears in 2006, with a nearly identical magnitude of change across key variables – with one exception. The stricter interpretation of who should be classified as "non-kin" changes the proportion of the population with "at least one non-kin confidant." Previously, the percent of Americans with at least one non-kin confidant in 1985 was reported as 80.1% and in 2004 as 57.2% [13]. Our analysis suggests that although there

was still a large drop in the diversity of core discussion networks from 1985 to 2004, the magnitude of this decline is less than McPherson's group stated; a difference of 16.2 percentage points, not the 22.9-point drop that was reported by McPherson and colleagues.

## Table 1a: Size of core discussion networks: 1985 and 2004 GSS samples

| Size | Total Network | | Kin Network | | Non-kin Network | |
|---|---|---|---|---|---|---|
| | 1985 | 2004 | 1985 | 2004 | 1985 | 2004 |
| 0 | 8.10% | 22.50% | 24.40% | 37.80% | 36.10% | 52.30% |
| 1 | 14.80% | 19.60% | 29.70% | 30.50% | 22.40% | 22.10% |
| 2 | 14.70% | 19.70% | 22.60% | 16.50% | 19.70% | 14.80% |
| 3 | 21.60% | 17.40% | 13.10% | 9.70% | 12.60% | 6.20% |
| 4 | 15.40% | 9.10% | 6.70% | 4.10% | 6.10% | 3.20% |
| 5 | 25.40% | 11.70% | 3.50% | 1.30% | 3.00% | 1.50% |
| Mean | 2.98 | 2.06 | 1.58 | 1.16 | 1.39 | 0.9 |
| Mode | 5.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 |
| SD | 1.62 | 1.64 | 1.35 | 1.22 | 1.39 | 1.20 |

Note: N(1985) = 1,531; N(2004) = 1,426.

## Table 1b: Network composition: 1985 and 2004 GSS samples

| Types of Relationship | 1985 | 2004 |
|---|---|---|
| Spouse is only confidant^ | 11.10% | 13.90% |
| At least one non-spouse kin in the network^ | 54.60% | 40.90% |
| At least one non-kin confidant in the network^^ | 63.90% | 47.70% |

^ N(1985) = 870; N(2004) = 771
^^ N(1985) = 1,531; N(2004) = 1,426

[3] To minimize any context bias associated with survey fatigue or priming from prior questions, the two name generator questions were located close to the start of the survey. They were placed after a small number of questions about basic internet use that were used to establish trust with the survey participant.

[4] Previous research has identified a high degree of overlap between those with whom people "discuss important matters" and those they consider most significant in their lives [9].

[5] Unlike the GSS, which is administered face-to-face in participants' homes, the Pew survey was administered to participants over the telephone. The use of the telephone in place of face-to-face interviews has the potential to introduce bias as a result of changes to the context of the interview, as well as variation in response rate. In general, telephone surveys have a lower response rate than face-to-face interviews. It is known that higher levels of nonresponse lead to estimates of volunteer activity (and possibly other prosocial activities) that are too high. However, it is also known that these inflated measures of activity do not affect inferences about individual characteristics [10]. It is not known if the number of core network member participants report is subject to the same inflation as a result of nonresponse. It is also possible that people have an easier time recalling names in the context of a longer personal interview in the home, than when talking on the telephone – perhaps not even at home (in the case of cell phone interviews). While we have no evidence of a response bias in our survey, if one exists we expect it has little influence on the size of core networks that participants reported, and that introduces no bias into the inferences we draw based on individual characteristics.

[6] This approach is consistent with the way McPherson et al (2006) presented "non-kin network size," but inconsistent with the way in which the "at least one non-kin confidant" variable was presented.

# Part 2: Core Networks: The Internet and Mobile Phone

## What is associated with the size of discussion networks?

There is a great concern that over the last twenty years the size and diversity of Americans' core networks have declined; that core networks are increasingly centered on a small set of relatively similar social ties at the expense of larger more diverse networks. Is there evidence to suggest that newer information and communications technologies (ICTs) such as the internet and mobile phone are responsible for a trend toward social isolation?

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**What is associated with the size of discussion networks?**

Those people with whom we discuss "important matters" are our core discussion network. The Pew Internet Personal Networks and Community survey found that the average American has about two discussion confidants (1.93), which is similar to the mean of 2.06 from the 2004 GSS (Table 1a). However, the Pew Internet survey found that a much smaller proportion of the population reported having no discussion partners than the 2004 GSS survey: The Pew Internet survey found that 12.0% of Americans have no discussion partners, compared to the 22.5% recorded in the 2004 GSS. Our findings also show that the modal respondent – the most common response – lists one confidant, not zero, as was found in the 2004 GSS analysis.

Our findings suggest that social isolation may not have increased over the past twenty years. Our finding that only 12.0% of Americans have no discussion partners is relatively close to the 8.1% that was found in the 1985 GSS (Table 1a), so the number of Americans who are truly isolated has not notably changed. At the same time, the Pew

Internet survey supports the GSS evidence that the average number of discussion partners Americans have is smaller now than it was in the past. Our data indicate that the average American has 1.93 discussion partners, a figure similar to the 2.06 found in the 2004 GSS, and a full one tie smaller than the 2.98 found in 1985.
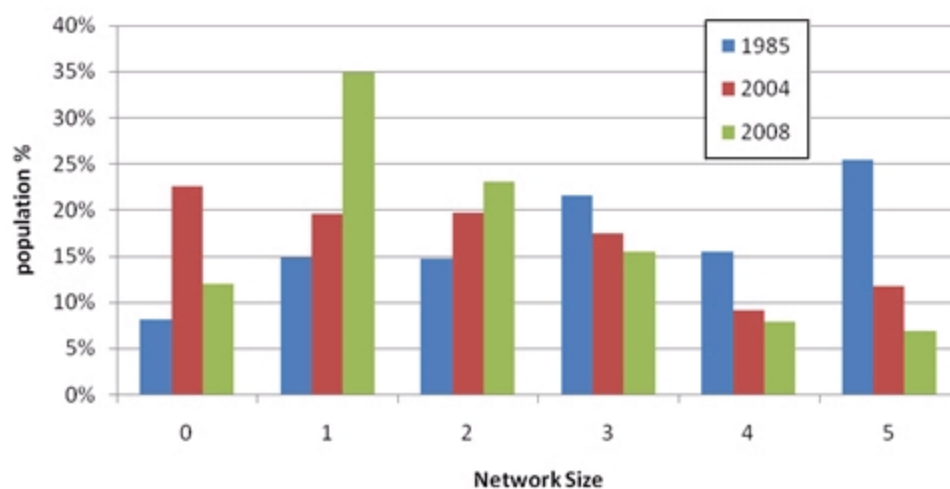


Figure 2a: Size of core discussion networks (1985 GSS, 2004 GSS, 2008 Pew)

**ICT users do not suffer from a deficit of discussion partners.**

When the Pew Internet Personal Networks and Community survey was conducted (July 9-August 10, 2008), 77% of the U.S. adult population used the internet, and 82% owned a mobile phone. Contrary to concerns that use of ICTs may be associated with an absence of confidants, no evidence was found that internet users have smaller discussion networks. Instead, our data indicate that, on average, internet and mobile phone users appear to be less likely to have no confidants and tend to have more people with whom they discuss important matters.

- 12% of all Americans report no discussion partners, but only 10% of internet users and 11% of mobile phone users have no discussion ties.
- 30% of the American population has discussion networks of three or more people compared to 34% of internet and 32% of mobile phone users.

## Table 2a: Size of core discussion networks

| Network Size | Sample^ | Internet User | Cell Phone User |
|---|---|---|---|
| 0 | 12.0% | 9.7% | 11.1% |
| 1 | 34.9% | 32.8% | 32.8% |
| 2 | 23.1% | 23.5% | 24.2% |
| 3 | 15.4% | 17.7% | 16.4% |
| 4 | 7.8% | 8.7% | 8.1% |
| 5 | 6.8% | 7.4% | 7.4% |
| Mean | 1.93 | 2.05 | 2.00 |
| Mode | 1.00 | 1.00 | 1.00 |
| SD | 1.38 | 1.38 | 1.39 |
| N | 2162 | 1642 | 1671 |

^ N is smaller than 2512 (total sample size) because of missing information. 350 respondents did not answer questions about their discussion network.

**Mobile phone use, and use of the internet for sharing digital photos, and for instant messaging are associated with larger discussion networks.**

There is considerable variation across people in terms of their demographic characteristics, and in how they use ICTs. Regression analysis is a statistical technique that allows us to identify what specific characteristics are positively or negatively associated with an outcome, such as the number of discussion ties. To be sure that the relationship we have identified cannot be explained by other factors, and so that we can look at different types of online activity, we use regression to identify the statistically significant factors that are associated with the size of core discussion networks.[7] The results of this regression analysis, listed in Appendix D: Regression Tables as Table 1, show that a number of demographic factors are independently linked with the size of discussion networks. Consistent with prior research [12, 13], the Pew Internet study revealed the following:

- Education attainment is associated with having a larger number of people with

whom one can discuss important things. The more formal schooling people have, the bigger their networks. For example, compared to a high school diploma, an undergraduate degree is associated with approximately 14% additional discussion partners.

- Those who are a race other than white or African-American have significantly smaller discussion networks; about 14% smaller.
- Women have about 13% more discussion ties than their male counterparts.

Regression analysis also confirmed the relationship between ICT use and core discussion networks while identifying specific types of technology use that are positively associated with the number of discussion partners.

» Those who own a mobile phone average 12% more confidants.

» Simply having access to the internet, as well as frequency of internet use has no impact on core discussion network size, what matters is what people do online.

- Uploading photos online to share with others is associated with having 9% more confidants.
- Those who use instant messaging have 9% additional confidants.
- Other activities, such as using a social networking service (e.g., Facebook, LinkedIn, and MySpace) or maintaining an online journal or blog have no relationship to the number of confidants.

**Example:** An average white or African-American, female with an undergraduate university degree, who has a mobile phone, uses the internet to share photos by uploading them to the internet, and uses instant messaging has 2.55 confidants. This compares to 1.91 ties for an average woman of the same race and education who does not upload photos online, use instant messaging, or own a mobile phone. In this example, use of ICTs is associated with a core discussion network that is 34% larger.

Not only is internet and mobile phone use not associated with having fewer confidants, but the compound influence of ICT use has a very strong relationship to the size of core discussion networks in comparison to other important demographic, such as race, gender, and education. In other words, ICT use can have a relatively big effect on the size of people's core networks.

## How is internet use and mobile phone use related to the composition of core discussion networks?

Discussion networks include people from a variety of settings. They may include spouses and household members, extended family, workmates, neighbors, and other friends. There is abundant evidence that having a diverse discussion network made up of people from a variety of settings, such as neighborhood and community contexts, brings people benefits by ensuring them access to different types of social support and exposure to diverse ideas and opinions. One way to look at the diversity of a discussion network is to separate kin and non-kin. People tend to have more things in common, including interests, values, and opinions with family than they do with people from other settings.

The Pew Internet Personal Networks and Community survey found that most people discuss important matters with members of their family (70%), but less than half of all Americans (45%) have a confidant that is not a family member. The proportion of the population found to have at least one non-kin confidant is similar to the 47.7% found in the 2004 GSS (Table 1b).

## Table 2b: Diversity of core discussion networks (N=2,162)^

| Network Size | Total Discussion Network | Kin | Non-kin |
|---|---|---|---|
| 0 | 12.0% | 30.5% | 55.3% |
| 1 | 34.9% | 38.1% | 26.1% |
| 2 | 23.1% | 18.7% | 10.8% |
| 3 | 15.4% | 8.9% | 5.8% |
| 4 | 7.8% | 2.6% | 1.3% |
| 5 | 6.8% | 1.2% | 0.7% |
| Mean | 1.93 | 1.19 | 0.74 |
| Mode | 1.00 | 1.00 | 0.00 |
| SD | 1.38 | 1.11 | 1.03 |

^ N is smaller than 2512 (total sample size) because of missing information. 350 respondents did not answer questions about their discussion network.
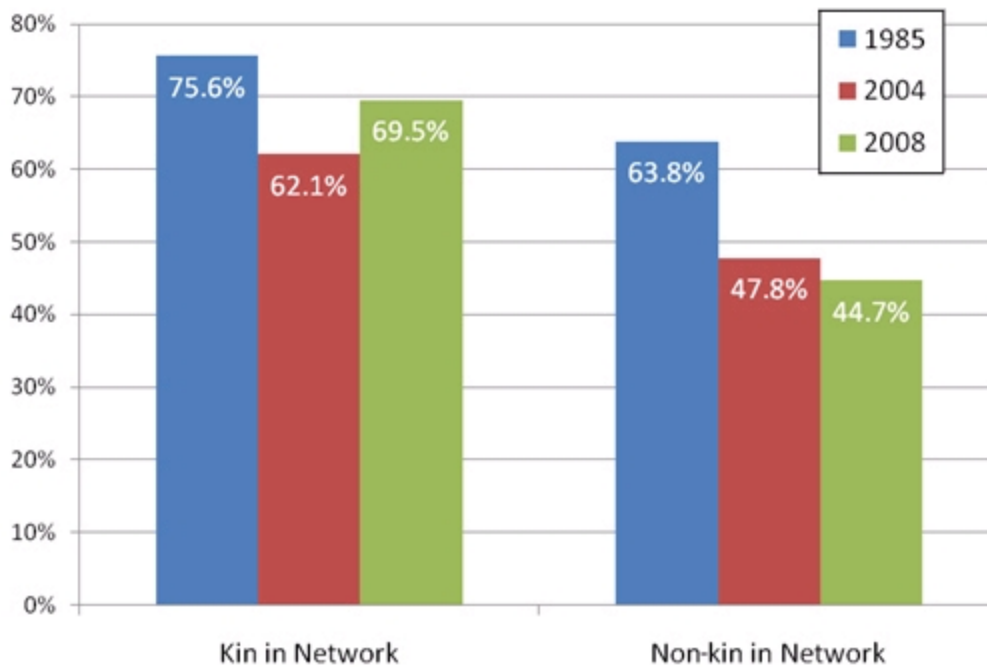


Figure 2b: Diversity of core discussion networks (1985 GSS, 2004 GSS, 2008 Pew)

**Mobile phone users, and internet users who use social networking services,**

**rely more on family members to discuss important matters.**

Family members are an important source of broad social support [2]. Regression analysis was used to identify demographic factors associated with the number of family ties who are confidants. The analysis, reported in Appendix D as Table 2, shows that:

- Women tend to rely on a greater number of kin as confidants - on average 21% additional family members.
- Those who are married or cohabitating with a partner tend to discuss important matters with about 28% more kinship ties.
- More years of education is associated with a larger number of kin confidants; about 3% more for each year of education.

The relationship between number of kin and participation in various internet and mobile activities was also tested.

- Those who use a mobile phone have about 15% more family members with whom they discuss important matters.
- Use of a social networking website is associated with a kinship discussion network that is about 12% larger.

**Example:** An average female, with a high school diploma, and who is married has 0.94 core discussion members who are also kin. A demographically similar woman who owns a cell phone and also uses a social networking website has an average of 1.21 family members who are core confidants. In this example, ICT use is associated with a core network that has 29% additional kinship ties.

**Married internet users are less likely to rely exclusively on their partner to discuss important matters, especially if they also use instant messaging.**

Like other family ties, a spouse can be an important source of social support. But those

who rely exclusively on their spouse/partner as their only confidant may have limited exposure to diverse opinions, issues, and points of view that come from discussing important matters with a larger, more diverse network. In comparison to other types of social ties, spouses are particularly likely to be similar in many ways to their mates and that limits the extra information and experiences a spouse can contribute.

Looking only at married and cohabitating couples in the survey, the Pew Internet Personal Networks and Community survey shows that 19.3% of those who live with a partner rely exclusively on the partner to discuss important matters; this compares to a smaller number - 13.9% - found in the 2004 GSS (Table 1b).

Regression analysis was used to explore the relationship between different demographic characteristics and different types of ICT use to predict the odds of having a spouse as only confidant.[8] The results, reported in Appendix D as Table 3, show among other things, that internet users are more likely than others to have someone in addition to a spouse as a discussion partner:

- The odds that a women relies solely on her partner to discuss important matters are 43% less than they are for men.
- Having children under the age of 18 at home increases the odds of a partner being the only discussion confidant by 52%.
- The likelihood of someone who is African-American limiting the discussion of important matters to a spouse/partner are 54% less than they are for white Americans.
- The likelihood of someone who is Hispanic relying exclusively on a spouse to discuss important matters is 54% lower than those who are not Hispanic.
- The likelihood of an internet user having a spouse/partner who is their only confidant is 37% lower than non-users.
- In addition, those who use the internet for instant messaging are even less likely than other internet users to have a spouse as their only confidant. Instant messaging users are 35% less likely than other internet users, or 59% less likely than non-

internet users, to have a spouse as their only confidant.

**Example:** The probability that an average white (non-Hispanic) woman who has children at home relies exclusively on her spouse to discuss important matters is about 46%. However, the probability of a similar woman who uses the internet and instant messaging relying exclusively on her spouse for important matters is only 26%.

**Internet users have more diverse core discussion networks.**

There is considerable scholarship showing that people who have a core discussion network that includes non-kin, such as workmates or neighbors, improve their access to a broad range of support and information. Regression analysis shows there are a number of demographic factors associated with having non-kin discussion partners. The results, reported in Appendix D as Table 4, indicate:

- The likelihood of having at least one non-kin discussion tie is 5% higher for each year of formal education.
- Married and cohabitating couples have odds of having at least one non-kin discussion tie that are 50% less than those who live alone.

**Example:** The probability of someone who is married, with a high school education having at least one non-family member in their discussion network is about 21%. The probability of someone who is married, with an undergraduate degree having a non-kin discussion partner is higher, at 24%. A single person with the same level of university education has a 39% chance of discussing important matters with someone who is not a family member.

Internet users are more likely to have non-kin in their discussion network. Mobile phone users are no more or less likely to discuss important matters with non-kin.

- The odds that an internet user has a confidant outside of his/her family are 55%

higher than non-users.

- Frequency of internet use, the use of a mobile phone, instant messaging, uploading photos online, blogging, and using social networking websites have no notable relationship with the likelihood of having non-kin discussion partners.

**Example:** The probability of someone who is married, with a high school education, who uses the internet having at least one non-family member in his discussion network is about 29%. This compares with the 21% probability for a demographically similar person who does not use the internet.

**Frequent internet use and blogging are associated with racially diverse core discussion networks.**

This survey found that about 24% of Americans discuss important matters with someone who is of a different race or ethnicity from themselves.[9]

Regression analysis, reported as Table 5 in Appendix D, finds that minorities are most likely to have at least one cross-race or ethnicity confidant.

- The odds that an African-American has a discussion partner of another race or ethnicity are 2.13 times higher than they are for white Americans, 4.52 times more likely for other-race Americans, and 4.41 times more likely for Hispanic Americans.

A number of other demographic factors were also associated with the likelihood of having a cross-race or ethnicity confidant.

- The likelihood of a female having a confidant of another race or ethnicity is 27% lower than for a male.
- The odds are 28% lower that someone who is married will have a cross-race or ethnicity discussion partner.

Very specific ICT activities are associated with the racial and ethnic diversity of core

discussion networks.

- Frequent home internet users – those who use the internet from home at least a few times per day – are 53% more likely to have a cross-race or ethnicity confidant, compared to those who use the internet less often.
- The odds of having a cross-race or ethnicity confidant are 94% higher for those who maintain a blog.

**Example:** The probability that an African-American male who is married discusses important matters with someone of another race is about 25%. The probability that a white American male of the same marital status has a cross-race discussion tie is only 14%. If a similar white American was a frequent home internet user and maintained a blog, the probability that he would have a discussion confidant of another race would increase to 32%.

**Online photo sharing is associated with diverse political discussion partners.**

Among those who identify themselves as a Republican or a Democrat, 19% reported that they discussed important matters with someone affiliated with the major opposition political party.[10] We found, and reported in Table 6 of Appendix D, that age was associated with politically diverse discussion networks – the older the person, the more likely his or her network was politically diverse – whereas being nonwhite was not associated with having a diverse network. Only one internet activity was associated with having a politically diverse discussion network.

- Those who uploaded photos to share online were 61% more likely to have a cross-political discussion tie.
- Other forms of internet use, frequency of use, and use of a mobile phone are not associated with the likelihood of discussing important matters with someone of a different political party.

**Example:** The probability of a 45-year-old, white American who considers themselves to be a Democrat having someone who considers themselves a Republican as a confidant is about 27%. However, if that 45-year-old, white American uploads photos to share with others online, the probability of having a cross-party tie increases to 37%. An African-American with a similar demographic and internet use profile would have only a 17% probability of a cross-political tie.

Some internet activities, such as photo sharing, provide opportunities for exposure and interaction with diverse others who in turn contribute to political diversity within core discussion networks. However, it is also possible that those with more politically diverse networks are more likely to take the opportunity to share photos online. It is also recognized that most people believe they are more similar to their network members than they really are. Therefore, an activity like sharing photos online may simply improve the flow of information within core discussion networks, eliminating a sense of sameness that actually never existed. Those who share photos online may either have more politically diverse networks, or they may have a more accurate sense of the political tendencies of their core discussion partners.

## Has the meaning of "discuss" changed in the age of the internet?

Participants in our survey, as well as those in the 1985 and 2004 General Social Surveys, were asked to provide a list of people "with whom [they] discussed important matters over the last six months." Although this methodology has been used in the past to measure core networks, the continued use of this question to compare networks over time assumes that there has not been a shift in how people understand the concept of "discussion" [13]. For example, the rise of the internet as a part of everyday life might have changed how many people "discuss" important matters. When asked about those with whom they "discuss," people may be more likely to think of those whom they frequently see in person. If, as a result of the internet, some important discussion now

takes place online, respondents may omit mentioning important and supportive ties to those whom they see less frequently in person but with whom they often interact, partially or primarily online.

To test the possibility that Americans' understanding of "discuss" has changed, people in the Pew Internet survey were asked a second question about their social networks. After asking them to name the people with whom they "discuss important matters," we asked them to list those who are "especially significant" in their life. This is another way to get people to focus on their important ties. When they answered this question, the second list could contain the same or different people as those mentioned in the first question that asked about discussion partners. Prior research has identified a high degree of network overlap between responses to these two types of questions [9]. If the meaning of "discuss" has changed over time, then ICT users' answers to the second question would be different from non-users' answers. That is, internet and cell phone users would be more likely than non-users to have people in their life who are "especially significant," but with whom they do not "discuss" important matters.

When the lists of "discuss" and "significant" ties are combined, they represent a list of "core network members" - a list of a person's strongest social ties. If internet users list more unique new names that are "significant" in their life that are not part of their "discussion" network, such evidence would suggest that internet users do not interpret a question that asks with whom they "discuss important matters" in the same way as other people. If this is the case, it may explain why previous research suggests that there has been an increase in social isolation in America over the last twenty years [13].

**Internet use has not changed the meaning of "discuss"**

There is considerable overlap in most people's network of "discussion" confidants and those they consider to be "especially significant" in their lives. However, in this survey, 26% of people listed one, 16% listed two, and 18% listed between three and five people who were especially significant in their lives, but with whom they did not "discuss"

important matters. Contrary to the argument that internet or cell phone users might interpret "discuss" in a way that is different than other people, they did not list a larger number of new names as "significant" in comparison with the rest of the population.

## Table 2c: Number of unique significant ties

| Network Size | Sample^ | Internet User | Cell Phone User |
|---|---|---|---|
| 0 | 40.6 | 41.5 | 40.8 |
| 1 | 26.2 | 25.4 | 25.9 |
| 2 | 15.7 | 15.7 | 15.8 |
| 3 | 8.3 | 7.8 | 7.7 |
| 4 | 5.2 | 5.7 | 5.6 |
| 5 | 4.0 | 4.0 | 4.1 |
| Mean | 1.23 | 1.22 | 1.24 |
| Mode | 0.00 | 0.00 | 0.00 |
| SD | 1.40 | 1.40 | 1.41 |
| N | 2211 | 1674 | 1695 |

^ N is smaller than 2512 (total sample size) because of missing information. 301 respondents did not answer questions about their core networks.

A regression analysis, reported as Table 7 in Appendix D, explores the likelihood of a person listing at least one significant tie that they did not list as a discussion partner finds no meaningful variation based on internet use. Internet and mobile phone use, frequency of internet use, and no single internet activity that we measured predicted the likelihood of having a "significant" tie that was not also a discussion tie.

This evidence suggests that the introduction of the internet has not had a significant influence on how people respond to a question that asks them to list those "with whom [they] discuss important matters." That is, internet users are not withholding names of core network members in response to this question simply because of the changing nature of how discussion is mediated.

## Are Americans truly socially isolated?

Core discussion networks are one segment of a broader network of strong ties that provide most of people's social support. This survey asked people to list those with whom they "discuss important matters" and to provide an additional list of names of those who are especially "significant" in their lives. The list of significant ties could contain the same or different people as those with whom a person discusses important matters. Combined, these lists of names represent a person's "core network" – those people who provide a large segment of everyday social support.

**Few Americans are socially isolated, and the socially isolated are no more likely to be internet or mobile phone users.**

The results of the Pew Internet survey show that the average person has three core network members. Only a very small proportion of the population is truly socially isolated (5.8%), with no one with whom they either discuss important matters or consider to be especially significant in their lives.

## Table 2d: Size of core networks

| Network Size | Sample | Internet User | Cell Phone User |
|---|---|---|---|
| 0 | 5.8 | 5.1 | 5.1 |
| 1 | 17.4 | 16.7 | 16.7 |
| 2 | 21.1 | 19.4 | 20.9 |
| 3 | 19.0 | 19.5 | 19.1 |
| 4 | 14.8 | 15.6 | 14.8 |
| 5 | 11.0 | 12.1 | 11.9 |
| 6 | 5.8 | 6.0 | 6.1 |
| 7 | 2.5 | 2.9 | 2.6 |
| 8 | 1.4 | 1.6 | 1.6 |
| 9 | 0.5 | 0.5 | 0.6 |
| 10 | 0.6 | 0.6 | 0.8 |
| Mean | 3.05 | 3.17 | 3.15 |
| Mode | 2.00 | 3.00 | 2.00 |
| SD | 1.94 | 1.95 | 1.97 |
| N | 2258 | 1711 | 1728 |

Note: N(1985) = 1,531; N(2004) = 1,426.

- On average, internet and mobile phone users are no more likely to be socially isolated than the general population (5% of cell phone users have no core ties compared to 6% of the general population). Internet users and mobile phone users are slightly more likely to report that they have a core network of three or more ties; 56% of the general population has a core network of three or more ties compared to 59% of internet users and 57% of mobile users.

**Mobile phone users and those who use the internet for instant messaging have larger core networks.**

As with our analysis of discussion networks, regression analysis allows us to explore the true relationship between ICT use, demographic characteristics, and network size.

As with discussion networks, men, those with few years of formal education, and those of races other than white or African-American tend to have smaller core networks.

The regression, reported in Appendix D as Table 8, shows that the ICTs associated with a large core network are more specific than they are for discussion networks. Larger core networks are associated with the use of a mobile phone and use of the internet for instant messaging. Internet use is otherwise not influential on the size of core networks.

- Those with a mobile phone have core networks that are about 12% larger.
- Those who use instant messaging tend to have core networks that are about 11% larger.

Frequent internet use, and other internet activities, such as blogging, the use of social networking websites, and sharing photos online have no influence on the size of core networks.

**Example:** The average 40-year-old, white or African-American, male with an undergraduate university degree, who has a mobile phone, and uses instant messaging, has a core network of about three people (3.11). A male of the same age, race, and education, who does not use a mobile phone and never uses IM typically has a core network that is about 19% smaller (2.51 ties).

**Only half of Americans have anyone in their core network who is not a family member.**

Core networks include not only close confidants, but those who provide much of the personal support required for daily life and dealing with emergencies. As with discussion networks, a diverse core network, consisting of family members and people from other settings, such as the workplace and neighborhood, is important to ensure access to different types of social support.

Results show that 84% of Americans have a family member in their core network, but only one-half of Americans (52%) have non-kin as members of their core network.

## Table 2e: Diversity of core network (N=2258)^

| Network Size | Total Core Network | Kin | Non-kin |
|---|---|---|---|
| 0 | 5.8% | 15.7% | 47.6% |
| 1 | 17.4% | 27.8% | 26.0% |
| 2 | 21.1% | 22.2% | 14.1% |
| 3 | 19.0% | 16.8% | 6.8% |
| 4 | 14.8% | 9.2% | 3.2% |
| 5 | 11.0% | 5.5% | 1.6% |
| 6 | 5.8% | 1.8% | 0.5% |
| 7 | 2.5% | 0.6% | 0.1% |
| 8 | 1.4% | 0.3% | 0% |
| 9 | 0.5% | 0% | 0.1% |
| 10 | 0.6% | 0% | 0% |
| Mean | 3.05 | 2.05 | 1.01 |
| Mode | 2.00 | 1.00 | 0.00 |
| SD | 1.94 | 1.58 | 1.30 |

^ N is smaller than 2512(total sample size) because some respondents did not answer questions about their core network

**A larger number of non-kin within core networks is associated with general internet use, frequent at home use, sharing photos online, using instant messaging, and owning a mobile phone.**

Regression analysis, Table 9 in Appendix D, confirms that having a larger number of non-kin as part of a core network is associated with owning a mobile phone, spending time online, using instant messaging, uploading photos to share with others, and frequent at home internet use.

- Those who own a cell phone tend to have 25% more core network members who are not family members.
- Internet users tend to have 15% additional core network ties who are not members of their family.
- Using the internet at home more than a few times per day is associated with an additional 17% more non-kin as part of a core network.
- Those who use the internet for instant messaging have 19% additional non-kin in their core networks.
- Sharing photos online is associated with having a larger core network of non-kin, such that those who upload photos to share with others have 12% more non-kin in their networks.

There are a number of additional demographic factors associated with the number of non-kin that people tend to have in their core network. Education is associated with having a larger number of people who are not family within a core network; on average, four years of additional education is equal to a 14% boost in the number of non-kin within a core network. Those who are married or living with a partner tend to have 31% fewer non-kin, with those with children at home generally have 10% fewer non-kin in their core network.

**Example:** The average person with an undergraduate degree, who is single with no children, and who is a frequent home internet user, owns a cell phone, uses instant messaging, and shares photos online has a little less than two people (1.64) in his/her core network who are not members of his/her family. A person with the same level of education who does not use the internet or a cell phone averages one fewer person in his/her core network who is not a family member (0.73).

**Internet and mobile phone users' core networks are as stable as non-users.**

The average length of time internet and mobile phone users have known core network members who are not members of their family tends to be about the same as for non-

users.[11] The only demographic factors found to predict network stability was age, with older people having more stable networks (see Table 10 in Appendix D).

## How are the internet and mobile phone used to communicate with core network members?

Most studies of how people communicate with members of their core network focus exclusively on in-person contact. This includes the General Social Survey, which, in 2004, asked only one question about interaction with core network members: "How often do network members talk?" This focus privileges a certain type of communication, mainly that which can take place in person or possibly over the telephone. It leaves little room for the possibility that important social contact takes place through other forms of communication, such as postal mail, email, instant messaging, text messaging (SMS), and social networking services.

To calculate frequency of contact across various communication platforms we asked participants how many days per month they were in contact with each of their core ties using a variety of media, including face-to-face. We averaged the answers respondents gave across all core ties and extrapolated to a full year of communication activity per core tie.

We found that Americans take advantage of a wide range of media to maintain their core networks and that "talk," whether in person or over the telephone, is only a fraction of the total supportive exchange between core network members.

- **Traditional media:** The average person sees each member of their core network 210 days of the year, talks to them using a landline telephone on 125 days, and sends each core network member an average of 8 letters or cards.
- **ICTs:** If they have a mobile phone, the average person talks to each core network member by mobile phone on 195 days. Email users send messages to each core tie

on 72 days of the year. If a person uses text messaging (SMS), on average they send
text messages to each core network member on 125 days. Those who use instant
messaging contact core ties by IM on 55 days of the year. Of those who use social
networking services (SNS), SNS are used to message each core tie an average of 39
days each year.

## Table 2f: Frequency of contact with core network members per year by medium (%).

| # Contacts per year | In-Person | Cell | Landline | Letter | Email | SMS | IM | SNS |
|---|---|---|---|---|---|---|---|---|
| 0 | 0.6 | 4.3 | 12.3 | 40.2 | 24.5 | 17.3 | 41.9 | 42.1 |
| 1-12 | 4.7 | 5.5 | 9.8 | 53.2 | 18.8 | 11.4 | 17.6 | 19.3 |
| >12-52 | 6.0 | 7.8 | 14.8 | 3.8 | 17.7 | 12.1 | 10.2 | 17.1 |
| >52-364 | 65.0 | 60.3 | 53.0 | 2.7 | 35.4 | 47.4 | 26.0 | 19.3 |
| 365 | 23.7 | 22.2 | 10.1 | 0.1 | 3.6 | 11.8 | 4.3 | 2.2 |
| Mean | 210.3 | 195.0 | 124.5 | 7.5 | 71.9 | 125.0 | 55.2 | 39.2 |
| SD | 113.6 | 122.2 | 114.1 | 26.0 | 94.5 | 122.3 | 93.4 | 74.6 |
| N | 2125 | 1642 | 1927 | 2125 | 1625 | 848 | 636 | 484 |

**Distance matters in the choice of communication media.**

Research that focuses mainly on in-person contact ignores the fact that face-to-face
interaction is just one of a number of methods through which people exchange support
[2, 14, 15]. Digital media provide new opportunities for people to maintain contact
across distance. In addition, there is clear evidence that digital media are also important
in maintaining contact with very local ties. Keith Hampton and Barry Wellman have
called this "glocalization" [16] – people use new ICTs to expand their horizons at the
same time they use the technology to maintain local ties.

The Pew Internet Personal Networks and Community survey finds that in-person
contact, landline telephones, mobile phones, and text messaging (SMS) are used most
frequently for contact with local ties and much less frequently with core ties who live at

a distance. Cards and letters are used most frequently with core ties at a distance. These media contrast with email, social networking services, and instant messaging, all of which facilitate glocalization (both local and distant ties). They are used almost as frequently to maintain contact with local ties as they are to contact distant core ties.

- The most frequent medium used to maintain contact with core network members is in-person, face-to-face contact. However, in-person contact decreases with distance, from nearly daily contact for those with whom a person shares a home (359/365 days), to less than one-third as often for core ties who live 50-100 miles away (107/365 days).
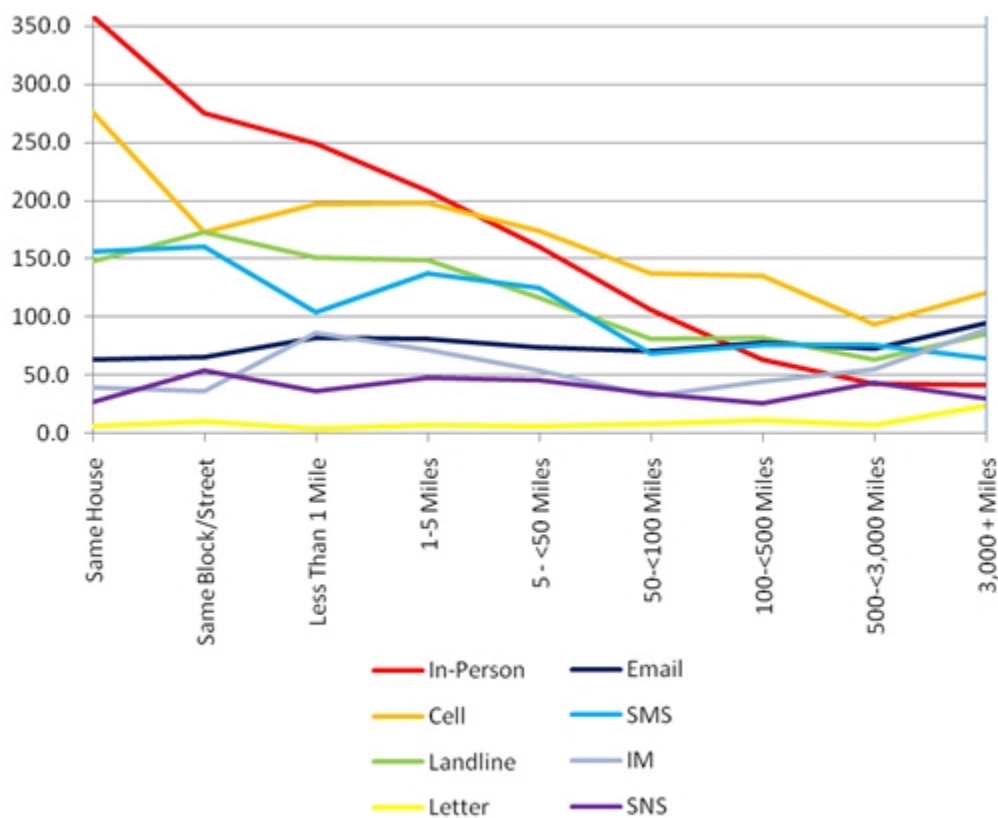


**Figure 2c: Days of contact per year by medium of communication.**

- Like face-to-face contact, traditional, landline telephone contact is less frequent with core network members who live at a distance, and most frequent with those who

live nearby. Core ties who live 50-100 miles away receive less than half as many calls (82/365 days) as those who live on the same block or street (173/365 days).

- Text messaging and short message service (SMS) on mobile phones resemble landline telephone and face-to-face contact. Communication is most frequent among core ties who live nearby - 137/365 days for those who live 1-5 miles away; it drops sharply with core ties who live further away - 69/365 days for those 50-500 miles away.

- Similarly, the use of voice calls on mobile phones is most frequent with those who live nearby (276/365 days for core ties within the same home), and less frequent with distance (138/365 days for core ties 50-100 miles away). However, unlike these other media, contact is less dependent on distance, and frequency of use trails off less steeply.

- Email is used relatively consistently across distance - 81/365 days per year for core ties within 1-5 miles, and 73/365 days for core ties who are 500-3000 miles away.

- Messages sent through social networking services, such as Facebook, tend to resemble email communication. They are used relatively consistently with core ties at all distances - 48/365 days per year for core ties who live 1-5 miles away, and 43 days per year for core ties 500-3000 miles away.

- Instant messaging (IM) also resembles email and social networking services. Communication with core network members using IM is almost as frequent with those who live locally (72/365 days, 1-5 miles away), as it is with those who live far away (55/365 days for those who live 500-3000 miles away). Postal mail in the form of letters and cards is in sharp contrast with in-person contact. It is the least frequent medium overall and is used most often to communicate with core ties who live furthest away. Core ties who live more than 3,000 miles away receive on average twenty-four cards and letters per year. This compares with the average six cards/letters given to core network members in the same household.

## Are core network members our "friends"? The use of social

## networking services (SNS) in the maintenance of core networks.

Social networking services, such as Facebook, MySpace, and LinkedIn, provide people with a way to "friend" and then communicate with people who are a part of their social network. We found that 26% of American adults use social networking services, with younger cohorts much more likely to use SNS than older cohorts: 75% of 18-22- year-olds, 49% of 23-35-year-olds, 21% of those who are 36-49, 9% of those who are 50-65, and only 3% of those who are over 65.



Figure 2d: Membership in social networking services by age cohort (%)

**Younger users of social networking services are most likely to have influentials as social networking site (SNS) "friends."**

Social network sites (SNS) provide a new way for people to communicate with members of their social network. "Friends" on a SNS can be core network members, weaker social ties, friends of friends, or even near strangers. However, if core network members are listed as "friends" on SNS, it may be possible for those outside of people's immediate social circle to identify core network members [17]. Core network members often serve

as "infuentials" in the decision-making process [4]. If marketers and interest groups can use social networking services to target influentials, they may be able to manipulate an individual's decision making on a variety of subjects, ranging from consumer products to politics.

- 71% of all SNS users listed at least one member of their core network as a "friend."
- 18% of all SNS users listed more than 90% of all their core network members as SNS "friends."

Younger SNS users were much more likely to list at least one or the majority of their core network members as SNS "friends."

- 83% of 18-22-year-old SNS users listed at least one core network member as an SNS "friend."
- The likelihood of listing a core network member as a friend was lower with age, such that only 46% of 50-65-year-old SNS users list at least one core network member as an SNS "friend."
- 30% of 18-22-year-old SNS users have more than 90% of their core network members listed as SNS "friends."
- Only 15% of 23-35-year-olds, 13% of 36-49-year-olds, and 5% of 50-65-year-old SNS users list more than 90% of their core network members as SNS "friends."

These findings suggest that younger cohorts, particularly those in the 18-22 year range, are particularly likely to have a concentration of core network members on social networking services. Although these SNS may benefit from a new form of access to core network members, they may also be particularly open to influence from marketers and lobby groups that use SNS to target influentials as a strategy to manipulate or guide decision making.

# Table 2g: Proportion of core network members who are friends on SNS

| Proportion of core network | All Users | Users 18-22 | Users 23-35 | Users 36-49 | Users 50-65 | Users >65 |
|---|---|---|---|---|---|---|
| 0 | 29.2 | 16.9 | 28.1 | 34.5 | 54.5 | 48.9 |
| .01-.90 | 52.7 | 52.8 | 56.5 | 52.7 | 41.0 | 32.1 |
| >.90 | 18.1 | 30.2 | 15.4 | 12.8 | 4.5 | 19.1 |
| N | 484 | 135 | 176 | 104 | 54 | 15 |

# Part 3: Network Diversity and Community: The Role of the Internet and Mobile Phones

## Introduction

Core networks provide access to a broad range of social support [2, 12-14]. However, the small number of social ties that make up a core network are also likely to be densely connected and the people to be highly similar – a trend that scholars call "homophily" [18]. Core network members are likely to share many social characteristics, including interests, beliefs, and opinions. This type of network is ideal for access to broad social support and opinion validation, but generally is less than ideal for access to unique information or diversity of opinion [3, 19].

The more numerous, weaker social ties outside of the core network are the most diverse. These ties are typically formed and maintained as a result of participation in diverse social settings, including neighborhoods, public spaces, and voluntary organizations. Scholars have found that these diverse networks provide specialized social support and access to novel information and resources, which has been shown to assist in search processes, such as finding a job [20, 21]. Individuals who have more diverse networks tend to be more trusting [7], demonstrate greater social tolerance, cope with daily troubles and trauma more effectively, and tend to be physically healthier [22]. However, some researchers, including Robert Putnam of Harvard, have found that participation in social settings that support diverse networks, like neighborhoods and voluntary groups, has declined in the last quarter century, and that has contributed to lesser network diversity. Does the use of new information and communication technology (ICT), including the internet and mobile phone, contribute to this decline?

Some fear that internet activities in the home may substitute for participation in neighborhood and public spaces. Time spent online may replace time that would otherwise be spent socializing with ties and in places outside the home. Others suggest

that the internet provides new opportunities for interaction with diverse social ties. The Pew Internet survey examined these issues: Is the use of ICTs associated with less participation in neighborhood and public life? And, in turn, does internet and mobile phone use constrain the diversity of people's social networks?

## Are internet users less likely to participate in the local community?

**Most people know at least some of their neighbors.**

As part of the survey, people were asked if they "know the names" of their neighbors who live close to them. Some 40% of Americans reported that they know all or most of their nearest neighbors. Another 30% reported that they know at least some of their neighbors. Some 31% of people said that they do not know any of their neighbors.



Do you know the names of your neighbors who live close to you, or not?

- Yes, know all or most — 39.8%
- Yes, know some — 29.6%
- Do not know any — 30.6%

Figure 3a: Americans' neighborhood ties

We expected that many of those who reported no connection with neighbors are disconnected because of their stage in the life cycle and not because they are socially

isolated (for example, young adults who have yet put down roots in a community). Regression analysis, reported in Appendix D as Table 11, confirms that where one lives, how old he/she is, and their use of ICTs all matter for connections to local community.

Younger people, apartment dwellers, and those who are neither married nor cohabitating are typically at a stage in their lives when neighbors are less important than other types of social relationships [23].

- Apartment dwellers are 60% less likely than home dwellers to know at least some of their neighbors.
- Those who are married or cohabitating are 31% more likely to know their neighbors.
- The likelihood of knowing at least some neighbors increases 3% for every year of age.

Additional demographic factors also matter.

- Residential stability, the longer one lives in any one place increases the odds of knowing neighbors; 6% per year.
- The odds that women know at least some neighbors are 41% higher than for men.
- Those with larger, core networks are more likely to know neighbors. The odds are 19% higher per core tie in their network.
- The odds of knowing at least some neighbors are 50% lower for African Americans and 43% less for those of other races, in comparison to white Americans.

**With the exception of those who use social networking services, internet users are no more or less likely to know at least some of their neighbors.**

Those who use a mobile phone and most internet users are no more or less likely than non-tech users to know neighbors. However, this is not the case for those internet users who use social networking services.

- Users of social networking services are 30% less likely to know their neighbors.

**Example:** There is a 82% probability that an average 30-year-old, white, female, who is married or cohabitating, and does not live in an apartment building, knows at least some of her neighbors. If she uses social networking services, the probability is lower, at 77%. [12]

**The majority of Americans talk with their neighbors on a regular bases.**

Previous research has found that communication at the neighborhood level is associated with higher levels of personal social capital, but it also contributes to the well-being of the community as a whole. Previous research has shown that neighborhood cohesion is associated with a variety of positive outcomes, including lower crime rates, informal social controls, and the likelihood of community intervention in local disturbances [24, 25].

Pew Internet participants were asked how often they talked, phoned, and emailed those neighbors whom they know by name. Findings reveal that 61% of Americans talk face-to-face with neighbors at least once a month. In addition, 25% talk to their neighbors on the phone at least on a monthly basis, and 10% of internet users email with neighbors at least once per month.

## Table 3a: Contact with at least one neighbor over the previous six months (%)

| | Face-to-face | Phone | Email^ |
|---|---|---|---|
| Everyday | 10.8 | 3.7 | 1.0 |
| Several times a week | 19.8 | 4.9 | 2.0 |
| Once a week | 18.6 | 8.0 | 3.6 |
| Once a month | 11.6 | 8.8 | 3.2 |
| Less often | 6.6 | 11.3 | 3.9 |
| Never | 32.5 | 63.4 | 86.3 |
| **N** | **2512** | **2512** | **1922** |

^ Internet users only.

**Internet and mobile phone use is not related to the likelihood of having face-to-face contact with neighbors.**

Regression analysis, reported as Table 12 in Appendix D, confirms that internet use does not substitute for in-person contact at the neighborhood level.

- Mobile phone use, internet use, frequency of use, or participating in social networking services, blogging, photo sharing, or instant messaging, was found to have no relationship with the likelihood of face-to-face contact with neighbors.

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**Neighbors remain an important source of companionship and are available for small services, borrowing small sums of money, and care for family members.**

Neighbors have traditionally been a source of very specific types of social support. Studies show that neighbors' accessibility makes them ideal for companionship/emotional aid, the exchange of small services, help in caring for family

members, and lending small sums of money [2]. In both personal and local emergencies, such as a health problem or a natural disaster, neighbors are often the most accessible source of informal aid and support.

In the Pew Internet survey, 49% of Americans had helped their neighbors over the previous six months by listening to their problems; 41% helped with household chores, shopping, repairs, house-sat, or loaned tools or supplies; 22% cared for a member of a neighbor's family, either a child or an adult; and 9% loaned a neighbor money.

Many more people reported giving than receiving help from neighbors. Only 36% reported that a neighbor had listened to their problems, 31% received help with chores or borrowed tools or supplies, 15% were cared for or had a family member cared for by a neighbor, and 3% borrowed money.

Although the exchange of support at the neighborhood level is extensive, there is a modest lack of reciprocity in neighbor exchanges (or possibly a heightened awareness/memory of giving and a reduced awareness/memory of receiving support).
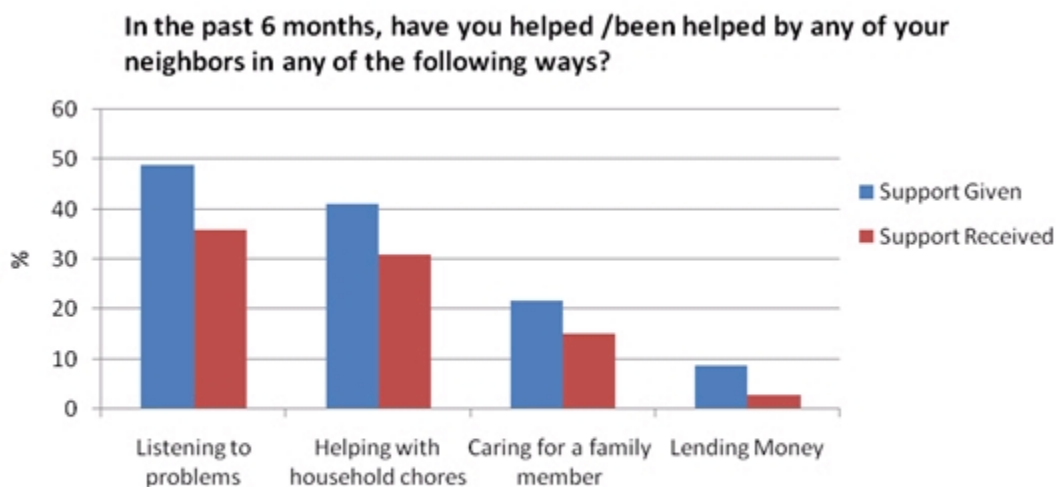


Figure 3b: Exchange of support with neighbors past six months

**The internet makes some forms of social support more accessible outside of**

**the neighborhood setting. As a result, some internet users are less likely to rely on neighbors for support.**

Regression analyses, reported as Table 13 and Table 14 in Appendix D, explore the relationship between ICT use and various forms of social support. The findings include:

- Users of social networking services are 26% less likely to have used neighbors as a source of companionship.
- With the exception of those who use instant messaging, internet users are 26% less likely to have received small services (e.g., household chores, shopping, repairs, house-sat, lent tools or supplies) from neighbors.
- Internet users are 40% less likely to have been cared for, or had a member of their family cared for, by a neighbor. And, users of social networking services are 39% less likely than other internet users, or 64% less likely than those who do not use the internet, to have received family care from a neighbor.
- Internet users who are frequent users at work are 57% less likely to borrow money from neighbors.
- The only internet activities associated with receiving higher levels of neighborhood support are sharing digital photos online, which is associated with a 52% higher likelihood of receiving companionship, and instant messaging, with odds that are 32% higher of receiving small services.

**Variation in what people do online is related to the likelihood of giving support to neighbors.**

- Those who share digital photos online are 44% more likely to give companionship to neighbors.
- Bloggers are 79% more likely, and those who upload photos to share online are 40% more likely to provide small services to neighbors.
- Internet users are 40% less likely to provide family care to neighbors. However, this relationship is moderated, or even reversed, depending on a person's online activities.

Frequent internet users at home are 46% more likely than other internet users, bloggers are 84% more likely than other internet users, and those who use instant messaging are 33% more likely than other internet users to provide family care to neighbors.

- With the exception of bloggers, who are as likely to lend money as anyone else, internet users are 48% less likely to lend money to neighbors.

It is unlikely that internet users need less family care or less help with household chores and repairs than do non-users. Instead, the internet may provide access to existing social network members in a way that substitutes for some of the small services and family care that people otherwise would have received from neighbors. This may be particularly true for users of social networking services, who receive companionship from other social ties and coordinate family care online, rather than in the neighborhood.

It is also likely that some of what we observed has less to do with the use of technology than it does with individual characteristics. For example, those who use the internet frequently at work likely represent an occupational class that has higher socioeconomic characteristics in general, making them less likely to borrow money from neighbors because of their economic standing, rather than a function of their technological use. Similarly, those who upload photos to share online may represent particularly extroverted, hyper-social sharing types, who experience increased companionship as a result of their individual nature, not specifically as a result of their use of the internet.

**Connecting with neighbors online is associated with high social cohesion and a network of support.**

A small number of Americans - 4% (N=103) - reported that they belonged to a neighborhood email list or internet discussion forum for their neighborhood (e.g., i-

neighbors.org). Although this suggests that only a small fraction of neighborhoods are using the internet for local communication and information sharing, those who do adopt this technology benefit from high levels of neighborhood engagement.

- 60% of those who use a neighborhood discussion forum know "all or most" of their neighbors, compared to 40% other Americans.
- 79% who use a neighborhood discussion forum talk with neighbors in person at least once a month, compared to 61% of the general population.
- 43% on a neighborhood discussion forum talk to neighbors on the telephone at least once a month, compared to the average of 25%.
- 42% of those who belong to a neighborhood discussion forum email neighbors at least monthly, compared to 10% of general internet users.
- 70% on a neighborhood discussion forum listened to a neighbor's problems in the previous six months, and 63% received similar support from neighbors, in comparison with 49% who gave and 36% who received this support in the general population.
- 65% who belong to a neighborhood discussion forum helped a neighbor with household chores or loaned a household item in the previous six months, 54% received this support compared to the average 41% who gave and 31% who received.
- 29% who use a neighborhood discussion forum cared for a neighbor in the previous six months, and 29% were cared for by a neighbor, compared to the average American, 22% of whom gave care and 15% of whom received care from neighbors.
- 16% of those on a neighborhood discussion forum loaned money to a neighbor in the previous six months, 3% borrowed, in comparison with the 9% who loaned and 3% who borrowed in the general population.
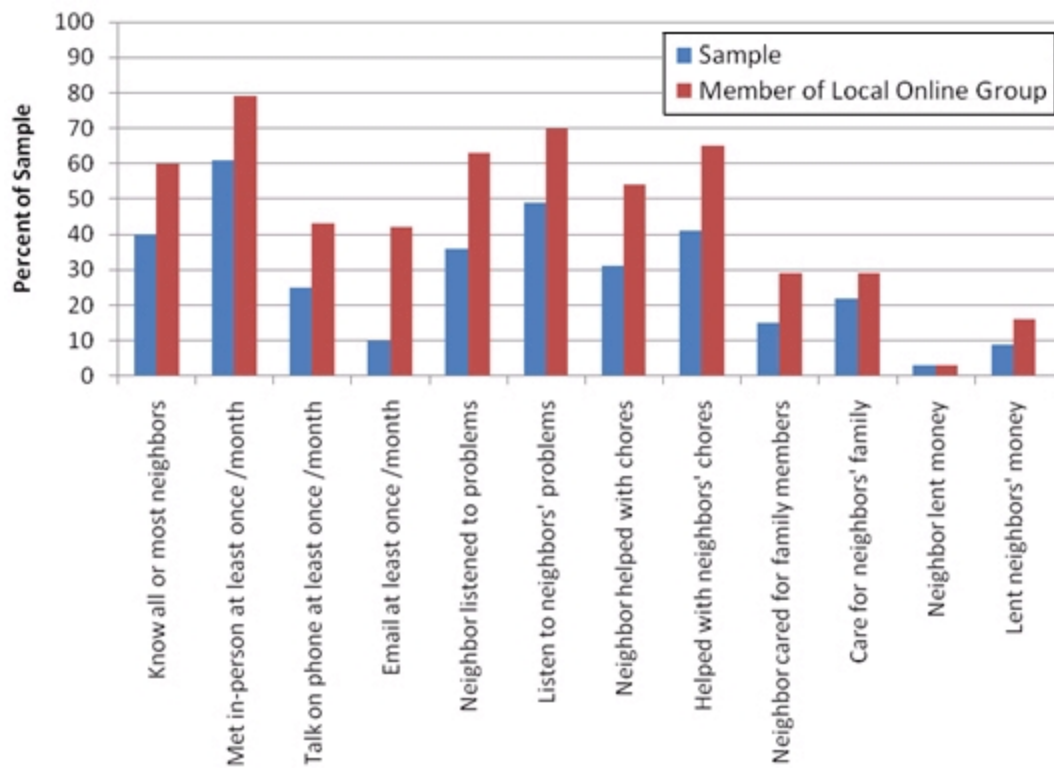
Figure 3c: Those who use a neighborhood forum compared to population

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**A majority of Americans belong to at least one local voluntary group.**

In addition to participation in their immediate neighborhood, as part of the survey people were asked about participation in broader local voluntary groups. They were asked if they belong to or ever work with a "community group or neighborhood association that focuses on issues or problems in your community," "a local sports league," "a local youth group, such as scouts or the YMCA," "a local church, synagogue, mosque or temple," "a local social club or charitable organization," or "some other local group" that had not already been mentioned. Results show that 65% of Americans belong to at least one local group.

## Table 3b: Participation in local voluntary groups (N=2512)

| | % Yes | % No |
|---|---|---|
| Local church, synagogue, mosque or temple | 46.1 | 53.9 |
| Local social club or charitable organization | 24.4 | 75.6 |
| Community group or neighborhood association | 16.0 | 84.0 |
| Local sports league | 16.0 | 84.0 |
| Local youth group, such as scouts or YMCA | 15.7 | 84.3 |
| Some other local group | 10.8 | 89.2 |

**Mobile phone users, bloggers, and frequent internet users at work are more likely to belong to a local group.**

Regression analysis, reported in Appendix D as Table 15, confirms that participation in local groups varies, based on mobile phone and internet activity. We found no negative relationships between internet use and participation in local groups. Compared to other demographic factors associated with participation in local groups, such as education, the positive relationship between ICT use and local group membership is relatively strong.

- The odds of mobile phone users belonging to a local group are 72% higher than for those who do not own a mobile phone.
- Those who access the internet from work at least a few times per day are 46% more likely to belong to at least one local group.
- Bloggers are 72% more likely to belong to a local group.

The relationship between mobile phone use or blogging, independent of each other, on group membership is comparable to that of approximately four years of education. The relationship between frequent internet access from work and group membership is comparable to that of marriage or having children at home, all of which are associated with about 50% higher odds of local group involvement.

**Example:** An average person who is single, white, with no children has a 40% probability of belonging to at least one local voluntary group. If he/she owns a cell phone, the probability is higher, at 54%. If he/she also frequently uses the internet at work and blogs, the probability is 74%.

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**Most people spend time in a diverse number of places outside of the home and workplace.**

This survey asked people how frequently in the past month they visited different types of spaces outside of the home and workplace (and stayed for at least fifteen minutes). These spaces - public parks, cafes, restaurants, libraries, community centers, and religious buildings - have long been recognized as sources of diverse social ties and spaces where people may be exposed to diverse ideas and opinions [1, 7, 26-29]. Findings reveal that most people make at least twelve visits to public and semi-public spaces each month.[13]

## Table 3c: Frequency of visits to public and semi-public spaces (%) (N=2512).

|  | Coffee shop | Church or temple | Public library | Fast food restaurant | Other restaurant | Community center | Park | Bar |
|---|---|---|---|---|---|---|---|---|
| 0 | 54.4 | 46.5 | 65.3 | 31.8 | 29.8 | 82.5 | 39.2 | 72.2 |
| 1 | 8.3 | 6.9 | 12.0 | 12.9 | 9.3 | 5.9 | 13.5 | 6.9 |
| 2 | 9.8 | 6.9 | 8.5 | 14.1 | 12 | 3.6 | 13.4 | 6.3 |
| 3 | 5.4 | 4.5 | 4.0 | 8.0 | 9.1 | 1.7 | 8.6 | 3.3 |
| 4 | 6.7 | 19.2 | 3.4 | 7.8 | 10.5 | 2.0 | 7.2 | 3.2 |
| 5 | 3.3 | 4.3 | 1.6 | 6.5 | 7.1 | 0.8 | 4.9 | 1.9 |
| 6+ | 12.1 | 11.7 | 5.1 | 18.9 | 22.2 | 3.4 | 13.2 | 6.3 |

**Internet users and mobile phone users are more likely to use many public**

**and semipublic spaces outside of the home and workplace.**

Our findings from a series of regression analyses, reported as Table 16 and Table 17 in Appendix D, show that internet users are considerably more likely to visit a range of public and semipublic spaces, including parks, cafés, libraries, and restaurants, than are non-users of the internet.

- Internet users are 45% more likely to visit a café, 52% more likely to visit a library, 34% more likely to visit a fast food restaurant, 69% more likely to visit other restaurants, and 42% more likely to visit a public park.

Similarly, those who use a mobile phone are more likely to visit semipublic spaces than those who do not own a phone.

- Mobile phone users are 82% more likely to attend church, 81% more likely to visit a fast food restaurant, 63% more likely to visit other restaurants, and 56% more likely to visit a bar.

In addition, compared to other internet users, those who accessed the internet at work at least a few times per day were more likely to visit a range of public and semipublic spaces.

- Those who frequently access the internet at work are 49% more likely to go to a non-fastfood restaurant, 35% more likely to visit a community center, 21% more likely to visit a public park, and 71% more likely to go to a bar.
- However, frequent internet users at work were 26% less likely to visit a library.

We also found that:

- Those who contribute to a blog are 61% more likely to go to a public park than internet users who do not blog.

- Users of social networking websites are 40% more likely to visit a bar, but 36% less likely to visit a religious institution.
- Users of instant messaging are 21% less likely to visit a library than those who do not use IM.

**Example:** The probability that an average, single, 35-year-old man will visit a public park at least once a month is about 39%. However, if he is an internet user, the probability is higher; there is a 48% chance he will visit a park. If he also maintains a blog, there is a 60% chance he will visit.

As with other local community activities, the relationship between internet use and participation in public and semi-public spaces is likely a combination of self-selection and an outcome of internet use. For example, those who are in occupations that require frequent internet use in the workplace are probably more likely as a result of their socioeconomic status and stage in the lifecycle to visit a range of public and semipublic spaces. At the same time, the internet may also enable visits to public spaces through opportunities to coordinate rendezvous and search for new places to visit.

**Internet use is a common activity in many kinds of public and semipublic spaces.**

Although home and workplace are the dominant locations from which people access the internet, it has become increasingly possible for people to incorporate internet use into their everyday experiences in public spaces. Internet access in parks, cafés, and restaurants has been made possible through the proliferation of broadband wireless internet in the form of municipal and community wi-fi (e.g., NYC Wireless) and advanced mobile phone networks (e.g., 3G). We found that a significant proportion of people who visit public and semipublic spaces are online while in those spaces using a computer, mobile phone, or other devices:

- 36% of library patrons

- 18% of those in cafés or coffee shops
- 14% of those who visited a community center
- 11% of people who frequented a bar
- 8% of visitors to public parks and plazas
- 7% of customers at other restaurants
- 6% of customers at fast food restaurants
- 5% of people who visited church, synagogue, mosque or temple.

## Are internet and mobile phone users' networks more diverse?

Scholars have shown that the average American's social network consists of hundreds of people [30]. Although it is relatively simple to enumerate a person's "core networks" (which by definition consist of a small set of relatively strong ties) or to ask about participation in different social settings (such as neighborhoods, voluntary groups, and public spaces), it is nearly impossible to ask someone to accurately list everyone they know. However, to get a picture of the diversity of a person's social networks, it is not necessary to ask about everyone in their life. Instead, we can ask them if they know people with a variety of backgrounds and experiences. The current survey used a methodology called a *position generator* that has been used extensively by those who study social networks [31, 32].

The position generator is based on the understanding that people in different social locations in society can provide different types of resources, information, and support. Occupation is a good measure of difference. Occupations vary in prestige, and people in high prestige occupations tend to have special resources tied to income, education, and authority. However, even people in middle and lower prestige occupations have special skills and can offer unique opportunities. The more people someone knows of in different occupations, particularly a range of occupations, the more likely he is to have access to a range of information and resources. A number of studies have shown that the position generator is a valid and reliable measure of network diversity [31]. Using a list of 22

occupations that ranged from very low prestige (such as a bell boy) to high prestige (such as a CEO of a large company), people were asked if they had a relative, friend, or an acquaintance working in each occupation.[14]

Network diversity was measured as the number of different occupations in which a person has a social tie. We found that the mean person knows someone in 9.25 of the 22 occupations that were sampled.
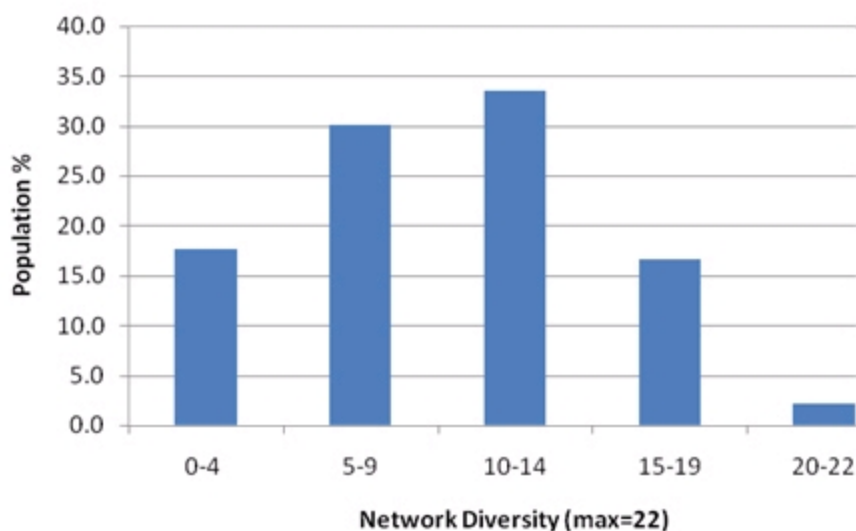


Figure 3d: Diversity of full personal network

**Internet users, particularly those who are frequent users at work, and those who use social networking services, have broader social networks.**

A regression analysis, Table 18 in Appendix D, confirms that compared to those who do not use the internet, those who use the internet have more diverse social networks. Higher levels of diversity associated with internet use are independent of participation in neighborhood social networks, voluntary associations, and public and semipublic spaces.

- Compared to non-users, those who use the internet tend to know at least one additional person in the occupational spectrum (0.71).

- Those who used the internet at work at least a few times per day know people, on average, in one and a half additional occupations (1.46).
- In addition, those who use a social networking service score on average .60 higher on the diversity scale.

Although no evidence was found that the use of ICTs reduces the overall diversity of social networks, the association between internet use and network diversity was relatively low compared to other demographic factors.

The single strongest predictor of diversity was age. A curvilinear relationship exists between age and network diversity, such that diversity increases steadily with age, although not as steadily for the elderly. After age, which accounts for time to build a diverse network, participation in diverse social settings (such as visiting public and semipublic spaces), participation in voluntary groups, and neighborhood involvement were most influential in predicting a diverse network. The size of core networks, presumably a means to access other networks, was also highly influential on network diversity. Although being a "frequent internet user at work" was also among the most influential variables in predicting diversity, this variable captures more about socioeconomic status and the participants' occupational prestige than a causal relationship between internet use at work and the extent of a person's overall social network. Heavy internet users at work have more diverse networks because of the type of work they do, not because of the internet.

**Example:** A white (non-Hispanic), married, 30-year-old male, who has a four-year university degree, an average core network (3 ties), visits an average number of public/semipublic spaces each month (12), knows at least some of his neighbors, and belongs to one voluntary group, on average knows people in seven of the twenty-two occupations on the scale (6.95). If he is an internet user, and uses a social networking service, on average he knows people in 8.26 occupations: a network that is 19% more diverse than someone who does not use the internet or own a mobile phone.

[12] In the examples used in this section, the average person is considered to have three core ties, thirteen years of formal education, and to have lived in his/her current neighborhood for eleven years.

[13] Results are based on the sum of all visits in the past month to each of eight different public and semipublic spaces (minimum stay of fifteen minutes per visit). The survey recorded a maximum of six visits to each type of space. Median and mode = 12 (mean = 13).

[14] The list of occupations used is based on the work of Nan Lin, Yang-chih Fu, and Chih-jou Jay Chen, conducted by the Institute of Sociology, Academia Sinica.

# Part 4: Conclusion

## Conclusion

Our findings suggest that the extent of social isolation in America is not as high as has been reported through prior research.  Today, the number of Americans who are truly isolated is no different, or at most is only slightly higher than what it was 30 years ago. Few people have no one with whom they can discuss important matters, and even fewer have no one who is especially significant in their lives. The more pronounced social change, since 1985, has occurred in the size and diversity of Americans' core networks.

Compared to the relatively recent past, most Americans now have fewer people with whom they discuss important matters, and the diversity of people with whom they discuss these issues has declined. There is a wealth of scholarship to suggest that the implications of this trend for individuals and for American society are starkly negative. Smaller and less diverse core networks diminish personal well-being by limiting access to social support. There are simply fewer people we can rely on in a time of need – whether it is a shoulder to cry on, to borrow a cup of sugar, or to help during a crisis. Small and narrow core networks also impede trust and social tolerance; they limit exposure to the diverse opinions, issues, and ideas of others. If we increasingly rely and trust only a small inner circle of likeminded others, it becomes increasingly difficult to recognize, accept or understand opposing points of view. A great deal of research has shown that diversity within our closest relationships – even in the age of the internet – is vital for the flow of information, for informed deliberation, and to maintain the participatory ideals of a democracy.

What is the source of this change? We don't know. But, we believe we have ruled out one likely source: new information and communication technologies such as the internet and mobile phone. Our survey finds the opposite trend amongst internet and mobile phone users; they have larger and more diverse core networks. True, our survey

is based on one point in time, we cannot completely exclude the possibility that those technologies that we associate with larger and more diverse networks were, at some point in the recent past, responsible for a sharp decline. But, it is not the case today, and given the evidence it seems unlikely there was some recent switch. We do not know if use of new technologies contributes directly to larger and more diverse core networks, or if those who use technology in a certain way are likely to have better networks from the beginning. We suspect both to be true, but we also offer a third explanation. We believe that at least some of our findings are explained by changes in how technology allows people to share information within their network. Most people mistakenly think they share much more in common with their core ties than they really do. The finding, for example, that those who do certain internet activities like share digital photos are more likely to have cross-political party discussion partners, suggests that new technologies may provide better surveillance of our network members than we had in the past. The "pervasive awareness" that comes with the use of many new "social media" may not change the composition of our social networks as much as it increase our understanding of those who are already in our social circle.

Our findings also suggest that there is little to the argument that new information and communication technologies decrease participation in traditional, local social settings associated with having a diverse social network. When we look beyond people's core network, to their full network of relations, we find that most uses of the internet and mobile phone have a positive relationship to neighborhood networks, voluntary associations, and use of public spaces. There is some evidence that very specific internet activities, such as use of social networking services (e.g, Facebook, MySpace, LinkedIn), substitutes for some neighborhood involvement – the internet allows people to obtain traditional forms of neighborhood support from a social circle that extends outside of their neighborhood. Yet, internet users continue to give support to their neighbors, and the level of face-to-face contact with neighbors is the same for internet users as it is for non-users. In addition, many internet users take advantage of the additional communication channel that email affords for local contact. While only a small number of neighborhoods have an organized channel of communication online, such as a

neighborhood discussion forum (e.g., www.i-Neighbors.org), those that belong to these discussion forums are far more involved locally than are other Americans. In addition, while participation in traditional social settings – neighborhoods, voluntary associations, and public spaces – remain the strongest predictors of a diverse social network, internet use, and in particular use of social networking services, has emerged as a new social setting that is directly linked with having a more diverse personal network. People who participate in these traditional settings, as well as new ones afforded by the internet, are likely to benefit from the novel information streams to which they are exposed.

Although the reasons for a historical shift toward smaller, less diverse core networks do not seem to rest with internet and mobile phone use, the solutions may. We do not espouse technological determinism. It is clear that people shape technology far more than the other way around. For this reason, our survey results suggest that people's lives are likely to be enhanced by participation with new communication technologies, rather than by fearing that their use of new technology will send them into a spiral of isolation.

# Appendix A: Extended Literature Review

## What role might new technologies play in how core networks have changed in the past 20 years?

McPherson, Smith-Lovin, and Brashears suggested that widespread adoption of the internet and mobile phone may contribute to the constriction of core discussion networks observed in the 2004 GSS. In particular, they suggest that there is evidence that these information and communication technologies (ICTs) encourage distant, relatively weak social ties over more locally-based, strong ties. The implication is that internet and mobile phone use encourage a withdrawal from local social settings that have traditionally been associated with network diversity: neighborhoods and voluntary associations [7]. McPherson et al. suggest that the cell phone might enhance some contacts outside the home (e.g., arranging meetings in restaurants or bars), but they argue that these encounters do not contribute to the number of confidants. The exchange of weak ties for strong ties, and the withdraw from local social contact, are the reasons they suggest for why the internet and mobile phone could be responsible for smaller and less diverse core networks (our strongest social ties).

Other scholarship provides some support for the notion that mobile phone use may play a role in a trend toward smaller, less diverse core networks.

The mobile phone has dramatically changed how people access social support. In the discussion of important matters, mobile phones make those with whom we are closest and most comfortable easily accessible anytime, anywhere [33]. Studies of mobile phone users confirm that most interactions over the phone are with strong social ties [34, 35]. As a result, critics worry that mobile phone use may lead to intense participation in closed networks at the expense of broader social participation [36]; a pattern that might resemble the small, low-diversity networks what were observed by McPherson, Smith-

Lovin, and Brashears.

At the same time, there is less evidence to suggest that internet use narrows and constrains social networks.

The internet has become a deeply integrated component of the everyday lives of the majority of Americans. Some early studies of online Americans found that some types of internet use - e.g., home internet use, but not use at work – had a negative impact on interaction with strong social ties as well as time spent on broader public activities [37]. However, these findings have not been replicated in more recent studies [38, 39].

Most resent research provides little indication that internet use is detrimental to social ties [40, 41]. Some internet activities, such as email, blogging, and the use of social networking websites have even been associated with larger and more diverse personal networks [42-44]. There is evidence that a substantial number of internet users form new social ties as a result of their online activities [45-47].

There is also little evidence to suggest that internet use encourages people to withdraw from neighborhood networks, local institutions, or public settings.

Studies of internet use and geographic communities – neighborhoods – find that internet use increases the number of local social ties [16, 48] as well as participation in local civic activities [49, 50]. Studies of wireless internet use in public spaces find evidence that the presence of a wireless infrastructure may attract new people and more frequent use of public spaces, and that this is associated with large and diverse discussion networks [28, 29]. And, a recent meta analysis suggests that there is a positive relationship between internet use and political engagement [51].

In sum, while the rise of the internet and mobile connectivity coincides with the reported decline of core discussion networks, the mixed evidence on mobile phone use and internet activities does not provide a clear link between these trends. However, until

now, no study has focused directly on the composition of core networks and the role of internet and mobile phone use.

# Appendix B: The GSS Controversy

## Are things really as bad as we thought?

The findings of the 2004 GSS rely on a key question that asks survey participants to list by name, those people *"with whom you discussed matters that are important to you."* The authors of the original study point to a number of possible "technical problems" with this question that may have created or inflated the trend that they observed [13, 52, 53]. Claude Fischer, the author of a number of seminal works on social networks [14, 54], has also emphasized that the 2004 GSS contradicts other relevant data on social isolation, and suggest that the data contain serious anomalies [55]. Although there is no "smoking gun" that clearly demonstrates a technical problem with the GSS data, these authors suggest the following:

- *Problems with the survey instrument.* Surveys can introduce unexpected bias into how participants respond to questions. Context effects, as a result of having placed particularly onerous questions ahead of the GSS module on core discussion networks or questions that trained respondents to answer with fewer names (knowing that more names would lead to even more questions) may have introduced an unknown bias.

- *A random technical error.* The unexpected increase in the number of Americans who said that they have no one with whom they discuss important matters may be a result of an unknown artifact in how the survey data were coded. It would be unusual for a survey as large and reputable as the GSS to have such a problem. However, in September 2008, the National Opinion Research Center, the organization that runs the GSS, discovered that forty-one of those who declined to answer the question on discussion partners were misclassified in a way that lumped them in with those that said that they do not have anyone with whom they discuss important matters [11]. These cases should have been excluded from the analysis. Other errors may exist that cannot be detected.

- *Problem with the question wording.* There may have been a change since 1985 in how some people interpreted the meaning of the word "discuss." They may have interpreted the word in a way that excludes important conversation that does not take place in person. One possible reason for such a change between 1985 and 2004 is that communication increasingly occurs online, on the internet and through other communication devices. If people were not considering those conversations in their answer to the question "with whom do you discuss important matters?" then a potentially significant amount of communication was excluded from the analysis of what is happening to Americans "discussion networks."

# Appendix C: Methodology

## Methodology and Design

*Provided by Princeton Survey Research International.*

The Personal Networks and Community Survey, sponsored by the Pew Internet & American Life Project, obtained telephone interviews with a nationally representative sample of 2,512 adults living in households in the continental United States. The survey was conducted by Princeton Survey Research International. The interviews were conducted in English by Princeton Data Source, LLC between July 9, 2008 and August 10, 2008.  Statistical results were weighted to correct known demographic discrepancies.  The margin of sampling error for the complete set of weighted data is ±2.1%.

**Sample Design**

A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in the continental United States who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International, LLC (SSI) according to PSRAI specifications.

Numbers for the landline sample were selected with probabilities in proportion to their share of listed telephone households from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted, but was drawn through a systematic sampling from 1,000 blocks dedicated to cellular service according to the Telcordia database.

**Questionnaire Development and Testing**

A questionnaire was developed by PSRAI in collaboration with Keith N. Hampton and staff of the Pew Internet & American Life Project. To improve the quality of the data, the questionnaire was pretested with a small number of respondents using RDD telephone number samples. The pretest interviews were conducted using experienced interviewers who judged the quality of the answers and the degree to which respondents understood the questions. Using recordings, PSRAI staff reviewed the pretest interviews. Some final changes were made to the questionnaire, based on the reviewed pretest interviews.

**Contact Procedures**

Interviews were conducted between July 9, 2008 and August 10, 2008. As many as ten attempts were made to contact every sampled telephone number. Samples were released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of the sample ensured that complete call procedures were followed for the entire sample.

For the landline sample, interviewers asked to speak with the youngest adult male currently at home. If no male were available, interviewers asked to speak with the youngest female at home. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender. For the cellular sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult and in a safe place before administering the survey. Cellular sample respondents were offered a post-paid, cash incentive for their participation.

**Weighting and Analysis**

Weighting is generally used in survey analysis to compensate for sample designs and patterns of nonresponse that might bias results. A two-stage, weighting procedure was used to weight this dual-frame sample. A first-stage weight of 0.5 was applied to all

dual-users to account for the fact that they were included in both sample frames.[15] All other cases were given a first-stage weight of 1. The second stage of weighting balanced sample demographics to population parameters. The sample was balanced to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, and telephone usage. The basic weighting parameters came from a special analysis of the Census Bureau's 2007 Annual Social and Economic Supplement (ASEC) that included all households in the continental United States that had a telephone. The cell phone usage parameter came from an analysis of the July-December 2006 National Health Interview Survey.

Weighting was accomplished using Sample Balancing, a special iterative sample-weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming Algorithm*. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population.

**Response Rate**

The response rate estimated the fraction of all eligible respondents in the sample who were ultimately interviewed. At PSRAI, response rate is calculated by taking the product of three component rates:[16]

- contact rate – the proportion of working numbers where a request for interview was made;[17]
- cooperation rate – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused;
- completion rate – the proportion of initially cooperating and eligible interviews that were completed.

The response rate for the landline sample was 21%. The response rate for the cellular

sample was 22 %.

[15] Dual-users are defined as [a] landline respondents who have a working cell phone, or [b] cell phone respondents who have a regular landline phone where they currently live.

[16] PSRAI's disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.

[17] PSRAI assumes that 75% of cases that result in a constant disposition of "no answer" or "busy" are actually not working numbers.

# Appendix D: Regression Tables

## Regression Tables

Regression tables are available as a pdf here.

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